

Agricultural Situation and Prospects in the Central and Eastern European Countries



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**European Commission
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Working Document**

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in the Central and Eastern European Countries**

ESTONIA

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Foreword

The European Union has expressed its intention to offer membership to those countries in central and eastern Europe with which it has an association agreement (see box below). Agriculture has been identified as an important issue for future accession, due to its relative size in some of the Central and Eastern European Countries (CEECs) and to the difficulties there might be in extending the Common Agricultural Policy in its current form to these countries.

A series of ten country reports on the agricultural situation and prospects in the CEECs has been prepared by the services of the European Commission in collaboration with national experts and with the help of scientific advisers. The ten countries covered are Bulgaria, the Czech Republic, Hungary, Poland, Romania and Slovakia, which are associated to the European Union through the Europe Agreements, and Estonia, Latvia, Lithuania and Slovenia, which are in the process of being associated.

The country reports attempt to provide an objective analysis of the current situation in agriculture and the agro-food sector in the CEECs and an assessment of the developments to be expected in the medium term.

Extract conclusions Copenhagen summit of 22-23 June 1993

"The European Council today agreed that the associated countries in Central and Eastern Europe that so desire shall become members of the European Union. Accession will take place as soon as an associated country is able to assume the obligations of membership by satisfying the economic and political conditions required.

Membership requires that the candidate country has achieved stability of institutions guaranteeing democracy, the rule of law, human rights and respect for and protection of minorities, the existence of a functioning market economy as well as the capacity to cope with competitive pressure and market forces within the Union. Membership presupposes the candidate's ability to take on the obligations of membership including adherence to the aims of political, economic and monetary union."

About the data....

The data used in this country report are derived from a **CEEC dataset** established by DG VI in cooperation with other services of the European Commission and with external experts. Data have been selected after a number of analyses carried out by both external research institutes¹ and DG VI services. They originate from various sources: FAO, OECD, World Bank, United Nations, USDA, national statistics, economic institutes and the European Commission (DG II, Eurostat).

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

For the agricultural data, the starting point of the analysis was the work carried out by Prof. Jackson (Institute for Central and East European Studies, Katholieke Universiteit Leuven, Belgium), who compared figures from OECD, FAO and the national statistics of Poland, Hungary, the Czech Republic, Slovakia, Bulgaria and Romania. The conclusion of this study was that the FAO was the most reliable source because these data were standardized, which was not the case for the two other sources.

Moreover, DG VI services compared FAO and USDA data and although for the crop sector there were no important differences, this was not the case for the animal sector where big discrepancies were apparent. This is due to different methodological approaches and also to different coefficients used to transform live animal weight in carcass weight.

In general the FAO data for agriculture 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 and with FAO statisticians. In such cases, FAO coefficients and standards were used to avoid a break in the time series.

Despite all efforts to create a coherent, reliable and up to date dataset, all figures presented in this report 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, according to some experts^{1,2}, 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.

¹ - M. JACKSON and J. SWINNEN (1995) : A statistical analysis and survey of the current situation of agriculture in the Central and Eastern European Countries, report to DG I, European Commission.

- W.J. STEINLE (1994) : First Study on Data Collection on "Visegrad" Countries and ECO Countries, Empirica Delasasse, Eurostat.

² S. TANGERMANN and T. JOSLING (1994): Pre-accession agricultural policies for central Europe and the European Union, study commissioned by DG I, European Commission.

Executive Summary

General Overview

With a total surface of 45.000 km² and a population of 1.5 million inhabitants, Estonia is the smallest of the Baltic countries. Forests cover 43% of the land surface, whereas agriculture is practised on only 30%. 55% of the population live in cities, the remainder in rural areas.

Due to emigration and a decreasing birth rate the population shows some decline. Ethnic minorities, particularly Russians, are important. They account for nearly 40% of the population. This is a source of constant tension between Estonia and Russia.

Following independence, Estonia followed a very liberal economic course and has abolished all border protection, agricultural commodities included. All sectors of the economy have since contracted, but signs of recovery began in 1994. The service sector - mainly transport - is of increasing importance, whereas the industrial and agricultural sectors are losing importance.

Following elections in March 1995 a new government came to power, and has continued the reform course placing stronger emphasis on social aspects.

The most important sectors of Estonian **industry** are processing, particularly food processing. Whilst in some sectors industrial output began to increase in 1994, food processing still showed a declining tendency and continues to face serious problems of restructuring. Apart from the food processing industry, the privatisation process is however well advanced.

Forests cover more than 40% of Estonian territory and its potential is not fully utilised. It can therefore be assumed that the wood processing industry will have rather good perspectives for the future.

Before independence, trade was primarily conducted with the Soviet Union and the whole structure of the economy was designed to strengthen the interdependence between the Republics. In recent years trade has been reoriented towards Western countries, particularly to the EU. Re-exports of Russian petrol and metals have an important share of total trade.

The national currency, the Estonian crown, was introduced in June 1992. It is pegged to the German DM at a ratio of EEK 8: DM1. This ratio has been kept stable in spite of significant inflation. The budget ran a surplus of some 2% in 1994. Agricultural expenditure accounted for 3.4% of the national budget.

Situation of Agriculture

The agricultural area totals 1.4 million ha, most of it being arable land used for the production of feed grains and fodder crops. The remaining area is used as pastures and meadows. The livestock sector used to be the backbone of Estonian agriculture and exports of milk and dairy products to the Russian market were very important. On the other hand the domestic

production of feed grain was insufficient, so that large amounts had to be imported from other Soviet Republics.

Agriculture's share of GDP used to be around 20% before independence, but has declined drastically in recent years. Employment in agriculture has equally contracted, but those working small household plots are not included in the figure of agricultural employment.

The consumption of meat and dairy products used to be rather high in relation to income but dropped as a consequence of reducing purchasing power. Consumption of cheaper products like potatoes and cereals has however remained at a high level or even increased. Interestingly, pig meat is the most preferred meat despite its higher price compared to beef, which is partly due to the low quality of the latter.

Structure and Privatisation

Farm structure during the Soviet era was characterised by large kolkhoses (state farms) and sowkhoses (collective farms), each typically having some 3500 ha and 300 employees. Following independence, the kolkhoses were privatised and transformed into legal enterprises and the land was restituted to former owners and their heirs.

The transformation process has led to three different types of farms: firstly transformed cooperative farms, which still manage around 40% of agricultural land. Secondly private family farms, which account for 17% of the land and have an average size of about 23 ha and thirdly the household plots, consisting of part time farms with an average size of less than 2 hectares and which are to some extent still dependent on the cooperative farms. The restructuring process is not yet complete. Legal titles to the land remain unsettled in many cases, which can be seen as a major blocking factor for the restructuring process.

Farm Production

The area planted to cereals has dropped from around 400.000 ha to some 320.000 ha in 1994. Barley accounts for two-thirds of the surface. Yields for cereals are currently not more than 2.4t/ha on average but show much fluctuation due to climatic variation. Yields did however decline significantly after independence due to reduced utilisation of fertilizers and plant protection products, but also due to severe droughts in 1992 and in 1994.

Due to the destocking in the livestock sector, consumption of cereals for animal feed declined more than production, resulting in a reduction of feed cereal imports, which became more expensive after independence. Production of wheat and rye for human consumption increased, which corresponded to an increased per capita consumption of cereals. Nevertheless cereal consumption still easily exceeds current production.

An important part of the agricultural area is planted with fodder crops for the livestock sector. In 1994 around 560 000 ha were sown mainly with perennial grasses.

Potatoes and vegetables and also fruit and berries are mainly produced on small household

plots. The area planted to potatoes has remained relatively stable over recent years. Production for processing and export does not play a major role in Estonian agriculture.

The livestock sector used to be the predominant sector of Estonian agriculture with a considerable export potential. Large amounts of milk products and meat were exported, mainly to Moscow and St. Petersburg. After independence prices for imported feed and other inputs increased whereas prices for milk and meat did not increase to the same extent. Export markets were lost and in addition, purchasing power and therefore domestic demand declined. As a consequence livestock numbers and production contracted dramatically. This downwards trend bottomed out in 1994 and for 1995 a small increase can be expected. The poor condition of the processing industry and the large over-capacities are major obstacles for an improvement of the livestock sector.

Milk production declined from an annual production of 1.2 million tons in 1990 to only 772.000 in 1994. The major part of milk production is still concentrated in large scale farms. Producer prices for milk increased in 1994 so that milk production could become profitable once again.

Beef is to a certain extent a by product of milk production, specialised meat producing breeds are not common in Estonia. Domestic production still exceeds the consumption. Prices for beef meat are on average lower than those for pork but increased in 1994.

Pork production dropped tremendously after independence and consumption exceeds the domestic production, so that Estonia started to import pig meat, mainly from the EU. The low protein content of feed, leads to high conversion rates, which affects the profitability of pork production.

Production costs are characterised on the one hand by low costs for labour and mechanisation but on the other hand by low labour efficiency, which limits any possible competitive advantage. In the arable sector achievable yields are limited by the climate and by a relatively low soil quality

In the livestock sector feed costs, which are relatively high compared to meat prices are the principle influence on production costs. Due to the low protein content in the feed mixture, conversion rates are high, reducing the possible advantage of cheaper feed.

Existing farm gate price levels mean that agricultural production is hardly profitable and does not in any case allow sufficient margin to enable the necessary investments to be made.

The processing Industry

The processing industry, particularly the fish processing industry, is an important sector of the Estonian economy. Most of the smaller enterprises have already been privatised but some of the larger ones, which account for the bulk of the production capacity, are still in the privatisation process. Most of the technical equipment is outdated and energy wasteful and due to the reduction in output there are significant over capacities, which are leading to

increasing costs of production. Inadequate capital and tremendous indebtedness add to the problem.

Agricultural Policy

Border protection for the agricultural sector practically does not exist and **support** measures for agriculture are rather limited. The "farmers parity income act" acknowledges in principle that farm incomes should be the same as incomes in other sectors, but the agricultural budget does not foresee the necessary payments to the farmers for this to be realised. The most important support towards agriculture is a credit programme which provides farmers with short-term credits at preferential interest rates. Recently long term credits have also for investments have been included in the programme.

Agricultural Trade

Trade plays an important role for Estonian agriculture, but trade figures vary between sources and are not completely reliable. In the soviet period Estonia used to be a net exporter of agricultural commodities, but in recent years, exports declined, while imports of food products increased. The main commodities for export have been fish, dairy products and meat, but export volumes contracted significantly after independence. The main market for Estonian exports remains the FSU, which accounted for the bulk of all agricultural exports in 1994. On the import side the EU and EFTA countries have become the main suppliers in recent years. The most important import commodities are cereals, fruit and vegetables and sugar.

A **Europe agreement** with the EU has recently been signed, the trade chapter of which entered into force already in January 1995. It provides limited preferential access, mainly for skimmed milk powder, butter and meat products. Hygiene standards however will cause serious problems particularly for the realisation of meat exports to the EU. Estonia has observer status in GATT, but negotiations have not yet been terminated, so that possible future constraints cannot yet be judged.

Outlook

Over the next five years it can be expected that the livestock sector will recover but only at a slow pace. Consumption of meat and dairy products will probably increase in line with growing purchasing power. The exportable surplus will be relatively small compared to the level that was reached in the soviet period. In the cereal sector it can be assumed, that average yields will increase, whereas domestic human consumption will stay stable or even slightly decrease. Due to the slow pace of recovery, the uptake of cereals by the livestock sector will increase only slightly. A certain improvement of feed conversion rates might further reduce the growth of feed grain consumption. As a consequence the current deficit in the cereal sector will decline.

Table 0.1
Projections for main commodities, production (000 t)

	1993	1994	2000
Cereals	812	509	744
Milk	807	772	883
Beef	43	28	65
Pork	35	37	52

TABLE 1 : Estonia in comparison with other CEECs and EU-15


















	Population	GDP	GDP pc	Total area	Agricultural area		Arable area		Agricultural production		Agricultural employment		Rainfall
	(mio)	(bio ECU)	(ECU)	(mio ha)	(mio ha)	(% total)	(mio ha)	(ha pc)	(bio ECU)	(% GDP)	(000)	(% tot. empl.)	(mm/year)
Bulgaria	8.5	9.4	1110	11.1	6.2	55.9	4.0	0.47	1.131	12.0	694	21.2	550
Czech. Rep.	10.3	26.7	2586	7.9	4.3	54.3	3.2	0.31	0.871	3.3	271	5.6	491
Estonia	1.6	1.5	938	4.5	1.4	30.6	1.0	0.63	0.266	10.4	89	8.2	600
Hungary	10.3	32.5	3150	9.3	6.1	65.8	4.7	0.46	2.068	6.4	392	10.1	600
Latvia	2.6	2.2	850	6.5	2.5	39.2	1.7	0.65	0.232	10.6	229	18.4	680
Lithuania	3.8	2.3	627	6.5	3.5	54.0	2.3	0.62	0.259	11.0	399	22.4	625
Poland	38.5	73.4	1907	31.3	18.6	59.5	14.3	0.37	4.648	6.3	3661	25.5	550
Romania	22.7	21.8	961	23.8	14.7	61.9	9.3	0.41	4.500	20.2	3537	35.2	635
Slovakia	5.3	8.7	1643	4.9	2.4	49.0	1.5	0.28	0.512	5.8	178	8.4	611
Slovenia	1.9	9.8	5018	2.0	0.9	42.7	0.2	0.13	0.250	4.9	90	10.7	1350
CEEC-10	105.4	188.3	1786	107.7	60.6	56.2	42.3	0.40	14.7	7.8	9540	26.7	
EU-15	369.7	5905.1	15972	323.4	138.1	42.7	77.1	0.21	208.8	2.5	8190	5.7	

All figures are for 1993. Rainfall long term average.

Source : DGVI CEEC dataset.

