

Research and Information Institute for Agricultural Economics
Hungary

**HUNGARY IN THE DECADE PRIOR TO EU
ACCESSION, ANALYSING THE DATA
(1990-2002)**



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Introduction

Public opinion has always keenly followed the convergence of the economic and social role of agriculture. This is especially true nowadays when adverse opinions are expressed in terms of the worth of the sector. Agricultural society is divided and evaluates the process in a contradictory manner, based on different political, economic and emotional identities. As a result, we consider it reasonable to utilise a rich database to truly illustrate and evaluate the converged condition. We hope that experts dealing with agro-economic, economic and social policies will receive a realistic view of the changes that characterised the country between the years of 1990-2002.

The agricultural economy, due to its distinct traits, continues to provide balance in the Hungarian national economy. The assertion that Hungary has been socially and economically more stable thanks to her advanced agriculture when compared to historically similar countries also holds true for the period prior to the examined period. The validity of this assertion, however, has decreased. A responsible agricultural policy cannot put at risk the traditional or emerging values without significant sacrifices.

The current situation of agriculture (ownership structures, production, investment, profitability, market-situation, financing etc) needs an objective review because Hungarians must face their disadvantages and advantages prior to EU accession. Unfortunately this has not taken place in agricultural research during the past decade.

We will try to summarise all the data and information which characterise the conditions of the Hungarian economy including agriculture, food industry, forestry, hunting and fishing as well as the primary wood industry between the years of 1990 and 2002. The study is mainly descriptive and its objective is not to analyse the reasons for the events, even if the authors could not avoid expressing their opinions regarding certain tendencies. The introduction of the facts is mainly based on a great deal of statistical data as well as earlier publications from the Research and Information Institution For Agricultural Economics (AKII). A great difficulty to overcome during the study was the fact that data for a longer period and with identical content were not always available. As a result we had to stray from our basic objective of detailing the period 1990-2002 and the application of the years of 1989, 1990 at the calculation of percentages and indexes, in the case of some of the tables.

1. Hungarian agro-economy's share of the world production, compared to the production of the EU-15

Due to the relatively small size of Hungary, it can only produce a tiny portion of the world's production. Because of a lack of comparative data, we will illustrate this partially based on its share of external trade and partially on the indices of agriculture. Hungary represents less than one percent of the world's agricultural exports even though, being a net exporting country, the share of Hungary's exports exceeds that of our portion of production. The country's share of world exports was 0.58 percent in the year of 2001. Unfortunately this share has shown a decrease over the past decade. It was 0.75% in the year 1989 and it reached its minimum of 0.8 % in the year of 1991. Hungary's share of the world's agricultural import varies between 0.17 and 0.27 percent.

Analysing the agricultural indices available regarding Hungary and the rest of world, we observe that considering the average of 1989-1991 one hundred, the world's agricultural production had increased by 27,2% by 2002. However, Hungarian agricultural production decreased by 24.9% over the same period. It's obvious that the share represented in world production decreased to barely half the amount Hungary started out with.

Table 1

The indices of agricultural production in Hungary and the world

Year	1989-1991=100			Prior year = 100	
	World	Hungary	Hungary-the world differences in terms of rate, %	World	Hungary
1989	98.1	102.7	4.6	..	..
1990	100.7	96.5	-4.2	102.7	94.0
1991	101.2	100.8	-0.4	100.5	104.5
1992	103.5	78.6	-24.9	102.3	78.0
1993	104.1	71.1	-33.0	100.6	90.5
1994	107.1	71.8	-35.3	102.9	101.0
1995	109.3	70.8	-38.5	102.1	98.6
1996	113.7	76.0	-37.7	104.0	107.3
1997	116.6	78.3	-38.3	102.6	103.0
1998	118.2	78.1	-40.1	101.4	99.7
1999	121.4	74.4	-47.0	102.7	95.3
2000	122.8	67.5	-55.3	101.2	90.7
2001	126.3	90.6	-35.7	102.9	134.2
2002	127.2	75.1	-52.1	136.5	83.4