ESTONIA

TRANSPORT AND ECONOMIC STRUCTURE

- | | | | |
|---|--------------------------|---|------------------------------------|
|  | States borders |  | Harbour |
|  | Capital |  | Power station |
|  | Major city |  | Chemical industry |
|  | Major railway |  | Heavy industry |
|  | Major road |  | Open cast mine |
|  | Major river |  | Phosphorus mine |
|  | Fish processing industry |  | Food industry |
|  | Airport |  | Paper and wood processing industry |
|  | Textile Industry | | |

0 50 100km

LIX

GULF OF FINLAND

60° NORTH

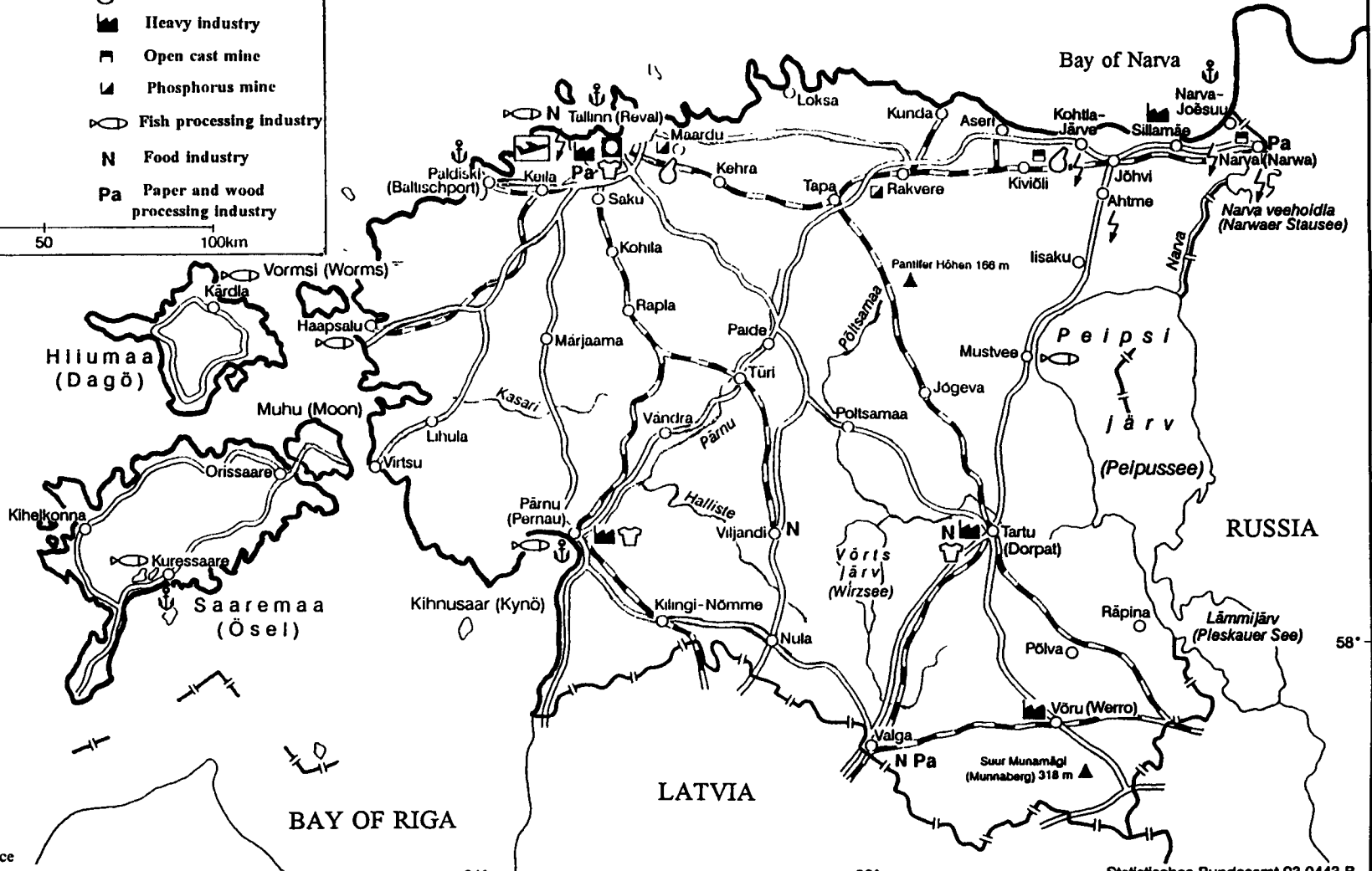
BALTIC SEA

BAY OF RIGA

LATVIA

RUSSIA

58°



1. General Overview

1.1 Geography and Climate

Estonia comprises a total surface of 45.000 km² corresponding closely to that of Denmark. The country is relatively flat, with an average altitude of 50 m above the sea level, the highest mountain reaching 318 m. Only 10% of the land is situated at a level exceeding 100 m.

The agricultural area has diminished significantly within the last 50 years. Pastures and grassland have

especially been abandoned and subsequently afforested. At present, agriculture covers some 30% of Estonian territory, whereas forests cover 43%. Forest land has increased in recent decades, while agricultural land has declined. Ten percent of Estonia comprises Islands.

The climate is characterized by relatively moderate winters and fresh summers and annual precipitations are between 500 and 700 mm.

1.2 Population

The Estonian population was no more than 1.571 million in 1993 with a downwards tendency. This is being caused firstly by the important re-migration of Russians but also by a declining birth rate. (Länderbericht Estland Stat. Bundesamt 1993). It can however be expected that the population will stabilize at around 1.5 million inhabitants.

32% of the population live in Talinn the capital, 22% in the other 5 bigger cities (Tartu, Narva, Pärnu, Kothla-Järve and Sillamäe), 17% in cities of about 1000 inhabitants and 29% in completely rural areas.

The population density averages 33.7 habitants/km² which is the lowest of all Baltic countries. In the rural areas this figure does not exceed 10 inhabitants/km².

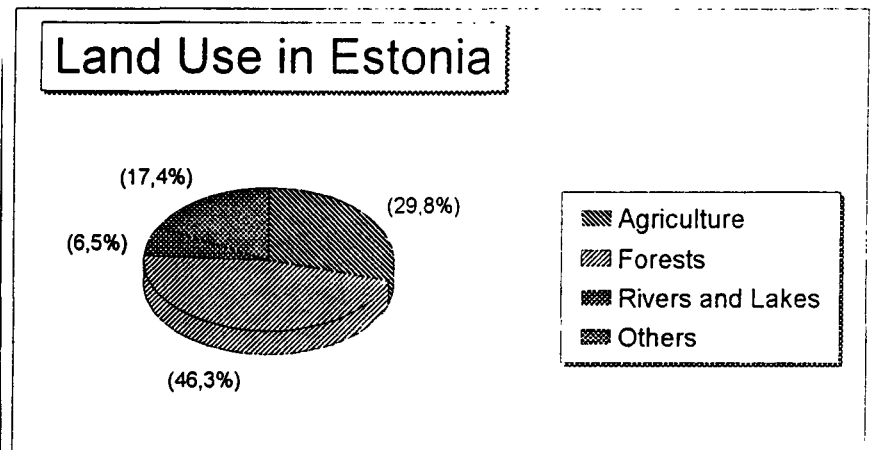
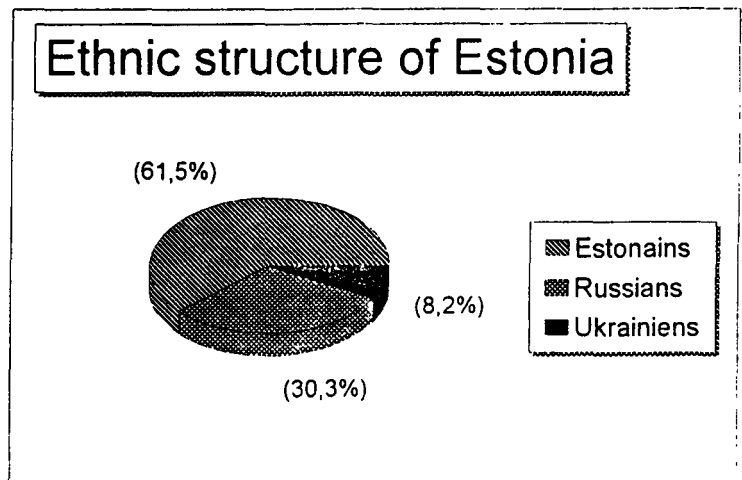


Figure 1

1.2.1 Ethnic structure

Before Soviet occupation in 1940, ethnic minorities were almost negligible, but since the end of the second world war Russian immigration has largely increased. By 1989 the Russian part of the Estonian population had reached 30.3%. After independence some 90 000 Russians re-migrated resulting in a slight change in the ethnic structure. The Finnish minority is 1%. The Russian population is concentrated in the cities, working in heavy industry, which now faces enormous problems. Thus the Russian minority is more affected by unemployment.



The rural population is almost exclusively Estonian. Russians engaged in agriculture mostly work as

employees. Only one percent of the Russians work as individual farmers. The "Law on foreigners" of 1993 determines as foreigners all people who immigrated after 1940. In theory, immigrants are obliged to ask for authorization to work and for a residence permit every two years. In order to avoid conflicts with the Russian minority, a permanent residence permit has been granted for all immigrants who arrived before 1990.

1.3 Education

The education level in Estonia is relatively high compared with other former soviet Republics. 80% of the population have higher school education, only 20% have a primary school qualification or inferior (Länderbericht Estland 1993) School education is compulsory. An agricultural university is situated in Tartu.

Education and extension services are to be restructured. Agricultural education is organized in 13 technical schools spread throughout the country. In the Soviet era, these schools were very specialized. This specialisation, which was well adapted to the collective farm structure, is now being reoriented in order to impart the skills necessary to manage individual farms. In addition, a centre for agricultural extension services has been established in Jäneda. Interest in professional farming education is however rather limited.

1.4 Infrastructure

1.4.1 Transport

The railway network has a relatively high density, but due to poor maintenance transport capacity is falling constantly. The most important lines are the Pylalin-Tapa-Narva- St. Petersburg line, which dates from 1870 and plays a major role for the transit of Russian goods (cereals, coal, wood, metals) towards the Talinn ports. This line has recently been renewed with the aid of the EBRD (European bank for reconstruction and development).

The network of public roads comprises 14 800 km and is supplemented by 15 000 km of private roads which were built and maintained by kolkhoses (state farms) or industrial companies (Länderbericht Estland). The road transport capacity reached 213.9 million t in 1989. The transport network plays also an important role for trade with Russia.

1.4.2 Energy

Nearly 100% of the electric energy requirement is produced in two power stations close to Narva. The electricity produced is rather expensive, which is partly due to the fact, that the technical equipment of the power plants is outdated and inefficient. The energy sector is still state owned, but discussion on privatisation has already started. Due to the monopolistic structure of the energy sector privatisation will not automatically bring more competition. The oil shale layers are the most important source for the production of electricity in Estonia. Formerly Estonia even exported electricity towards Russia and Latvia but these exports declined significantly following Baltic independence and economic recession.

The supply of oil became a major problem after independence and added to the economic difficulties. Estonia was almost exclusively dependent on Russian oil which has had to be paid for in hard currency and at world market prices since 1992.

The fall of industrial production led to a parallel fall in the consumption of energy.

Estonia has some own resources of oil which have been exploited mainly for the export, but production has fallen in recent years from 19.6 million t in 1991 to 14.9 million t in 1993.

1.4.3 Health

The public health sector is characterized by a relatively high supply of hospitals and medical services, but equipment does not meet modern standards. Medical treatments were free of charge, financed by the national budget, but since 1992 this system has been replaced by an insurance system.

inhabitants / doctor	239.0
inhabitants / hospital bed	84.0

1.5 The political situation

After a changing history and several occupations, Estonia gained independence for the first time in 1920. This lasted until 1938. Following the Molotov-Ribbentrop pact, the Baltic countries fell under Soviet influence. A Sovietization phase began, which was interrupted by the invasion of the German army in July 1941.

After the world war the process continued with collectivisation of the agricultural sector and the establishment of heavy industries. Moreover Russian immigration was encouraged by the Soviet government. The process of detachment from the USSR began in 1988 and independence was obtained in August 1991 after serious confrontations with the USSR.

The current constitution dates from 1990. It established a unicameral system with a relatively powerful 101 seat parliament. The President of the Republic is the Head of State with largely representative functions.

Until recent elections the government coalition comprised the "Fatherland Alliance" (four Christian Democratic parties), the "National Independence Party", the "Estonian Liberal Democratic Party" and the "Moderates" (a grouping of the social democratic and rural parties). In September 1994 the Prime Minister Mart Laar, was overthrown because of financial misdealings during the monetary reform. He has been replaced by Andreas Tarand the former Minister of Environment.

Other political parties represented in the Parliament are the "Popular Front", a party of the centre, "Social Home", which gathers mainly old managers of the industrial companies and the managers of the kolkhoses.

The General Elections of 5 March 1995 ended with a complete disaster for the ruling coalition. The winner of the elections was the "Alliance", a group of several small political parties, including the Estonian Country Party (ECP) and other rural parties. The "Alliance" is led by the Assembly party (AP) under Tiit Vähi, who has now been appointed Prime Minister. He formed a coalition Government with the left wing, protectionist Centre Party (CP) under Edgar Savisaar. The new Government holds 57 of the 101 seats in the Parliament (Riigikogu). Vähi has committed himself to continue the reform course of the former government. Social policies and support for the agricultural sector, including border protection measures, are however likely to be strengthened at least to some extent, under the new Government.

Relations with Russia remain difficult, principally because of the large Russian minority. Dissensions on Russian policy in Tchetchenia added to the problem. Recently the Russian "Liberal Democratic Party" of Zhirinovskiy established itself in Estonia and has led a to further deterioration of relations between Estonians and the Russian minority.

Table 1.1 Macroeconomic Indicators

		1990	1991	1992	1993	1994	1995
Population	000	1582	1577	1572	1571		
GDP	Nominal GDP (million EEK)			14255	22845		
	GDP per Capita			907	1.454		
	Real GDP (percentage change)	-6,5	-8,1	-14,3	-8,2	4	5
	share of : - Agriculture	13,9	16,5	12,8	10,4	9	8
	- Industry		46,7	42,9	42		
	Services		36,7	44,7	50		
Monetary	Rate of Inflation	17,2	210,6	1076	90	48	
	Exchange Rate/ECU				15,5	15,5	
Labour	Official Unemployment		0,1	1,5	3,9	5,3	
Indicators	Average Wages EEK/month			549	1066	2100	
	Real Index 1990=100						
	share of : - Agriculture		12,4	15,4	8,2	6,2	
	- Industry		43,8	38,2		23,1	
	Services		43,8	46,6			
Government	Total revenue						
Finance	(Percent of GDP)						
	Total Expenditure						
	(Percent of GDP)						
	Balance						
	(percent of GDP)						
Trade	Total Exports (Mio EEK)				10642		
	Total Imports (Mio EEK)				11848		
	Trade Balance				-1206	-379	

source: Bank of Estonia, Statistical Office of Estonia

1.6 Economic situation

1.6.1 General situation

Up to 1990 the economy increased slowly, but since that time GDP has fallen each year. According to national sources GDP fell in 1991 by 8.1%, in 1992 by 14.3% and in 1993 by 8.2%. As a result of privatization efforts and foreign investments, a growth of 4% has been registered for 1994. This economic growth is likely to continue in 1995 with GDP increasing by 5%. Black market activities still play some role in the economy. Some sources believe its share of GDP to be 12%.

1.6.2 Employment

The distribution of employment between the different sectors has changed following the restructuring process of the economy. While employment in the industrial sector is contracting, it is increasing in the service sector. The labour force employed in agriculture has contracted to half of its former level. Nevertheless, agriculture has played a kind of a buffer role in employment policy. At present 22.3% of people of working age are without formal employment. Most however work small agricultural household plots but are neither counted as unemployed, nor as people employed in agriculture.

The official level of unemployment reached 5.3% in 1994, but this low level masks a problem of hidden unemployment such as part time work, reduced working hours even to zero and overemployment in many (state) enterprises.

As a consequence of progressing privatization, unemployment is likely to continue to increase in the foreseeable future.

1.6.3 Industry

Estonian industry is concentrated in the Tallinn region (40% of total production), in Narva and in Kohtla-Järva. Most of the industry was established during the Soviet era, attracting immigrants from Russia and other Soviet Republics. Most of the enterprises now have outdated, energy wasting and oversized technical equipment.

The most important industries are the processing industry (63% of total production) notably the food processing industry (47% of industrial output), and the building industry. The production of earth moving machines and of electric motors also plays an important role. Within the processing industry, fish processing and the dairy and meat sectors are dominating.

After Estonian independence, industrial production contracted by about 50%. But in 1994 a turn around has occurred, at least in some sectors. In the first 6 months of 1994 overall industrial output declined by 5% compared to the same period of 1993, but production

increased in some sectors such as paper production (63.1%), machinery (31.4%), plastics (32.3%) furniture and construction materials.

The food processing industry continues to contract. In the first 6 months of 1994 output declined by 12%, compared to the same period of 1993.

The privatisation process is well advanced but it is mainly small enterprises which have been privatised rapidly, while for large scale enterprises it is still a highly political matter and is lagging behind. Foreign investment has totalled ECU 2.5-3 billion since independence.

Investments in the industrial sector have been concentrated in the regions around Tallinn and Narva. Until now, most investments were in the banking and service sector.

1.6.4 Foreign Trade

For the small Estonian economy, trade and especially exports are key to economic development. Until now Estonia has had the most liberal trade regime of all the three Baltic Republics, allowing free trade without any import duties or tariffs for most commodities, including most agricultural and food produce. For 1995 however the introduction of import tariffs is foreseen. A tariff system is presently under preparation. The main aim will be to get illegal imports of subsidised products, which come mainly from Russia under control and to introduce some protection against subsidised imports. The currency is pegged to the German "DM" at a ratio of DM 1 = EEK 8. When this rate was fixed, the EEK was highly undervalued, which helped the exporting industry. But due to considerable inflation, the gap between the official exchange rate and the "real value" of the currency has diminished but still the Estonian crown appears to be under valued. The benefit for exports however likewise diminished to some extent.

In both 1993 and 1994, Estonia was a net-importing country, but due to foreign investments amounting to 6 billion EEK, the overall balance of payments is still positive.

In Soviet times trade flows existed nearly exclusively between the Republics of the FSU. Trade with Western countries played an insignificant role. Following independence the direction of foreign trade shifted increasingly towards the EU and EFTA countries. In 1994 60% of trade was performed with EU Member States. If trade with Sweden and Finland is added, this figure is increasing to 80%. For its future development, trade with Russia will nevertheless remain an important factor, firstly because of the geographical situation of Estonia being close to the markets in St. Petersburg and Moscow, and secondly because of product quality which in many cases is not at the level of Western European standards.

The main exports have been agricultural and food products, textiles, wood and timber. Reexports of petrol and metal also have an important share of total trade.

On the import side, energy, machinery and again agricultural products are the dominating commodities.

1.6.5 Monetary questions

Until 1992 Estonia was in the Ruble core. In June 1992 the Estonian Crown (EEK) replaced the Ruble as legal tender. The EEK is by law pegged to the German DM at a rate of EEK 8 : DM 1 and at that time was heavily undervalued. This exchange ratio has never been changed in spite of considerable inflation and the gap between the official exchange rate and the real value of the currency is narrowing. The annual rate of inflation has slowed significantly from over 1000% (effect of monetary reform) in 1992 but in 1994 still remained at a level of 48%.

The banking sector is facing serious difficulties and expertise and experience are missing to a large extent. Moreover, the difficult economic situation made the loans very risky. For the time being the banking system comprises about 21 commercial banks, many of them burdened with bad loans. Immediately after independence the minimum capital requirements for bank licences were rather low. As a consequence a banking crisis occurred in 1992 and three large banks had to close down. In the meantime the requirements and roles of banks have been increased and several smaller banks have accordingly closed down. Recent improvement can however be observed and especially the two largest banks, the "Hansa Pank" and the "Ühis Pank", seem to be developing positively. Interest rates for short term credit at present range between 20 and 25% and those for long term credit, between 15 and 16%. Short term credit still accounts for some 75% of total credit volume, whereas long term credits are difficult to obtain.

Until the second half of the eighties, wages increased at an average annual rate of 3%. After a remarkable increase in wages of 7.9% in 1990, real incomes fell due to high inflation. For 1993 the average wage per month was EEK 1066 (ECU 69), and EEK 2100 (ECU 136) in 1994, which is relatively high compared to neighbouring Russia. Wages in the banking sector are the highest, whereas agricultural wages are rather low. The average share of household income used for food increased from 29% in 1990 to 38.6% in 1993.

2. Agricultural Economy

2.1 Land Use

The total agricultural area comprises 1.4 million hectares, which represents only 30% of the total land area; the lowest proportion all the three Baltic Republics. As has been mentioned before, the agricultural area diminished significantly in recent decades and it is possible that still further land, mostly grassland, will go out of production within the next few years. This may be replaced to an extent by some of the arable land being transformed into pastures. At present it can be assumed that 20% of agricultural land is left idle.

More than 1.1 million ha of Estonian agricultural land is arable land, most of which is used to grow cereals and fodder crops for animal feed. 310.000 ha are used as permanent pastures and the remaining 15.000 ha is used for permanent crops i.e. fruit and especially berries. A comparatively low soil quality and short growing season are leading to relatively low crop yields. More than 50% of the land is still used by the legal enterprises emerging from the former sowkhoses and kolkhoses but the share of total output of these private farms by far exceeds their share of agricultural land.

The major part of the arable land (733.000 ha) is drained but since the kolkhoses ceased to exist the drainage system has lacked maintenance and is consequently now often in a very bad condition. This will also have a negative impact on yields (and would require further investments). From the World Bank and national funds a total of \$ 5.5 million has been made available for the maintenance of the drainage system.

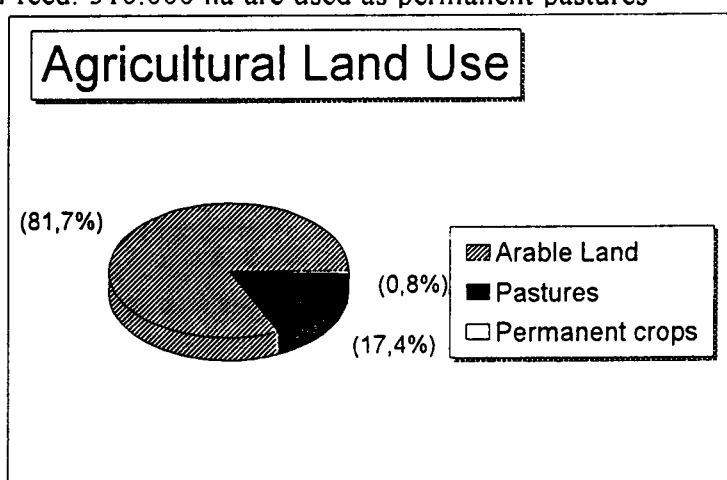


Figure 3

2.2 Importance in the Economy

Agriculture has lost much of its economic importance since the eighties and its share of GDP has fallen significantly. Comparisons between the figures given for the different years is however difficult because statistical methods have been changed. In 1994 agriculture had a 8% share of total GDP.

Official figures also indicate a drop in agricultural employment. As it has been mentioned already, however, the large number of household plots is not included in these statistics. If they were counted, employment in agriculture would at least have remained stable at around 15% of total employment.

Estonia is a traditional producer of dairy products and meat. Before its independence Estonia was fully integrated in the Soviet economic system. On the one hand half of the animal feed requirements came from other Soviet Republics whereas 30 percent or more of meat and dairy products were exported mainly, to St. Petersburg and Moscow. After independence Estonia has been confronted with a series problems:

Imports of animal feed have become very expensive, which have made Estonian meat and milk production less competitive. The high import taxes on Estonian products which have been imposed by the Russians have added to the problem. (In the meantime Latvia and Lithuania were given MFN status, whereas imports from Estonia are taxed with the double of normal import tariffs). The internal market of Estonia also deteriorated because of the bad economic situation and a diminishing purchasing power. Finally, the farm restructuring and privatisation process has also led to declining production.

As a consequence agricultural production fell by 4% in 1991, 18.6% in 1992 and by 17% in 1993 (OECD). However sources are contradictory and it is very difficult to estimate the real drop in production, since reliable statistics are not available. It seems to be possible that production was overestimated before independence and is now underestimated, since part of the production, such as from household plots, is not included in the official statistics. The economic performance of agriculture does however appear to be starting to recover. About one third of farms can operate with profit, although another third is definitively making losses.

2.3 Food Consumption

During the Soviet era Estonia had a comparatively high consumption of meat and milk products compared to the average level of income and also to other Soviet Republics. Following independence, due to the declining purchasing power and increasing prices, the annual consumption of these products dropped, shifting to cereals, bread and potatoes. (For most products consumption has fallen significantly.) (It is however not quite clear to what extent the production of household plots has been taken into account). Since it is possible that the recent level of production is underestimated the supply situation might be better than the figures suggest.

Table 2.1
Annual per capita consumption of food

	unit	1990	1991	1992	1993a	1994	EU ²
Milk	l	487	409	350	325		
Meat	kg	84	59	58			87
beef	kg	22	18	25	27	27	22
pork	kg	46	34	28	20	20	41
poultry	kg	9	7	5	3	4	19
Eggs	pieces	289	260	224	210		
sugar	kg	44.5	36.1				34
potatoes	kg	103	104	105	128		79
vegetables	kg	64	57	100	92		116
bread	kg	77	79	81	81	82	

Source: Statistical Office of Estonia; ² EU 12, 1994

2.4 Farm Structure

Before independence Agriculture was organized between 350 big co-operatives each managing some 3500 ha with 300 employees. These kolkhoses and sowkhoses had a high vertical integration comprising important parts of the upstream and downstream industries. The process of restructuring and privatisation that started after liberalisation is not yet complete, but the trend seems to be towards smaller size family farms with an average size of around 23 ha. For the time being the structure of Estonian agriculture is characterised by three different types of farms.

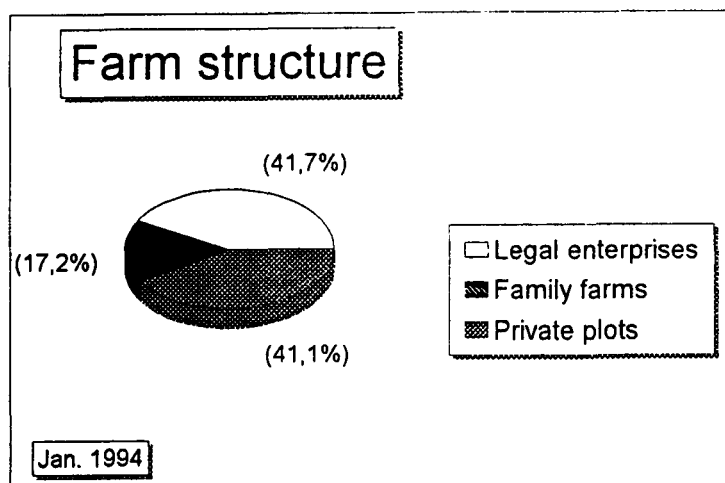


Figure 4

- a) the so called "legal enterprises" which emerged from the former kolkhoses and sowkhoses. These are organized as limited liability companies, joint stock companies or new co-operatives. Often these enterprises had only a transitional status and are being divided into smaller entities during the privatisation process particularly since share holders prefer to set up their own farms. A considerable share of the legal enterprises will probably go bankrupt, but still about one third of the agricultural area is expected to continue to be managed by large scale farms. In January 1995, 983 Co-operative and state farms were counted.
- b) The family farms, of which by January 1995 about 13540 were in existence with an average about 23 ha of land. Together they represent 21.4 % of the total agricultural area. Only 30% of these farms have more than 30 ha of land and only 10% exceed 50 ha. Forests are an important feature of most family farms and account for up to 30% of the total farm area.

There are still around of 200.000 claims for restitution outstanding. Most of the family farms are therefore working only on a provisional basis. Recent forecasts estimate that there may be 40.000 such farms by the end of the century.