Source: FAO Production Yearbook, 2000, Rome,

<http://apps.fao.org/page/collections?subset=agriculture>

Table 2

**The agricultural external trade of the World, the EU and Hungary,
million USD, Export**

Year	World	EU-15	EU-15 towards third countries (extra-EU)	Hungary	Hungary/ the world %	Hungary-EU- 15 (extra-EU) %
1989	302553	128258	34326	2179	0.72	6.35
1990	326244	148669	38773	2324	0.71	5.99
1991	329213	153756	37987	2624	0.80	6.91
1992	358012	169707	41285	2644	0.74	6.40
1993	339113	154075	42126	1969	0.58	4.67
1994	388826	172686	47101	2310	0.59	4.90
1995	443648	192382	54503	2900	0.65	5.32
1996	465819	199093	56928	2679	0.58	4.71
1997	457997	188785	57078	2800	0.61	4.91
1998	438113	186470	53943	2707	0.62	5.02
1999	417355	184541	51217	2256	0.54	4.40
2000	413140	175226	56412	2179	0.53	3.86
2001	412176	169328	56412	2394	0.58	4.24

Source: FAO database

Looking at the share of production, one gets a more favourable picture if one compares Hungary's production to that of the EU. The value of EU agricultural production was 151,380 million Euro in the year 2001, while the Hungarian data was 2374 million EUR¹. This means that Hungarian agricultural production is 1.6 percent of the EU production. Another reason why it is feasible to compare Hungary's production to that of the EU is because the Union plays a very important role in both Hungarian agricultural imports and exports. It entailed 49.9% of Hungarian exports in 2002, and 49 % of Hungarian imports. The importance of the EU will further increase with accession, even though, the tendencies of the past 10 years indicate that the significance of the EU is increasing in terms of imports within the agricultural sector, rather than in the form of exports. In order to reverse this unfavourable tendency, the Hungarian agricultural and food industry must find its niche in the EU economy and become competitive with the Member States and later with candidate countries joining the EU. A realistic way of achieving this is to better adjust to the demand of the market and to expand market supplies. In order to find those segments of the market where Hungary could break in or strengthen its position, Hungary must adapt and innovate its products based on the results of thorough marketing research.

¹ currency: 527.7 billion HUF 243.0 HUF/€ (Euro)

Table 3

**The agricultural external trade of the World, the EU and Hungary
million USD, Import**

Year	World	EU-15	EU-15 from third countries (extra-EU)	Hungary	Hungary/ the world %	Hungary/EU- 15 (extra-EU) %
1989	328426	144451	48762	728	0.22	1.49
1990	353148	165113	53191	738	0.21	1.39
1991	354742	171334	52122	662	0.19	1.27
1992	387729	184611	52463	676	0.17	1.29
1993	356778	156431	47872	818	0.23	1.71
1994	405110	180381	57950	1096	0.27	1.89
1995	462227	197574	64826	1005	0.22	1.55
1996	479705	202014	64179	967	0.20	1.51
1997	467767	191396	61544	1115	0.24	1.81
1998	456924	194183	60444	1182	0.26	1.96
1999	442382	187893	55236	985	0.22	1.78
2000	434853	171995	54767	1026	0.23	1.87
2001	435719	172677	54767	1063	0.24	1.94

Source: FAO database

Hungary produces several types of horticultural products, which in terms of world production is less important but represents a greater volume in comparison with EU production. Maize and wheat are the two products with the greatest volume in terms of crop production. The world's wheat production has varied between 583 and 613 million tons in the last five years, but tending toward modest decline. EU wheat production varied similarly also, between 92 and 105 tons. Hungary's wheat production is more varied, therefore its share in the world production ranged between 0.45%, (in 1999) and (0.89% in 2001). In comparison to the EU, Hungary reached 2.7 and 5.6 percent during the same period. World maize production varies, and the same thing could be said about EU and Hungarian maize production as well. While Hungary only represents 1% of the world's maize production, this value almost reaches 20% of EU production in certain years.

The rate of sugar beet production is relatively small in comparison with both the world and EU production. Our share of world production is only 1 percent, while it makes up 2-3 percent of the total EU production. Contrary to this sunflower seed production (even though it often fluctuates) makes up 2-3 % of the world production and up to 15-28 percent of the EU's. (In the year 2002, it reached 28 percent)

Table 4

The production of main crops and industrial plants in comparison to that of the EU and the world