Table 2.2
Structure of family farms January 1995

size	<5 ha	5-10 ha	10-20 ha	20-30 ha	30-50 ha	50-100 ha	>100 ha
number	1634	1827	3750	2721	2488	1027	66
%	8	13	28	21.5	20	9	0.5

Source: Statistical Office of Estonia

- c) More than 350.000 small and not legally registered subsidiary plots, with an average size of 1.7 ha. Some 225.000 ha or 24% of the agricultural surface are estimated to be managed by these kind of enterprises on a part-time basis. In many cases there is still a close link between the household plots and the legal enterprises which mean it is difficult to separate the production originating from these entities. Subsidiary plots already existed under the Soviet system; their share of production for many products and, their share of total production being much higher than their share of total agricultural land. In 1992 they produced 54.9% of potatoes, 51.8% of vegetables and 85% of fruit.

The level of professional education is low especially in the case of smaller family farms. Many private enterprises do not have the necessary experience to manage a farm. Improvements in education however are taking place.

2.6 Arable Crops

The total extent of arable land was 1.1 million in 1994 and has changed very little in recent years. Compared with the situation in 1989 however, around 20% of the land is left idle. The main role of the arable sector has been to supply the animal sector with its feed requirements. Consequently mainly summer cereals, such as barley and oats but also green fodder, have been planted. At present there is a certain tendency to increase the production of fodder crops, which could help to replace expensive imported feed. In 1994 about 60% of the arable land was planted to fodder crops.

Due to the massive destocking in the animal sector the area planted to feed grains slightly and a certain shift towards the production of wheat and rye for human consumption can be observed.

Traditionally the Crop sector accounted for only 30% of the Gross agricultural output (GAO), but due to the decline in the livestock sector increased to 43% in 1994.

2.6.1 Cereals

The total area planted to cereals was 320.000 ha in 1994, most of which was barley. The large-scale farms are increasingly important to the sector, accounting for two thirds of cereal

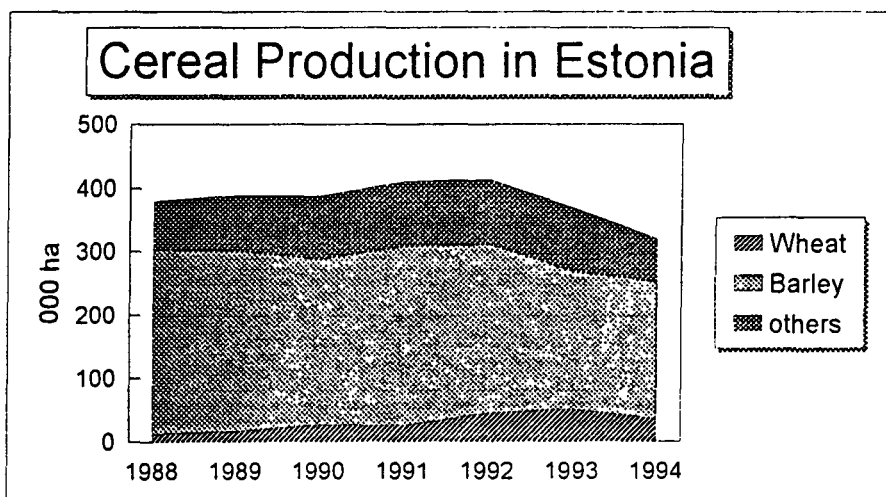


Figure 5

production. Individual farms account for another 25% of grain production, whereas household plots provide only marginal share of cereal production. Low producer prices and high stocks, but also the bad weather conditions in the autumn of 1993 which reduced the possibility to sow winter cereals together with drought the following summer, may be seen as the main reasons for the continuing downwards production of cereals in 1994.

Due to the decline in the livestock sector production of **barley** has declined, but still accounts for more than two thirds of the area sown with cereals. Yields show much fluctuation, the average yield being slightly above 2.0 t/ha in the last years of the Soviet era but decreasing afterwards, due to a lack of fertilizers and plant protection products but also due to severe droughts in 1992 and 1994, to a level of 1.6 t/ha in 1994.

2.5 Privatisation

Privatisation of land proceeded in a different way, to the privatisation of assets. As far as the privatisation of land is concerned, the Government is following the principle of restitution before compensation. Thus priority is being given to returning the land to their former legitimate owners or their heirs. Apart from legal and political problems the restitution of land also posed a number of practical and administrative problems including missing borders, fragmentation of former landownership etc. At present, only around 5% of land restitution is completed from a legal aspect. For 25% of the (less fertile) land there are no claims for restitution at all.

The privatisation of farming and land ownership was based on a series of laws:

- a) The Law on peasant farming from 1989 which was adopted before independence. This law established a basis for private farming but not for private land ownership and allowed farmers to manage small private enterprises but not to sell the land. Some 7000 farms have been established by this law, which together total 180.000 ha. These enterprises turned out to work quite efficiently and due to the fact that they could buy inputs at low prices they had a better basis than the private enterprises which were founded later. An increasing proportion of production stems from these enterprises.
- b) The Law on Land Reform of 17 October 1991 started the process of returning the land to its rightful owners. This was continued later by the Law on Property Reform in Agriculture of 11 March 1992 and finally concluded under the Law on Co-operative Enterprises of September 1992.

By the deadline in January 1993 more than 200.000 claims for restitution had been received which was far more than had been expected. The restitution process will therefore take several years to complete, in particular the settling of legal titles to the land. This aspect is a serious obstacle for the necessary investments in buildings, machinery and other assets.

The privatisation of assets has proceeded in a different way and is not yet complete. Social facilities, such as schools, medical stations, kindergartens etc, have remained in state or municipal ownership. Certain assets were given to employees and former employees on a voucher basis. The remainder were restituted to former owners. In practice around 35% of assets have been restituted.

For the restructuring process in agriculture to be complete a functioning **land market** is of enormous importance. However due to the slow pace of the privatisation process this has not yet developed and prices for agricultural land are not yet clear. The percentage of land which is annually restituted is small. By the beginning of only 1995 only about 5% of land had been returned with full legal titles. The low profitability of agriculture is an additional factor hampering the land market.

Immediately after independence, the area planted to **wheat and rye** for human consumption increased but the quality has often been insufficient for bakeries, partly a problem of varieties and partly due to missing utilisation of fertilizers. As a consequence prices for domestically produced food grains are low and the wheat and rye area has accordingly continued to decrease.

Before independence Estonia imported large quantities of cereals, mainly for feed use. But as a consequence of the decreasing livestock sector, imports of cereals for animal feed also dropped. The high imports of 1992 are firstly a result of food aid imports from international organisations.

Producer prices as well as consumer prices have been liberalized. In 1992 however, a high procurement price was fixed, exceeding the corresponding export price. This led to a monopolistic position on the domestic market for the state grain board and to high farm gate prices. High stocks which could not be sold, and increasing costs and indebtedness for the processing industries were the result. In addition a 70% import duty on Russian flour had to be applied in order to sell the domestic stocks of grain.

In the meantime the national grain board lost most of its influence on the grain market and will possibly be liquidated in the near future. At present it is responsible for the procurement of the state grain reserve, which measured 50.000 t (mainly rye) in January 1995, which is little more than one third of annual human consumption. The price offered for purchases for the grain reserve ranged between EEK 1600 (ECU104) for wheat and EEK 1300 (ECU 84) for rye. Producer prices for cereals at present range between 800 and 1000 EEK (52-65 ECU) for feed grains, up to 1300 EEK for rye and between 1300 and 1500 EEK (84-97 ECU) for wheat.

Annual human consumption of bread was 81 kg in 1993. Consumer prices for bread were ECU 0.27 per kg for dark bread ECU 0.5/kg for white bread.

Table 2.3
Summary table cereal production in Estonia

	1990	1991	1992	1993	1994
area (000 ha)	397	418	424	375	320
production (000 t)	958	939	598	812	509
yield/ha (t)	2.41	2.25	1.34	1.89	1.6
total consumption ²	1377	1263	955	738	716
imports ²	419	324	357	-74	91
ending stocks					

Source: Statistical Office of Estonia ² own calculations

2.6.2 Fodder Crops

The area planted to fodder crops reached 567.000 ha in 1994, which is nearly half of the arable land. The largest proportion of this land is sown with perennial grasses for silage. Fodder roots are planted to only 12.000 ha. Pulses and other protein crops do not reach more than 1000 ha.

2.6.3 Potatoes

Potato production is typically based on household plots (and small family farms) for both human consumption and for animal feed. About two thirds of total production comes from these small farms. (Large scale farms produce another 23%.) The increasing level of per capita consumption of potatoes in recent years, underlines the importance potatoes have for nutrition.

The area planted to potatoes ranged around 45.000 ha but dropped to 40.000 ha in 1994. Following independence total output and yields declined. In 1993 total production was estimated to be 538.000 t and the average yield 12.5 t/ha. In 1994 the harvest reached 563.000 t.

About 50% of potato production is used for animal feed. Processing of potatoes plays only a marginal role, utilizing no more than 10% of production. Factories for potato starch, crisps and chips exist but do not perform very well.

Table 2.4
Potato production

	1990	1991	1992	1993	1994
area (000 ha)	45	52	46	43	40
production (000)	618	592	669	538	563
yield t/ha	13.7	11.4	14.54	12.51	14.08

Source: Statistical Office of Estonia

2.6.4 Fresh vegetables

Fresh vegetables, mainly cabbages, (and fruit) are also produced mainly on small household plots (51% of production) and on individual farms (37% of production). They play an important role in the nutrition of families. Greenhouse production of tomatoes and cucumbers is also of some importance. There are two (large) enterprises, near Tallinn and near Tartu, which perform rather well, whereas a third is in economic difficulties. Vegetable production has not shown significant changes during the last few years.

Table 2.5
Vegetable production

	1990	1991	1992	1993	1994
area (000 ha)*	5.2	5.7	5.1	5.0	4.4
production (000 t)	106		78	70	70
yield t/ha	20.38	0.00	15.29	14.00	15.91

Source: Statistical Office of Estonia

2.6.5 Permanent Crops

Permanent crops have not played a major role in Estonian agriculture. Fruits, in particular apples, and berries are mainly grown on small household plots, which account for more than

80% of total production. Larger farms are found around Tallinn and Tartu. The production of strawberries and other soft fruit in particular could become of greater importance in the future. The climatic conditions and low labour costs would appear to favour soft fruit production in Estonia, but at present there are no marketing structures. Production shows much annual fluctuation which is mostly due to climatic reasons.

Table 2.6
Fruit and berries

	1990	1991	1992	1993	1994
area (000 ha)*	11.5	12.2	12.0	12	12
production (000 t)	22	23	30	45	21
yield t/ha	1.9	1.9	2.5	3.8	1.8

Source: Statistical Office of Estonia

2.7 The livestock sector

In the Soviet era, like in the other Baltic Countries, agricultural production centred around the livestock sector, which had a considerable export potential, especially for meat, butter and milk powder. Main destinations were the regions around St. Petersburg and Moscow. The livestock sector accounted for around 70% of gross agricultural output (GAO) but has decreased to 57% in 1994 (constant prices of 1993).

Before independence, animal production was performed on large-scale farms, the sowkhoses and kolkhoses. Domestic production of animal feed was however far from sufficient and low priced imports of animal feed, but also machinery and energy from the FSU, were essential for Estonian livestock production. The reasons for this kind of economic exchange between different Soviet Republics were to a large extent ideologically influenced which aimed at closer economic links between the Republics.

The stocking density in some cases was very high. Normally these farms disposed of sufficient land to spread all the manure produced, which in most cases limited the environmental impact.

After the liberalization this situation for livestock production changed fundamentally. Firstly inputs had to be bought at world market prices, which made Estonian production more expensive and secondly, due to high import levies, access to the Russian market became more difficult and less attractive. As a consequence livestock numbers dropped until 1994 by more than 50%.

Given the small size of the domestic market and the comparatively high availability of

agricultural land, a surplus production of meat and dairy products is very likely to continue, but certainly at a lower level. The geographic and climatic situation does not leave many viable alternatives for agricultural production.

2.7.1 Milk and Dairy

Milk is one of the key agricultural products and an important export commodity. Between the beginning of 1990 and the beginning of 1994 cow numbers declined from 293.000 to 227.000. This downwards trend continued in 1994 and the cow inventory for the beginning of 1995 counts only 211.000 heads. Milk output also contracted from 1.2 million t in 1990 to 772.000 t in 1994, registering a drop of 33%. This decline has now bottomed out and milk production is likely to stabilize at present levels. According to recent reports, the bulk of milk production is still produced in large scale farms and 63% of dairy cows also still belong to legal enterprises, 10% to private farmers and 17% to households. 75% of total milk production comes from herds exceeding 100 heads. Due to deteriorating feed quality the yield per cow also dropped from a high level of 4000 kg/year, which was the highest of the three Baltic states, to 3400 kg per year in 1994.

Most of the milk was collected and processed, the main dairy products being drinking milk, fresh dairy products and skimmed milk powder. Eight large milk processing plants are located all over the country. Due to large over-capacities, competition between the dairies is increasingly leading to higher producer prices. It can be expected, that in the longer run only half of the existing dairies will stay in business.

Recent cost calculations show that under current market conditions milk production can be viable in herds exceeding 20 cows. Smaller herds will not be sufficient to allow the necessary investments in milking and cooling equipment.

Table 2.7
Production of milk and dairy products

	1990	1991	1992	1993	1994
Milk production (000 t)	1208	1093	919	807	772
dairy cows (000 heads)	293	275	250	240	227
yield per cow (kg/head)	4100	3975	3676	3663	3401
butter production (000 t)	29	28	26	24	18.1
SMP production (000 t)	25	23	21	25	22
cheese production (000 t*)			19	19	17

Source: Statistical Office of Estonia; *FAO estimate

Butter and skimmed milk powder also used to be important export commodities. In 1992 39% of total butter production and 62% of milk powder production were exported. Butter was traditionally exported to the Russian market, but milk powder was exported to a large extent to the EU and EFTA markets, partly for further processing and partly for re-export to third countries.

Producer prices for milk in 1993 were the highest of all the Baltics, but rather low compared to international prices. In 1994 however, prices increased significantly. Actual price levels ranged between EEK 0.8 and EEK 2.5 (ECU 0.05-0.15/ l) depending on the milk quality. Milk prices in 1994 for comparison reached an average of slightly below 0.1 ECU /t, but prices vary considerably depending on the quality. Retail prices for milk were ECU 0.24/litre at the beginning of 1994.