Denomination	Year												
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Wheat production (thousand tons)													
World	592341	546619	565265	564543	527459	550597	584839	613342	591632	583624	584994	582692	572879
EU-15	88981	93995	87796	84051	85608	87712	99724	94715	103866	97766	105490	91713	104798
Hungary in the % of the world	1.05	1.10	0.60	0.54	0.92	0.84	0.67	0.86	0.84	0.45	0.63	0.89	0.68
Hungary in the % of the EU	6.97	6.39	3.90	3.59	5.69	5.26	3.92	5.55	4.79	2.70	3.50	5.64	3.72
Maize production (thousand tons)													
World	483177	494333	533652	476664	569126	516579	588572	586410	614003	600418	592999	609182	602589
EU-15	24216	28911	31184	31704	29590	30368	35483	39386	36248	37460	38774	40531	40624
Hungary in the % of the world	0.93	1.57	0.83	0.85	0.84	0.91	1.02	1.16	1.00	1.18	0.84	1.26	1.01
Hungary in the % of the EU	18.58	26.79	14.13	12.76	16.09	15.41	16.88	17.34	16.95	18.98	12.85	18.96	14.98
Sugar beat production (thousand tons)													
World	309187	284250	280981	281395	254354	264816	265929	268248	260886	263020	245420	234245	246476
EU-15	118814	107408	117587	117839	107253	111922	113841	121227	115023	118569	114789	104014	116026
Hungary in the % of the world	1.53	2.06	1.04	0.78	1.33	1.59	1.76	1.38	1.29	1.10	0.81	1.24	0.91
Hungary in the % of the EU	3.99	5.46	2.49	1.85	3.14	3.75	4.11	3.04	2.92	2.45	1.72	2.79	1.94
Sunflower seed production (thousand tons)													
World	22533	22949	21664	19973	21846	26367	24661	23481	24834	28476	26169	20903	23851
EU-15	4376	4222	4090	3619	4053	3340	3918	3959	3496	3064	3332	3121	2800
Hungary in the % of the world	3.03	3.54	3.53	3.41	3.06	2.99	3.52	2.30	2.89	2.79	1.85	3.20	3.27
Hungary in the % of the EU	15.62	19.25	18.70	18.84	16.47	23.63	22.16	13.65	20.55	25.94	14.53	21.40	27.82

Source: FAO statistical data

If one compares the harvested areas of the same plants to world data, one can see that in the case of Hungary we get subsequently lower values, since Hungary's harvested production average is constantly higher than that of the world average. In the case of wheat, this means that while the harvested territory in Hungary makes up only 0.5 percent of the similar data of the world, our production averages exceed world average by 1.3-2 percent. The share is the inverse compared with the EU. Territorial data represent 6-7 percent while Hungarian wheat production makes up 60-80 percent of the EU average. This tendency is decreasing; in 1990 Hungary was about to reach the EU production average.

In the case of maize, with the exception of the bad harvest in 2000, our revenue constantly exceeds that of the world's average. At the same time, compared with the EU, our harvested production average makes up only 56-72 percent of the EU average. As a result of strong fluctuations in Hungarian harvested production average, it will either fall way below the world average or will highly exceed it, and the same holds true to the comparative data with the EU. In the case of sunflower seed production, Hungarian production averages continually exceed both the production averages of the world and the EU. One exception was the year 2000, when Hungary reached an average value of production average while the EU reached an outstanding value.

Hungary's vegetable and fruit production does not show a similar statistical proportion with the above data either when compared with that of the world or the EU. Hungary only represents 0.26 percent of the world's vegetable production, and this tendency is decreasing.

Hungary's share of EU production is 3-4 percent. In terms of fruit production its share of the world's production is 0.3-0.4% and is also 3% of the EU production. Hungary's share of apple production is remarkable. Even though it constitutes 2.3 percent of the world's production (a statistic that is steadily decreasing), the figure of 7% in 2001 is still considered significant. Regarding fruit and vegetable production, one may conclude that Hungary usually exceeds the world average, but it is very far from reaching the production average of the EU.

Table 5

The comparison of harvested land covered by industrial plants and main crops with that of the world and the EU

Denomination	Year				
	1990	1995	2000	2001	2002
Wheat: harvested land (thousand hectares)					
World	231285	219838	213709	213817	210599
EU-15	17352	16618	18022	16727	18004
Hungary in the world's %	0.53	0.50	0.48	0.56	0.53
Hungary in the EU %	7.04	6.67	5.68	7.20	6.17
Maize: harvested land (thousand hectares)					
World	131323	136383	138739	137597	138755
EU-15	3665	3824	4228	4614	4449
Hungary in the world's %	0.82	0.76	0.86	0.89	0.87
Hungary in the EU %	29.53	27.02	28.21	26.44	27.00
Sugar beat: harvested land (thousand hectares)					
World	8657	7905	5969	5979	6041
EU-15	2230	2137	1894	1892	1903
Hungary in the world's %	1.52	1.58	0.96	0.73	0.93
Hungary in the EU %	5.89	5.85	3.03	2.30	2.94
Sunflower seed: harvested land (thousand hectares)					
World	17039	20956	21081	18398	18934
EU-15	2698	2503	1907	1908	1660
Hungary in the world's %	2.04	2.34	1.41	1.84	2.21
Hungary in the EU %	12.86	19.63	15.62	17.72	25.18

Source: FAO statistical database

Table 6

The comparison of the average production of major crops and industrial plants with that of the world and the EU

Denomination	Year				
	1990	1995	2000	2001	2002
Wheat: production average (t/ha)					
World	2.5611	2.5046	2.7373	2.7252	2.7202
EU-15	5.1279	5.2783	5.8533	5.4831	5.8209
Hungary in the % of the world	198.23	166.27	131.68	157.71	128.92
Hungary in the % of the EU	99.00	78.89	61.58	78.39	60.24
Maize: production average (t/ha)					
World	3.6793	3.7877	4.2742	4.4273	4.3428
EU-15	6.6076	7.9409	9.1707	8.7836	9.1305
Hungary in the % of the world	113.00	119.58	97.77	142.30	116.71
Hungary in the % of the EU	62.92	57.04	45.57	71.72	55.51
Sugar beat: production average (t/ha)					
World	35.7134	33.5006	41.1173	39.1777	40.7980
EU-15	53.288	52.3694	60.5982	54.9679	60.9785
Hungary in the % of the world	101.07	100.26	83.80	169.87	98.44
Hungary in the % of the EU	67.74	64.13	56.86	121.07	65.86
Sunflower seed, production average (t/ha)					
World	1.3224	1.2582	1.2413	1.1362	1.2597
EU-15	1.622	1.3343	1.747	1.6356	1.6864
Hungary in the % of the world	149.05	127.64	130.75	173.93	147.94
Hungary in the % of the EU	121.52	120.36	92.90	120.82	110.51

Source: FAO statistical database

Table 7

Fruit and vegetable production compared to that of the EU and the world

Denomination	Year												
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Vegetable production* (thousand tons)													
World	461763	464512	479778	508024	532663	560758	591205	599038	616529	628747	691894	698127	787363
EU-15	52075	52453	51844	52059	52339	51465	54095	52966	54158	55330	55072	53537	53788
Hungary in the world's %	0.43	0.41	0.29	0.26	0.26	0.29	0.27	0.26	0.29	0.28	0.23	0.23	0.26
Hungary in the EU %	3.78	3.63	2.65	2.51	2.65	3.13	2.97	2.95	3.36	3.13	2.93	3.04	3.81
Tomato production (thousand tons)													
World	76162	75647	74589	77700	82767	86771	92187	87628	92013	95127	101976	100259	108499
EU-15	13519	13548	12691	12740	13588	13016	14706	13754	14680	16020	16076	15129	14535
Hungary in the world's %	0.69	0.62	0.34	0.26	0.27	0.27	0.29	0.25	0.36	0.32	0.20	0.23	0.21
Hungary in the EU %	3.90	3.46	1.98	1.59	1.65	1.77	1.79	1.60	2.25	1.87	1.27	1.52	1.58
Fruit production** (thousand tons)													
World	352349	352790	383160	388066	393347	409175	427267	442990	432296	444651	466414	466340	475504
EU-15	57273	50385	65038	55964	55528	52417	56885	54194	54545	59062	60703	58604	56226
Hungary in the world's %	0.65	0.59	0.47	0.48	0.42	0.30	0.38	0.36	0.36	0.34	0.37	0.40	0.28
Hungary in the EU %	4.03	4.15	2.79	3.36	2.99	2.34	2.89	2.96	2.86	2.59	2.87	3.15	2.36
Apple production (thousand tons)													
World	41026	36865	46942	49244	48434	50454	56175	57475	57150	60203	58961	60237	57094
EU-15	9436	6892	12303	9890	10191	9126	9888	9306	9551	10516	10583	10142	8804
Hungary in the world's %	2.30	2.33	1.42	1.66	1.36	0.70	0.98	0.87	0.84	0.75	1.18	1.16	0.82
Hungary in the EU %	10.02	12.47	5.41	8.29	6.45	3.87	5.58	5.37	5.05	4.28	6.56	6.90	5.34

* With watermelon

** Without watermelon

Source: FAO statistical database

Table 8

The comparison of harvested territories in the case of fruit and vegetable production with the world and the EU