The milk consumption per head used to be fairly high. In recent years however it fell from 487 litres to 325 litres per year.

2.7.2 Beef

Beef meat production was to a large extent a by-product of milk production. As a consequence of declining possibilities for export and reduced internal demand, cattle numbers dropped from 806.000 in 1990 to 463.000 in 1994 and to 420.000 by the beginning of 1995. This means that livestock numbers have nearly halved. Specialized meat producing breeds are not common. Household plots account for more than one-third,, the enterprises for roughly half of the total beef meat production.

Meat processing is still facing problems. Large over capacities and poor hygiene and technical standards, which are not compatible with those of the EU are major obstacles for the further development of the sector.

Producer prices for beef meat range between 5000 EEK and 22.000 EEK (325-1420 ECU) per ton of live weight, depending on the quality, the average price for 1994 is given with 7800 EEK for 1994. Consumer prices for beef meat were 0.96 ECU/kg at the beginning of 1994 which is little more than half the price of pig meat. The low price may also be a result of the low meat quality, which is in part a consequence of destocking. Exports of meat have dropped but trade figures vary to a large degree.

Table 2.8
Beef meat production

	1990	1991	1992	1993	1994
cattle (000 heads)	806	753	723	583	463
meat production (000 t) ²	80	52	45	43	35
consumption (000 t) ³	40	41	44	44	42
exports (000 t)	40	11	1	0	0
imports (000 t)				1	7
ending stocks (000 t)					

Source: Statistical Office of Estonia; ²live weight x 0.55; ³own calculations

2.7.3 Pork

The swine inventory has dropped tremendously due to marketing problems and to the increasing prices for imported feed as mentioned above. As a consequence, pork production fell from 95.000 t in 1990 to 37.000 t in 1994. Estonia used to be a net exporter of pig meat, mostly to Russia, but in 1993 Estonia also began to import pig meat, some of which as canned meat from the EU, mainly from Denmark and Germany.

Pig production is still concentrated in large scale farms with herd sizes between of 1000 and 2000 pigs. There is one very large pig producer with around 20.000 pigs.

Consumer prices for pork are on average higher than for beef meat, which reflects to a large extent consumer preferences, although these are changing. In 1994, the retail price per kg was 1.8 ECU/kg. Producer prices for 1994 ranged around 1300 EEK / 100 kg live weight weight (84 ECU/ 100 kg).

Table 2.9
Pork Production

	1990	1991	1992	1993	1994
pig numbers (000 head)	1080	960	799	541	424
meat production (000 t) ²	95	75	50	35	37
consumption (000 t) ³	73	54	44	31	31
exports (000 t) ³	22	21	6	4	6
imports (000 t)					
ending stocks (000 t)					

Source: Statistical Office of Estonia; ² live weight x 0.82; ³own calculation

2.7.4 Poultry

Following independence, poultry production experienced a sharp decline. Annual production of meat dropped from 22.000 t in 1991 to only 5.000 t in 1993. The production of eggs contracted in the same period from 31.000 t to 20.000 t. Until October 1993 the poultry market was burdened with Russian eggs, which profited from subsidized feed, and entered the Estonian market at very competitive prices. Feed subsidies in Russia were phased out at the end of 1995, marking an end to Russian egg exports. In 1994 the decline in the poultry sector bottomed out and for 1995 an increase in production is expected. Poultry production is concentrated in some large production units around Tallinn.

Table 2.10
Poultry meat production

	1990	1991	1992	1993	1994
number of animals (000 heads)	6923	6537	5538	3418	3226
meat production (000 t)	22	22	10	5	7
egg production (000 t) ²	31	31	25	19	20

Source: Statistical Office of Estonia; ² 1 egg = 56 g

2.8 Forestry sector

Forests cover 45% (2, 022 Million ha) of Estonia, 70% of which are conifers and 25% birch. In the post-war period the forest area has increased by approximately 1 Mio ha, mainly through afforestation of former agricultural land. Wood production serves mainly as raw material for the paper and cellulose industry but also for construction purposes and for the furniture industry. A large part, although difficult to quantify, is used as firewood in rural areas. Estimations about the annual growth range to 9 million m³ (4.45 m³ / ha), whereas only 3 million m³ per year have been harvested so far.

Before the war every farm had about 8 ha of forest land, which was enough to cover their own needs for heating and construction. At present only 3.5% of the forests are in private property, but the restitution process has started and probably the former kolkhose owned forests, comprising about 814.000 ha, will be privatized.

Following the liquidation of cellulose production in Tallinn and Kehra, the utilisation of wood has dropped and will probably contract further in the short term. The use of Estonian

forests largely depends on the installation of new cellulose and other wood processing industries. At present a large percentage of the wood harvested is exported unprocessed to Swedish and Finnish processors.

In the medium term the forestry sector promises an interesting perspective and a large amount of international assistance is directed to this sector.

Table 2.11
Production of wood

	1989	1990	1991	1992	1993	1994
production of wood (000m ³)	3079	2922	3077	2146		
utilisation m ³ /ha	1.52	1.58	1.62	1.08		

Source: Statistisches Bundesamt

2.9 Fishery

Fisheries have played an important role in the Estonian economy, the fish to a large extent being exported to the Soviet Union. Both processing and catching has become less profitable due to increasing costs for energy and technical equipment. As a consequence both production and exports have declined sharply. For 1994 however a growth, of production can be observed but for the time being Estonia will not fully utilise its catching quotas. Efforts to modernize the processing industry along the coast have already been undertaken and fish remains an important product for exports.

2.10 Production costs

There is insufficient data for a detailed analysis of production costs. Nevertheless some conclusions can be drawn from the structure of the production costs and more precisely from variable costs.

In the **cereals** sector, production costs are characterized by low costs for mechanisation and labour and comparatively high costs for all kinds of inputs, such as fertilizers, pesticides and fuel. On the other hand crop yields are limited by climatic conditions and the relatively low quality of the soil.

In the **livestock** sector feed costs are the most important element. Since this sector has been based mainly on cheap feedstuffs imported from the FSU, production costs increased

enormously after independence, when imports from Russia and the other former Soviet republics had to be paid in hard currency and at world market prices. For **pig meat**, the price relation between cereals, as the main component of animal feed and meat, at least until 1993, was not very favourable, firstly due to relatively low meat prices. More recently the relation between feed and meat prices has improved. Further improvement could be made by using a higher content of protein in the feed mixture, which would lead to better conversion rates.

Milk production has suffered from low producer prices, to the extent that commercial production of milk was nearly excluded. During 1994 however producer prices for milk increased and recent calculations suggest that milk production, in herds over 20 heads, can be profitable. Taking into account the climatic conditions and the high availability of grassland, extensive milk production with feeding based mainly on grass, will probably remain a key element of Estonian agriculture.

Beef meat, as a by product of milk production, has had to cope with low producer prices. In the last year however, meat prices (at least for higher qualities) increased, so that profitability improved.

Nevertheless the economic situation of many farms remains difficult and about one third of farms are making losses. Recent results from the Estonian farm accountancy network show the importance of non agricultural income for many family farms. Indeed a survey among 473 family farms shows that 16% of the returns come from the arable sector, 38% from the livestock sector, the remaining 66% from non farm activities.

Table 2.12
Prices for inputs

	EEK	ECU
fertilizers ²	1700-2300	106-143
fuel/ l	2.25-2.4	0.14-0.15
plant protection/ha	110-300, aver. 150	7-19
grain seeds	1500-1900	94-119
tractor (80	80.000-110.000	5000-6900

source: Ministry of agriculture, May 1995; ²50% active substance

3.0 Upstream and downstream Industry

The poor economic performance of the processing industry is still one of the most important factors inhibiting the future development of Estonian agriculture. The main problems facing these industries are large over capacities and growing problems of the supply of raw materials. Regulations on bankruptcy are not always properly implemented, so that the high indebtedness of many enterprises does not necessarily lead to bankruptcies but to delayed payments to farmers. Outdated technical facilities and last but not least severe management problems, are further difficulties.

Privatisation of the processing industry has remained under the responsibility of the Ministry of Agriculture. The privatisation law in its § 32 largely favours producer organisations, giving them the right to buy for a deposit of 10% of the fixed price of the whole enterprise or parts of them. The remaining 90% of the purchasing price can be paid within 10 years. Privatisation of this type raised a number of problems: The structure of the processing industry has so far not adapted to the new economic situation, so that big complexes would be left to producer organisations, who neither have the necessary management skills, nor the capital for investments to modernize these enterprises. This is why, in practice, privatisation of the upstream and downstream industries is well advanced only in as far as the smaller enterprises in the milk and meat sectors are concerned. The bigger enterprises in the grain, meat and dairy sectors, which account for the bulk of production, are still in the process of privatisation.

By early 1995, 25 food processing enterprises had been included in an international privatization competition. In the privatisation legislation for the agro-industrial enterprises, a preference for co-operatives has been established but the most promising and biggest enterprises have been sold for cash.

3.1 Upstream Industry

Generally speaking, the costs of all inputs have increased tremendously and as a consequence the use of inputs decreased sharply after liberalization. The total upstream sector is very much dependent on imports. There is no important production of machinery and animal feed has to be imported to a large extent.

Phosphate and nitrogen fertilizers are produced in two factories in Kõhla Järve. Production is based on natural deposits of phosphate in the North East of Estonia, but production dropped from 216.000 t in 1990 to only 14.000 t in the first half of 1993. Nitrogen used to be produced from natural gas, imported from Russia. Potassium had to be imported completely. The use of fertilizers has dropped by 30 to 40% in the last few years. Plant protection products are completely imported, 90% of which come from Finland.

Machinery is mainly imported from Belarus (tractors) and from Russia (combined harvesters). In recent years second hand machinery, mainly from Finland has also been available. Simple equipment, such as sowing machines and harrows are produced domestically. The availability of machinery is still a problem for many farms, but machinery rings have begun to be established which will improve the situation. Combined harvesters are mainly in the hands of large scale farms and larger individual farmers, who also work as entrepreneurs and do the harvest for smaller farmers.

Services, like maintenance of machinery, spraying of plant protection products, grain harvesting and drying, are mainly provided by the large scale farms, emerging from the former collective farms.

3.2 Downstream Industry

The food processing industry used to have a share of 35% of total industrial output, a fact that demonstrates the importance of the sector for the Estonian economy. The most important sectors are the fish processing industry, with a high vertical integration, the dairy industry, meat processing and the production of cigarettes. In the next few years an adjustment of capacities will almost certainly take place and lead to numerous bankruptcies.

At the end of 1994, the **grain sector** had largely still to be privatized. 5 large enterprises, which account for 80% of total capacity, were still in state ownership. Two enterprises in the food sector and 4 enterprises in the feed sector were registered. Total capacity by far exceeds actual output. At present, 60% of the capacity is used in the food sector; in the feed sector it is less than 25% .

In the **meat sector** a large number of small slaughterhouses have been established, but which account for no more than 20% of the total capacity. 5 larger meat processing enterprises, with 80% of the total capacity, are still to be privatized. At the moment only half of the capacities are used.

In the **dairy sector** privatisation is more advanced. Some 50, mostly smaller production units, which account for 75% of capacity, have been privatized. Five milk processing enterprises still wait for privatisation.

4.0 Agricultural Policy

Corresponding to the relatively low share of agriculture in the GDP, and the low agricultural labour share, agricultural policy does not have a high political priority and is subject to highly controversial discussions. Unlike Latvia and Lithuania, Estonia has until now followed a very liberal attitude towards agriculture, which meant that there was no border protection and nearly no direct support for the farming sector. Despite the fact that several laws foreseeing increased support for farmers have been adopted, a coherent policy is still missing and the

total budgetary expenditure on the agricultural sector remains rather low. In 1993 it only reached 246 Mio EEK, (16.4 Mio ECU), some 3.4% of the total budget spending. The pensions for agricultural workers in former kolkhoses and sowkhoses are not included in this figure.

4.1 Price Policy

Producer prices for agricultural products are liberalized and apart from procurement for the states grain reserve (50.000 t/year), there are no state purchases.

In 1993 the government adopted the "farmers parity income act" which states that in principle the income of farmers should be comparable to incomes in other sectors of the economy. The required level of support for the agricultural sector would be defined as the difference between the market price and a "target price" multiplied by projected output levels. According to that law, an overall deficit of the agricultural sector of ECU 700 million was estimated for 1994. Apart from the fact that the income gap is measured, the law foresees no measures for compensation and the budget does not have the necessary funding.

The grain law which was introduced in June 1994 foresees a build up of the national grain reserve to 6 months human consumption. A reserve of this scale could have an important influence on cereal prices (in the short term), but the amounts that have been actually purchased do not reach the foreseen levels and the prices offered have not been above the market price level.

4.2 Border Protection

Immediately after independence Estonia followed a very liberal trade policy, including the agricultural sector. Border protection measures are practically not applied. A 70% import tax on Russian flour, which had been introduced in 1993 because of high public cereal stocks, was removed a few months later. At present the introduction of countervailing duties against dumped imports is under discussion. These countervailing duties would be applied when import prices drop under a certain reference price, which should reflect the world market price.

4.3 Direct Support

A total of some ECU 0.8 million from the agricultural budget is earmarked for the support of high quality seeds and high quality breeding material. Farmers are paid the difference between the price for high quality material and the price which would be charged for average quality.

4.4 Farm Credits

The main instrument used to provide support to the agricultural sector is through the "Agricultural and Rural Life Credit Fund" (ARLCF), which was established in September 1993 and provides credits for small and medium sized farms and for the processing industry. Until now the fund has been financed nearly exclusively from national funds and a total of EEK 176 million (ECU 11 million) had been allocated to the fund by the end of 1994. For 1995 another EEK 91 million are earmarked for the ARLCF. The funds are channelled through four commercial banks. The banks get the funds money at an interest rate of 5% and lend it to borrowers at a rate not exceeding 15% for long term credits and 20% for seasonal loans. Mostly short term credits have been provided and the rate of repayment has been extremely high. As far as long term credits are concerned the rate of repayment can not yet be judged.

A World Bank credit line of US \$ 2 million will also be managed through the ARLCF. In addition the World Bank will provide a guarantee facility of US \$ 1 million for the fund. Another ECU 2 million are to be spent on the improvement of rural infrastructure and drainage systems.

4.5 Taxation

An annual land tax of 0.5% (approximately EEK 20/year/ha) and an additional local tax of 0.3 to 0.7% on the fiscal land value were introduced in 1993. Officially registered farmers will be exempt from this tax until the end of 1997. With this tax the government is trying to discourage the urban population from farming and to encourage the sale and concentration of land into the hands of farmers or cooperatives who are able to manage their farms in a profitable way.

Farmers who start farm businesses are exempt from income tax for the first five years. Farmers are not however exempt from all kind of welfare contributions. Furthermore the VAT base rate of 18% applies also to agricultural and food products.

5.0 Agricultural Trade

5.1 General Situation

Agricultural trade is an important element of the Estonian economy. Official trade statistics indicate that in value terms agricultural commodities and food products, including fish, accounted in 1993 for almost one quarter of total exports and some 15% of total imports. As a consequence of Estonia's geographical situation, transit trade plays an important role.

Unfortunately, detailed trade figures have only been available for 1993, so that little can be said about the development of trade flows during the first years of transition. In addition and despite considerable efforts to improve trade statistics, there seem still to be data problems and available sources differ to a large extent. This is partly due to black market activities, which are sometimes included in the trade figures and sometimes not, but there are also methodological and technical problems of data collection and data processing, which lead to strongly differing trade figures.

In order to illustrate the point, table 5.1 compares trade figures from the Estonian Statistical Office with DG VI estimate. In the case of the DG VI estimate, the Estonian figures for imports from Western industrialized countries have been replaced by export figures from these countries to Estonia. Correspondingly, Estonian figures for exports to these partners have been replaced by their import figures.

Table 5.1
Importance of Agricultural Trade
1993

	Statistical office of Estonia		DG VI estimate	
	Mio EEK	Mio ECU	Mio EEK	Mio ECU
Exports	2499	161	2499	161
Imports	1773	114	2393	154
Balance	726	47	106	7

No major differences appear as far as exports from Estonia are concerned, but considerable differences exist on the import side, where imports in particular from the EU would appear to be under-recorded by Estonian statistics. As a consequence the overall trade surplus would appear to be much smaller than on the basis of national statistics.

In spite of these important differences the overall agricultural trade balance of Estonia remains positive as in the years before. However, the value of exports is diminishing, whereas the import value is increasing.

5.1.1 Important Trading Partners

On the **export side** Russia remains the most important single trading partner. After having declined immediately after liberalisation, trade with Russia is now again increasing. In 1993 almost 40% of total agricultural exports, including 70% of meat and meat products and more than 50% of beverages and spirits went to Russia. For dairy products however, exports to Russia represented only about 25% in 1993. Most of the dairy products exported (mainly SMP) went to the Netherlands. Trade in live animals, which were exported particularly in the destocking period, was mainly with Poland, Uzbekistan and Finland. In the 1994 the Russian share of exports may have increased to 45%. Exports to Latvia, accounted for 11% while those to the EU represented only 15% of Estonian agricultural exports.

It should be mentioned in this context, that shopping/tourism by Finnish citizens has had an important impact on Estonian agriculture. Especially for butter, ice cream and bakery products, Finnish tourists represent an important market.

On the **import side**, the EU and EFTA countries are largely dominating, especially for highly processed agricultural products. Finland has become the most important exporter to Estonia, followed by Germany. A quarter of all agricultural imports come from Finland but for many products, such as tropical fruit, cacao coffee, tea and others, Finland has only a transit role.

5.1.2 Main Export Commodities

Agricultural Exports are largely dominated by export of dairy products, which account for nearly one third of exports. Fish and preparations of fish and to a lesser extent, meat are also important features. Meat exports still account for 7.3% of agricultural exports in 1993, but have dropped significantly in the last few years.

Table 5.2
Main Trade commodities 1993

Export	%	Import	%
02 Meat	3.7	08 Edible Fruit and Nuts	3.0
03 Fish	11.8	10 Cereals	2.3
04 Dairy Products	30.3	12 Oil seeds, fodder	2.0
16 Preparations of meat of fish	18.5	15 fats and oils	7.8
17 Sugar and sugar confectionary	7.5	17 sugar and sugar confectionary	17.9
22 Beverages	3.6	18 Cocoa and Cocoa preparations	12.3
		19-21 food preparations	14.6
		22 Beverages	7.8
		23 Residues and prepared animal fodder	7.8

Source: Statistical Office of Estonia

5.1.3 Main Import Commodities

In terms of value and quantity, imports of sugar and sugar confectionary have been dominating in 1993, part of which, however have been reexported. The EU was the main supplier for sugar. Large amounts of cereals have been imported from the Ukraine, which however do not represent a very high value. Edible fats and oils, fruit and cocoa represent a significant proportion of total imports. Imports of canned meat, mostly from dissolved US army stocks, and fresh meat (from Germany and Denmark), which started in 1993 seem to have increased in 1994 and recent figures indicate that meat imports could be up to 10 times higher than exports.

5.2 Trade Policy

Estonia has the most liberal **trade policy** of all the three Baltic states. There are nearly no taxes, neither on exports nor on imports. For 1995 however, Estonia has announced the introduction of an import tax to protect the agricultural sector against dumped imports. Reference prices at the level of World market prices will be chosen as a kind of entry price. Countervailing duties will be applied on all imports which enter below this reference level.

The currency, which is pegged to the German DM at a ratio of EEK 8: 1 DM, is still undervalued, despite considerable inflation. The gap between the official exchange rate and the real appreciation is however narrowing, thus diminishing the currency advantage for Estonian exporters.

Trade relations with Russia have been affected by a special 30% import tax on Estonian exports, which was introduced by Russia in July 1994, and has led to a collapse of sales.

Negotiations on GATT commitments have not yet come to an end and for the time being future constraints are not yet clear. Political decisions on the necessary level of border protection have not yet been taken. Maximum import tariffs, which presently are not applied, will certainly form part of the GATT commitments and would leave some margin for a higher level of protection of agriculture if needed at a later stage.

5.3 Trade agreement with the EU

A preferential trade agreement (FTA) was signed with the EU in June 1994, including trade concessions also for agricultural commodities. The following tariff quotas have been agreed:

Table 5.3
Main Concessions of the Europe agreement

	quantity			Duty or levy reduction
	year 1	year 2	successive	
life cattle*	3500 heads	3500 heads	3500 heads	25% of full amount of duty
beef meat*	1500 t	1500	1500	40% of full amount of duty
pork	800 t	900	1000	60%
milk powder	1000 t	1250	1500	60%
butter	700 t	750	800	60%
cheese	800	800	800	60%
sausages	400	450	500	60%
potatoes	800 t	900	1000	60%

* Common quota for the three Baltic States

Further concessions have been made on transformed products and for some vegetables and fruit - mainly soft fruit - with very limited quantities.

Imports of some other agricultural products, namely soft fruit and apple juice, are subject to reduced tariff rates without quantitative restrictions. For the soft fruit however, minimum prices have to be respected.

This agreement entered into force in January 1995. It will be followed by a Europe agreement, which was signed in June 1995 and will then take over the trade concessions of the free trade agreement.

Slaughter houses and meat processing enterprises in Estonia do not meet EU standards, so that at least for the moment, meat and meat products cannot be exported to the EU.

Further bilateral trade agreements have been concluded with Norway and Switzerland, but agricultural products are excluded to a large extent. Previous bilateral trade concessions with Finland and Sweden have now been included in the Europe agreement. A trade agreement between the Baltic states which will include agricultural commodities is under discussion, but would make a harmonisation of trade policy between the Baltic republics necessary. For the time being, there is little movement in negotiations.

Since Estonia until now does not apply any import restrictions, reciprocal trade concessions to the EU could not be made. It has however been laid down in the trade agreement, that the EU has to be granted a preferential margin, if Estonia will introduce import tariffs in the coming years.

6 Perspectives, Evolution, Conflicts and Problems

6.1 Development of the macro-economic Situation

Estonia has more favourable macro-economic prospects than the other Baltic Republics, but also compared with some of the other CEECs. GDP in 1994 showed an increase, which will probably continue in the foreseeable future.

The privatisation process in the industrial sector (apart from the food processing industry) is well advanced and investments particularly from foreign investors, have reached a considerable amount and will strengthen the economic development. Official figures for unemployment are relatively low but the restructuring process in the industry will certainly lead to increasing unemployment in the coming years, but and might decline again in the longer term.

The annual rate of inflation, which in 1994 was still close to 50%, combined with the fact that the Estonian crown (EEK) is pegged to the German Mark (DM), is leading to increasing trade problems. Exports are losing their competitiveness and imports will be reinforced. Only

recently the government announced that the exchange rate will be kept at the same level until the end of the century.

In this context it has also to be taken into account that until now Estonia has not applied any tariffs or other import restrictions. In 1993 and 1994 there was a negative trade balance and there will be little scope to turn this situation around in the next few years. Due to the high level of foreign investments, the balance of goods and services has however stayed positive.

6.2 General Perspectives for Agriculture

Farm structure has still a big potential for future change. Only a minor part of the land is managed by some kind of family farms, whereas new cooperatives and household plots each account for more than 40% of the total agricultural area. It can be expected, that together with ongoing economic recovery, more people will be able to earn their living outside agriculture and will sell or lease their land. This would then lead to increasing farm sizes and a reduction of the economic importance of the household plots. This development is not however likely to proceed very quickly. The restitution problem is still not resolved completely and legal titles to the land are still not settled. A functioning land market, which would be the necessary basis for full restructuring process will therefore not develop very quickly.

Production costs are marked by low costs for labour and mechanization but also by a low labour efficiency. On the other hand all kinds of purchased inputs are expensive, compared to farmgate prices for agricultural products. Due to the low fertility of the soil and the climatic conditions, achievable yields are rather low which limit the possibilities for an intensification of production. In the livestock sector production costs are to a large extent determined by the cost for animal feed. Cereal prices are at present low but the feed conversion rates are high, so that the potential benefit of cheaper animal feed is weighed out. An improvement in conversion rates is certainly possible in the near future which could improve the economic situation in the livestock sector.

Farm Gate Prices have been low in recent years and especially for meat and dairy products it can be expected that they did not cover the costs of production. The difference between farm gate prices and retail prices increased, leaving higher margins for the processing industry, which however remains in a desolate economic situation. In 1994 farm gate prices for milk and for meat increased, opening more favourable perspectives for the future of livestock production.

The bad condition of the **processing industry** represents a major obstacle for an improvement of the whole agricultural sector. Large overcapacities (as a consequence of declining agricultural production,) overemployment, quality problems and high indebtedness are the main characteristics of the sector. Management problems in some of the privatized enterprises add to the problem. A consolidation of the sector is likely to cause a series of bankruptcies within the next few years. Demand on the Estonian market is limited by low

purchasing power and the small size of the population. Investments in the sector will not therefore be likely to be profitable within the next few years. It is doubtful therefore whether the sector will recover very quickly.

Agricultural trade will remain an important factor for Estonian agriculture. Even if agricultural production does not recover very quickly from its present low level, there will be exportable surpluses at least in the dairy sector. The cereal sector might stay in deficit but if livestock production changes increasingly to extensive production methods, and taking into account that a small increase in average yields can be achieved in the crop sector, cereal imports might decline in the coming years.

Russia and the FSU will probably remain important trading partners, but much depends on political developments. As long as Russia applies high taxes on Estonian exports, trade flows in this direction will be distorted. Trade with the EU will be regulated in principle by the Europe agreement, but the agreed quantities are of little importance compared to production.

The future level of border protection in the framework of GATT is not yet clear. It is therefore very difficult to assess the future implications of GATT on Estonian trade patterns.

The undervaluation of the currency which is pegged to the German DM is diminishing through inflation so that the positive effect for export is contracting.

6.3 Impact of agricultural policy measures

Agriculture in Estonia is of lower economic importance than in the two other Baltic Republics and until now has not enjoyed a high priority for the Estonian Government. The agricultural surface is less than 30% of the total land, and agriculture's state of GDP, as well as employment, declined in recent years. Agricultural policy measures and budgetary spending for the sector are rather limited. The main target of present agricultural policy is to improve the economic framework for agriculture and to bring land reform to an end. In the future it can be expected that the border protection will be increased, which could lead to harmonisation and increasing trade flows between the three Baltic states. A fundamental increase in the level of protection cannot however be expected, so that agriculture in Estonia will continue to face conditions which will not act as an incentive for increased production.

6.4 Possible development for the main commodities until the year 2000¹

6.4.1 Cereals

The cereal sector has traditionally been a net importing sector, but for the following reasons there will probably be declining grain imports, and a state of near self sufficiency will be reached by the end of the century:

- due to a limited recovery from the massive destocking that has been observed in the livestock sector, consumption of feed grains will increase at a relatively slow pace from its present low level. Some improvement in the feed conversion rates for the livestock sector will slow down this upwards trend for feed grain consumption.
- human consumption of cereals will stabilize at current levels or may slightly decrease in line with an improvement of the purchasing power, which would allow the purchase of more highly processed and more expensive food, such as meat, fruit and dairy products.
- Crop yields, which due to low utilisation of fertilizers are very low, could increase whereas the area planted to cereals might slightly recover from its present low level.

Table 6.1
Projections for cereals

	1993	1994	2000
Population (Mio)	1.571	1.57	1.57
area (000 ha)	375	320	360
yield (t/ha)	2.2	1.6	2.1
production (000t)	812	509	744
Utilisation (000 t)	738	716	835
- of which feed	500	491	599
- of which human	127	127	120
exportable surplus (000 t)	74	-207	-91

¹The figures for consumption, and trade which are used for the projections are not the official ones. Consumption figures have been defined as addition from human consumption, and depending on the commodity, animal feed, seeds and losses. Stock changes have not been taken into account.

The net-trade has been calculated as residual of the balance.

6.4.2 Other Crops

Potato production, principally by the small farms and household plots, increased in recent years. This tendency is likely to continue in the near future, both to ensure family nutrition, but also to provide the necessary basis for pig feeding. The potato processing industry could slightly improve, so that a higher demand of potatoes might be evident. For the next five years however major changes in potato production can not be expected.

Fruit and vegetable Production on household plots and small scale farms will continue to increase in the coming few years. Production is used for family nutrition and sold directly on local markets to improve the family budget. There is certainly a potential for an increase in the production of soft fruit but at present there is little movement in this subsector.

Perspectives for **flax production** could improve if flax would become a raw material for industrial utilisation. Although producer prices for flax have started to increase, flax production will probably remain a niche product.

6.4.3 Milk and dairy

The sector has been export oriented and production still exceeds domestic consumption. Farm gate prices have increased in 1994 and at least for bigger farms with herds exceeding 20 heads, profitable production should be possible. The desolate condition of the dairy processing industry is however a serious obstacle for an improvement of the dairy sector. It seems plausible that production will recover at a rather slow pace.

Table 6.2
Projections for milk production

	1993	1994	2000
production (000 t)	807	772	883
number of dairy cows (000 heads)	240	227	231
yield per cow (kg/year)	3363	3401	3830
consumption (000 t)	632	667	767
- consumption per head (l/ year)	325	345	404
exportable surplus (000 t)	175	115	117

Present price conditions would favour an extensive form of dairy and beef meat production, using as little purchased inputs as possible. The available grassland and pastures, which represents one third of the agricultural area (some 310.000 ha) would also allow such a production. In addition some of the marginal arable land will probably be transformed into pastures if the dairy sector proves to be viable.

Per capita consumption of dairy products declined significantly after liberalisation. Growing purchasing power of the population could lead to higher demand of dairy products and thus to higher producer prices. It is however doubtful whether the production of milk can react at the same pace, so it is probable that exports of dairy products could further decline.

6.4.4 Beef meat

The sector is closely linked to the dairy sector. Beef meat production could contract slightly in the coming years since the destocking process seems to have bottomed out. Beef however has a low consumer preference and a lower price compared to pork. Increasing purchasing power therefore would likely lead to rising pig meat consumption rather than beef. As a consequence beef will probably stay in surplus for the coming years. Traditionally the FSU and Poland have been important export markets for beef and bovine animals (and this may continue).

The introduction of French meat breeds has recently started on an experimental basis. It is probable that the availability of high quality beef could alter consumers' attitudes, so that a specialized production of beef might become more important in the future.

Table 6.3
Projections for beef meat production

	1993	1994	2000
production (000 t)	43	28	65
cattle number (000 heads)	538	463	490
carcass weight (kg)	119	118	200
consumption (000 t)	44	42	41
- consumption per head (kg/ year)	28	26.5	26
exportable surplus (000 t)	-1	-7	24

6.4.5 Pig meat

Production has contracted dramatically especially in the large scale production units. However in the near future it can be expected that pork production will recover. It is probable that at least in the short run production in small family farms, with the main target of self sufficiency and based mainly on feeding of potatoes, will remain of importance. Present price levels for pork compared to cereals would also open a favourable perspective for professional, market oriented production, which could speed up the pace of recovery in the sector. In order to improve the profitability of pork production it will however be necessary to achieve higher protein content in the feed mixture. Since the potential for oilseeds and protein production in Estonia is limited, most of the protein components will have to be imported.

Table 6.4
Projections for pig meat production

	1993	1994	2000
production (000 t)	35	37	52
pig number (000 heads)	541	424	
carcass weight (kg)	85	89	90
consumption (000 t)	31	31	36
- consumption per head (kg/ year)	20	20	23
exportable surplus (000 t)	4	6	15

6.4.6 Poultry

Production was traditionally concentrated in some big production complexes, which have now been privatized. Recent figures suggest that the decline in production has now bottomed out. Recovery in the sector will probably proceed at a slow pace, since the domestic market is burdened with cheap imports, mainly from the USA.

Table 6.5
Projections for poultry meat production

	1993	1994	2000
meat production (000 t)	5	7	21
consumption (000 t)	4.7	6.3	11.6
- consumption per head (kg/ year)	3	4	7.4
exportable surplus (000 t)	0	1	9

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- (5) OECD (1995), Ad hoc Group of Experts on East/West Economic Relations in Agriculture; **Review of Agriculture Policy and Trade Developments in Estonia in 1994**
- (6) Statistical Office of Estonia, 1994; **Foreign Trade 1993**
- (7) Statistisches Bundesamt (Wiesbaden 1994) **Länderbericht Estland 1993**
- (8) The World Bank (1994); **Estonia, Agriculture and Forestry Sector Review**

Annexes

Annex 1

PHARE Programme in Estonia

1. General Framework and Background

From 1991 to 1993, Phare assistance to the agricultural sector was provided by the General Technical Assistance Facilities programmes, which was directed to smooth the transition towards a market oriented structure of production.

The GTAF permits to adapt and respond quickly to the rapid changes in the countries ; its flexibility allows the financing of short and medium term technical assistance to core areas, and of limited exploratory studies in other sectors. The general objective of GTAF in all the 3 Baltic States is to assist the authorities to develop appropriate institutions are required where the necessary amount of Phare support does not justify a separate system of management.

Phare agricultural commitments for Estonia (Mio ECUs)

1990	1991	1992	1993	1994
0	3.2	0.35	1.25	0

In each of the three Baltic States, the co-ordination of the different component of the General Technical Assistance Facilities is under the overall responsibility of the National Aid Coordination Unit, in liaison with the European Commission.

2. Specific Actions

From 1991 to 1993, concerning the agricultural field, five major sub-sectors received aid in Estonia under the General Technical Assistance Facilities :

- sectoral studies to identify priorities within the sector which served as a basis for political and strategic advice and which laid the ground for further multi and bilateral aid programmes ;
- Support to rural banking in order to facilitate the access of farmers to credit;
- Support to land reform aiming to strengthening the legal and institutional framework, to train the Land Board's staff in matters of land information systems and cadastre registration ;
- Setting up a Project Implementation Unit within the ministry of Agriculture in order to strengthen foreign aid co-ordination, to assist in the elaboration of strategic priorities for the sector and to support reorganisation of the Ministry combined with staff training ; in addition, was given emphasis to assist Ministry in trade negotiation with EU and GATT ;

- Support to agricultural and rural advisory and extension activities aimed at the development of activities directed to farmers and processors to ease their restructuring difficulties and to increase agricultural efficiency and hence income of the rural population.

Due to the slow development of the World Bank activities in the agricultural sector, no sectoral Phare allocation was foreseen in 1994. Since 1995, Phare support is assessed under the form of sectoral projects.

The 1995 Phare programme for Agriculture builds on previous years' assistance and experience and addressing the needs identified in the 1993 exercises. It is designated to support the agricultural and rural population in its access to financial resources, and strengthening rural financial institutions, ensuring land property rights, accelerating privatisation and restructuring, supporting the development of private enterprise trade and marketing skills at domestic and international levels. In addition, Ministry of Agriculture 's human resources will be supported to increase abilities of planning, programming and implementing the reform process. The integration and co-ordination of bilateral assistance is a major task of the Phare 1995 assistance to agriculture.

Annex 2

Price comparison between the Baltic States

Price relations in the Baltic Republics

In spite of price differences between the Baltic Republics that are to a large extent due to the way the exchange rates of the different currencies are fixed, which has led to an overvaluation of the Latvian and to a minor extent also of the Estonian currency. Nevertheless in principle the relations between the prices for major products are similar for all of the three Baltic Republics.

For the main products the following observations can be made on the producers level:

- Milk prices are very low and reaching approximately 20% of EU price levels.
- Pig meat prices are relatively high compared to prices for beef meat, but reach only between 40% and 60% of EU prices. Compared to prices for cereals there are differences between the three countries. The best relation between prices for cereals and prices for pig meat can be observed in Lithuania, whereas this relation is much worse in Latvia (high prices for cereals) and Estonia (relatively low prices for pig meat).
- beef meat has a low consumer preference and has a rather low price, not reaching more than some 10% of the EU price level. The low price is partly also due to the destocking during the last few years.
- prices for cereals lie around the World market price levels. They are the lowest in Lithuania and the highest in Latvia, where they exceed the World market price. (to a large extent a consequence of the overvalued currency).

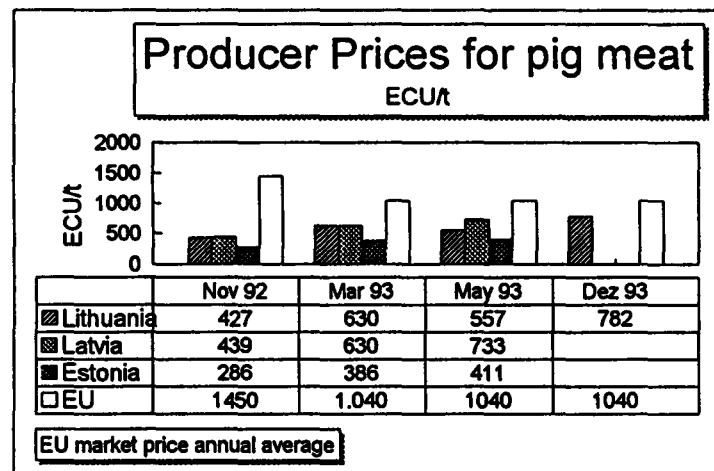
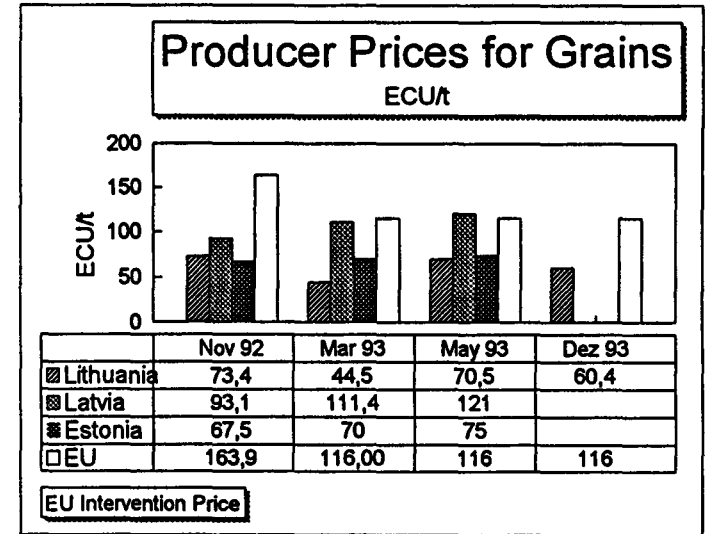
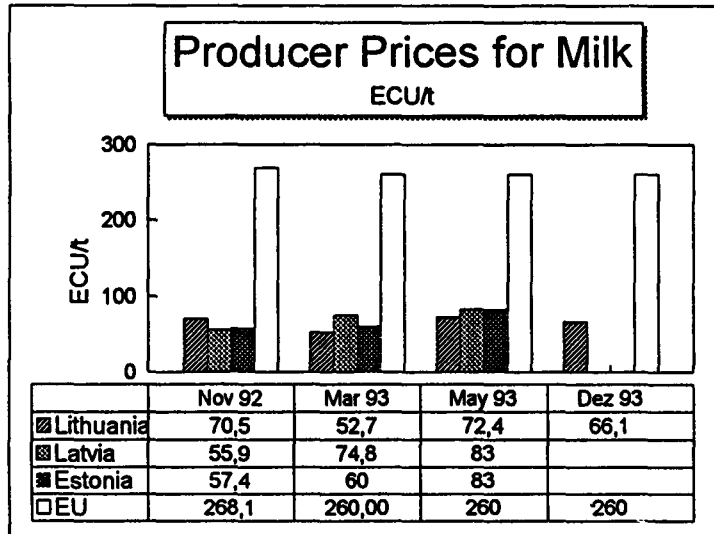
Even if prices which have been collected from different sources and may be subject to distorting effects through high rates of inflation, the following conclusions concerning the agricultural production can be drawn:

For the time being **Pig meat** can be produced at reasonable costs, at least in Lithuania, even when conversion rates for the feed are a good deal lower than in Western Europe (due to missing protein) For Lithuania the price relation between feed grain and meat is lying around 1:10. It can be assumed, that pig meat production will stay an important agricultural product but it can be doubted whether it will on the long run have a big comparative advantage, if prices for cereals and feed which make up for the bulk of the production costs tend towards the world market level, both in the Baltic states and in the EU.

Beef meat as a specialised production line and base on cereals seems not to be very profitable, since the price relations between cereals and beef meat lie only between 1:5 and 1:7. Beef meat production under current price constellations can only be profitable as a by product of milk production.

Milk: milk production based on purchased feed is totally excluded from an economic point of view. Only a very extensive form of milk production, taking a maximum of feed from pastures and meadows and involving a minimum of purchased inputs can be envisaged under the actual price relations. Taking into account that with ongoing economic recovery the price for milk will rise in relation to prices for inputs higher returns for the farmer can be expected. In principle the dairy sector seems to be the most promising one for the future development of agriculture in the three countries in question, but for the time being low prices at producer level and the difficult situation of the dairy processing industry the present situation is very difficult.

Grains: on the long run the climatic conditions and relatively poor soil quality do not favour intensive cereal production. Due to missing or very low prices for land, cheap Russian type machinery and negligible costs for labour, and reduced usage of fertilizers and other inputs, gross margins for grain production are lying around the world market levels, however without taking capital- and other fixed costs into account. For the future development it should be kept in mind, that high prices for the grain sector do have an important impact on the key sectors of agriculture in the Baltic Republics, dairy and pig meat production.



Annex 3 Production Cost Estimates

Production costs pigs Estonia costs per ton; conversion factor 4.5

	Unit	No	Cost/unit	Cost	%
Variable costs					
Concentrated feed	ton	4,5	85	382,5	41,0
Veterinary and med.	ECU	1	20	20	2,1
Energy	ECU	1	10,8	10,8	1,2
Other variable costs	ECU	1	4,5	4,5	0,5
labour	hour	100	0,57	57	6,1
Total variable and labour costs	ECU			474,8	50,8
fixed costs					
Cost of Capital invested in livestock	pieces	8,3	32,8	272,24	29,2
Amortization of Buildings	ECU			69	7,4
Capital costs	ECU			107	11,5
Taxes	ECU			10,8	1,2
Total costs	ECU			933,84	100,0
price	ECU/t			425	
margin	ECU/t			-508,84	219,7

Production costs pigs Estonia costs per ton; conversion factor 6.0

	Unit	No	Cost/unit	Cost	%
Variable costs					
Concentrated feed	ton	6	85	510	48,1
Veterinary and med.	ECU	1	20	20	1,9
Energy	ECU	1	10,8	10,8	1,0
Other variable costs	ECU	1	4,5	4,5	0,4
labour	hour	100	0,57	57	5,4
Total variable and labour costs	ECU			602,3	56,7
fixed costs					
Cost of Capital invested in livestock	pieces	8,3	32,8	272,24	25,7
Amortization of Buildings	ECU			69	6,5
Capital costs	ECU			107	10,1
Taxes	ECU			10,8	1,0
Total costs	ECU			1061,34	100,0
price	ECU/t			425	
margin	ECU/t			-636,34	249,7

Production costs milk Estonia costs per ton; based on 40 cows unit

	Unit	No	Cost/unit	Cost /cow	costs/ 3200l/year	Costs/ 4000 l/year	%
Variable costs							
Concentrated feed	ton	1,2	85,2	102,24	0,03	0,03	15,1
Grazing and winter forage	t/cow	7,7	30,9	237,93	0,07	0,06	35,1
Veterinary and med.	ECU	1	40	40	0,03	0,01	5,9
Energy	ECU	1	28	28	0,01	0,01	4,1
Other variable costs	ECU	1	38	38	0,01	0,01	5,6
labour	hour	140	0,57	79,8	0,02	0,02	11,8
Total Variable and labour	ECU			525,97	0,18	0,13	77,6
fixed costs							
Cost of Capital invested in livestock	ECU	196,1	0,08	15,688	0,00	0,00	2,3
Amortization of Buildings	ECU	1	57,7	57,7	0,02	0,01	8,5
Depreciation of cow	ECU			0	0,00	0,00	0,0
Capital costs	ECU	919	0,08	73,52		0,02	10,3
Taxes	ECU	1	5,24	5,24		0,00	0,3
Total costs	ECU			678,118	0,21	0,17	100,0
price	ECU/t				0,08	0,08	
margin	ECU/t			-678,118	(0,13)	(0,17)	

Estonia production costs for cereales costs per ton based on prices of 1993 yield 3.5 t/ha barley

	Unit	No	Cost/unit	Cost /ha	%
Costs per ha					
Variable costs					
seeds	kg	250	0,09	22,5	6,0
fertilizer total*	kg	570	0,07	39,9	10,7
-Nitrogen	kg	263	0,09		0,0
-Phosphate	kg	220	0,05		0,0
-Potassium	kg	87	0,06		0,0
Agrochemicals	ECU	1	12	12	3,2
Machine costs	ECU			84,9	22,8
other variable costs	ECU	1		18,5	5,0
Labour	hour	48	0,57	27,36	7,3
Total variable and labour costs	ECU			205,16	55,0
costs per ton	ECU			59	
fixed costs					
Cost of Capital invested	ECU			0	0,0
Amortization of Buildings	ECU	1	84	84	22,5
Capital costs	ECU	984	0,08	78,72	21,1
Taxes	ECU	433	0,012	5,196	1,4
Total costs	ECU			373,1	100,0
Total costs per ton	ECU/t			106,6	
farm gate price	ECU/t				
margin	ECU/t			(106,6)	

*total product quantity (active substance approx. 40%)

Annex 4
Balance sheets for main commodities

CEREALS BALANCE SHEET

all cereals	1990	1991	1992	1993	1994	2000
Population Mio	1.582	1.577	1.572	1.571	1.570	1.570
area (000ha)	397	418	424	375	320	360
yield (t/ha)	2.41	2.25	1.41	2.17	1.59	2.07
production(000t)	958	939	598	812	509	744
UTILIZATION (000 t)	1377	1263	955	738	716	835
-human	128	128	127	127	127	120
-human per capita	81	81	81	81	81	76
- feed use	1109	995	715	500	491	599
- seed use	92	93	83	70	72	79
- other use and losses	48	47	30	41	25	37
exports	0	0	0	74	0	0
imports	419	324	357	0	207	91

Cereal Production

Estonia

cereals		Sour	1990	1991	1992	1993	1994
all cereals	area(000ha)	n	397	418	424	375	320
	yield(ha)	k	2,4	2,2	1,4	2,2	1,6
	production(000t)	n	958	939	598	812	509
soft wheat	area(000ha)	n			44	50	34
	yield(ha)	k			2,0	2,1	1,7
	production(000t)	n			89	106	57
barley	area(000ha)	n			268	218	218
	yield(ha)	k			1,1	2,2	1,6
	production(000t)	n			301	477	339
rye	area(000ha)	n			59	62	22
	yield(ha)	k			2,6	2,0	1,9
	production(000t)	n			153	123	41
oats	area(000ha)	n			42	36	36
	yield(ha)	k			1,0	2,4	1,6
	production(000t)	n			44	85	58
others	area(000ha)	n			11	9	10
	yield(ha)	f			1,0	2,3	1,4
	production(000t)	n			11	21	14

other crops		sour	1990	1991	1992	1993	1994
potatoes	area(000ha)	f	45	52	46	43	40
	yield(ha)		13,7	11,4	14,5	12,5	14,1
	production(000t)	f	618	592	669	538	563
vegetables	area(000ha)	n	5,2	5,7	5,1	5	4,4
	yield(ha)		0,0	0,0	15,3	14,0	15,9
	production(000t)	f			78	70	70
fruit and berries	area(000ha)	n	11,5	12,2	12	12	12
	yield(ha)		1,9	1,9	2,5	3,8	1,8
	production(000t)	n	22	23	30	45	21

	1990	1991	1992	1993	1994	2000	
beef	production (000t)	80	52	45	43	35	65
	slaughter number (000)	370	339	305	362	296	324
	average weight (kg)	216	153	148	119	118	200
	utilization (000 t)	40	41	44	44	42	41
	utilization per capita (kg)	25.4	26.3	28.1	28.0	26.5	26.0
	exports (000 t)	40	11	1	0	0	24
	imports (000 t)	0	0	0	1	7	0
pork	production (000t)	95	75	50	35	37	52
	utilization (000 t)	73	54	44	31	31	36
	utilization per capita (kg)	46.0	34.0	28.0	20.0	20.0	23.2
	exports (000 t)	22	21	6	4	6	15
	imports (000 t)	0	0	0	0	0	0
poultry- meat	production (000t)	22	22	10	5	7	21
	utilization per capita (kg)	9.0	7.0	5.0	3.0	4.0	7.4
	utilization (000 t)	14	11	8	5	6	12
	exports (000 t)	8	11	2	0	1	9
	imports (000 t)	0	0	0	0	0	0
eggs	production (000t)	31	31	25	19	20	26
	utilization (000 t)	25	23	20	18	18	19
	utilization per capita (kg)	16.1	14.5	12.5	11.7	11.7	12.4
	exports (000 t)	6	8	5	1	2	6
	imports (000 t)	0	0	0	0	0	0
total meat utiliz. per capita (kg)	80.4	67.3	61.1	51.0	50.5	56.5	

Milk and Dairy Products Balance

		1990	1991	1992	1993	1994	2000
milk	production (000t)	1 208	1 093	919	807	772	883
	number of dairy cows (000)	293	275	250	240	227	231
	yield per cow (kg)	4 123	3 975	3 676	3 363	3 401	3 830
	utilization (000 t)	952	809	688	632	657	767
	- human (000 t)	770	645	550	511	542	634
	- per capita (kg)	487	409	350	325	345	404
	- feed use (000 t)	181	164	138	121	116	133
	exportable surplus (000 t)	256	284	231	175	115	117
butter	production (000t)	29	28	26	24	18.1	
	utilization (000 t)					8.3	
	utilization per capita (kg)					5.3	
	exports (000 t)					10	
	imports (000 t)					0	
cream	production (000t)	25	23	21	25	22	
	utilization (000 t)						
	exports (000 t)						
	imports (000 t)						
cheese	production (000t)			19	19	17	
	utilization (000 t)	7.0	7.3	6.0	5.5	5.5	
	utilization per capita (kg)	4.4	4.6	3.8	3.5	3.5	
	exports (000 t)			13.0	13.5	11.5	
	imports (000 t)			0	0	0	

Annex 5
Europe Agreement

ANNEX III

List of products referred to in Article 13 (2)

Imports into the Community of the following products originating in Estonia shall be subject to the duties set out below

CN code	Description (1)	Duty rate %
0409	Natural honey	17,3
0601 10 00	Bulbs, tuberous roots, corms, crowns and rhizomes, dormant	5,1
0602 10 90	Other live plants (including their roots), cuttings and slips Unrooted cuttings and slips Other	4
0602 20 90	Edible fruit trees, shrubs and bushes, other	8,3
0602 99 91	Flowering plants with buds	12
0602 99 30	Strawberry plants	8,3
0707 00 19	Cucumbers, fresh or chilled (from 16 May to 31 October)	16
0809 40 90	Sloes	7
0810 30 10	Blackcurrants, fresh	8 (2)
0810 40 30	Bilberries of the species ' <i>Vaccinium myrtillus</i> '	free (2)
0810 40 50	Fruit of the species ' <i>Vaccinium macrocarpon</i> ' and ' <i>Vaccinium corymbosum</i> '	3 (2)
0810 90 80 * 70	Other berries	5
2005 30 00	Preparations of vegetables: Sauerkraut	15
2009 70 30	Apple juice of a density not exceeding 1,33 g/cm ³ at 20 °C: Of a value exceeding ECU 18 per 100 kg net weight, containing added sugar	12
2009 70 99	Of a value not exceeding ECU 18 per 100 kg net weight, with an added sugar content not exceeding 30% by weight	12
2009 70 99	Not containing added sugar	12

(1) Notwithstanding the rules for the interpretation of the combined nomenclature, the wording for the description of the products is to be considered as having no more than an indicative value, the preferential scheme being determined within the context of this Annex by the coverage of the CN codes. Where ex CN codes are indicated, the preferential scheme is to be determined by application of the CN code and corresponding description taken together.

(2) Subject to minimum price arrangements contained in the Annex hereto.

*Annex to Annex III***Maximum import price arrangement for certain soft fruit for processing**

1. Minimum import prices are fixed for each marketing year for the following products:

0810 30 10 Blackcurrants

0810 40 30 Bilberries

0810 40 50 Fruit of species *Vaccinium macrocarpon* and *Vaccinium corymbosum*

The minimum import prices are fixed by the Community in consultation with Estonia taking into consideration the price evolution, imported quantities and market development in the Community.

2. The minimum import prices shall be respected in accordance with the following criteria:

- during each three-month period of the marketing year the average unit value for each product listed in paragraph 1, imported into the Community, shall not be lower than the minimum import price for that product,
- during any period of two weeks the average unit value for each product listed in paragraph 1, imported in the Community shall not be lower than 90 % of the minimum import price for that product, in so far as the quantities imported during this period are not less than 4 % of the normal annual import.

3. In case of non-respect of one of these criteria the Community may introduce measures ensuring that the minimum import price is respected for each consignment of the product concerned imported from Estonia.

ANNEX IV

Products referred to in Article 13 (2)

Arrangements for imports of live bovine animals, bovine meat, sheep and goatmeat into the Community

1. Independently of the balance sheet arrangements foreseen in Regulation (EEC) No 805/68, a global tariff quota of 3 500 heads of live bovine animals for fattening or for slaughter, with a live weight of not less than 160 kg and not more than 300 kg, falling within CN code 0102, shall be opened to imports from Latvia, Lithuania and Estonia.

The reduced *ad valorem*, or specific duty rate applicable to animals under this quota shall be fixed at 25% of the full amount of the levy or the specific duty rate.

2. In case forecasts show that imports into the Community may exceed 425 000 head for any given year, the Community may take safeguard measures in accordance with Regulation (EEC) No 805/68, notwithstanding any other rights given under this Agreement.

3. A global tariff quota of 1 500 tonnes of meat of bovine animals, fresh, chilled or frozen, falling within CN codes 0201 and 0202, shall be opened to imports from Latvia, Lithuania and Estonia.

The reduced duty-rate and levy or specific duty rate applicable under this quota shall be fixed at 40% of their full amount.

4. Within the framework of the autonomous import arrangements provided for in Regulation (EEC) No 3643/85, a global quota of 100 tonnes of meat of sheep or goats, fresh, chilled or frozen, falling within CN code 0204, shall be reserved for Latvia, Lithuania and Estonia.

ANNEX V

Products referred to in Article 13 (2)

Imports into the Community of the following products originating in Estonia will be subject to a 60% reduction of the variable levy, the *ad valorem* duty and/or the specific duty rates within the limits of the indicated quantities (tariff quotas)

CN code	Description (1)	Year 1	Year 2	Successive years
		(in tonnes)		
0203	Meat of domestic swine, fresh or chilled (2)	800	900	1 000
0207 10 15 0207 21 10 0207 10 19 0207 21 90 0207 39 21 0207 41 41 0207 39 23 0207 41 51	Chicken carcasses; breasts of chicken; legs of chicken	400	450	500
0402 10 19 0402 21 19	Skimmed milk powder Whole milk powder	1 000	1 250	1 500
0405 00 11 0405 00 19	Butter	700	750	800
0406 90	Cheese	800	800	800
0701	Potatoes, fresh or chilled	800	900	1 000
0704	Cabbages	150	175	200
0712 10 00	Dried potatoes	60	60	60
0808	Apples, pears and quinces, fresh	150	175	200
1601 00	Sausages and similar products	400	450	500

(1) Notwithstanding the rules for the interpretation of the combined nomenclature, the wording for the description of the products is to be considered as having no more than an indicative value, the preferential scheme being determined within the context of this Annex by the coverage of the CN codes. Where ex CN codes are indicated, the preferential scheme is to be determined by application of the CN code and corresponding description taken together.

(2) Excluding tenderloins presented alone.

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