Denomination	Year				
	1990	1995	2000	2001	2002
Vegetable, harvested territories* (thousand ha)					
World	31003	36101	42442	43023	46964
EU-15	2288	2108	2038	2013	2001
Hungary in the world's %	0.54	0.40	0.22	0.23	0.23
Hungary in the EU %	7.32	6.93	4.49	4.92	5.43
Tomato, harvested territories (thousand ha)					
World	2880	3201	3750	3745	3989
EU-15	290	247	270	254	248
Hungary in the world's %	0.69	0.53	0.16	0.21	0.18
Hungary in the EU %	6.82	6.84	2.24	3.14	2.97
Fresh fruit** harvested territories (thousand ha)					
World	41058	46438	48331	48749	50431
EU-15	6080	5578	5711	5384	5406
Hungary in the world's %	0.63	0.51	0.42	0.49	0.38
Hungary in the EU %	4.23	4.23	3.59	4.40	3.59
Apple, harvested territories (thousand ha)					
World	5115	6416	5409	5594	5675
EU-15	426	379	350	351	345
Hungary in the world's %	0.94	0.70	0.55	0.89	0.79
Hungary in the EU %	11.27	11.87	8.56	14.25	13.04

* With watermelon

** Without watermelon

Source: FAO statistical database

Table 9

**The comparison of the production average in the case of vegetables and fruits
with that of the world and the EU**

Denomination	Year				
	1990	1995	2000	2001	2002
Vegetable production average* (t/ha)					
World	14.8942	15.5330	16.3022	16.2267	16.7654
EU-15	22.7591	24.4112	27.0258	26.5952	26.8775
Hungary in the world's %	78.81	71.01	108.25	101.45	112.49
Hungary in the EU %	51.57	45.18	65.30	61.90	70.17
Tomato production average (t/ha)					
World	26.4467	27.1066	27.1922	26.7699	27.2024
EU-15	46.6661	52.7887	59.4940	59.4503	58.6831
Hungary in the world's %	100.80	50.46	123.69	107.40	114.88
Hungary in the EU %	100.80	50.46	56.53	48.36	53.25
Fresh fruit, production average (t/ha)					
World	8.5818	8.8111	9.6504	9.5661	9.4289
EU-15	9.4201	9.3965	10.6299	10.8845	10.4002
Hungary in the world's %	104.46	59.06	88.29	81.59	72.63
Hungary in the EU %	95.16	55.38	80.15	71.71	65.72
Apple, production average (p/ac)					
World	8.0208	7.8642	7.7076	10.7674	10.0601
EU-15	22.1640	24.0770	30.2096	28.8990	25.5050
Hungary in the world's %	245.57	99.74	212.38	130.02	103.82
Hungary in the EU %	88.86	32.57	76.64	48.44	40.95

* With watermelon

** Without watermelon

Source: FAO statistical database

In terms of livestock, with the exception of sheep, there has been an increase in every type of livestock (cattle, pigs, chicken) during the past years while the volume of livestock has drastically declined in every kind of animal in Hungary. Hungarian data show a decrease in Hungary in comparison with the rest of the world and the EU's share of livestock. The breed constituting the lowest value was cattle in 2002, which only made up 1% of the EU share, followed by sheep at 1.1%, chicken at 3.4% and pork at 4%.

Table 10

The share of animal livestock in comparison to that of the world and the EU

Denomination	Year												
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Cattle livestock (thousand heads)													
World	1296148	1297185	1302573	1305019	1318511	1320299	1329274	1322696	1334611	1338201	1346430	1351792	1366664
EU-15	91718	90389	87108	84905	84018	84353	85180	84685	83530	83101	82490	81415	80780
Hungary/ world %	0.12	0.12	0.11	0.09	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06
Hungary/ EU%	1.74	1.74	1.63	1.37	1.19	1.08	1.09	1.07	1.04	1.05	1.04	0.99	0.97
Pig livestock (thousand heads)													
World	857618	867114	871438	879991	885957	894988	862342	841890	882544	912708	908166	922929	941022
EU-15	121869	116785	115195	118769	119890	118081	116417	120307	120690	125381	121168	121825	123671
Hungary/ world %	0.89	0.92	0.69	0.61	0.56	0.49	0.58	0.63	0.56	0.60	0.59	0.52	0.51
Hungary/ EU%	6.29	6.85	5.20	4.52	4.17	3.69	4.32	4.40	4.09	4.37	4.40	3.97	3.90
Chicken livestock (million heads)													
World	10619	11049	11472	11860	12519	12890	13481	14331	13600	14139	14461	14859	15854
EU-15	911	907	918	923	935	935	957	966	992	981	1002	999	1005
Hungary/ world %	0.50	0.41	0.31	0.31	0.25	0.26	0.23	0.19	0.23	0.22	0.18	0.21	0.22
Hungary/ EU%	5.80	4.96	3.87	3.94	3.29	3.63	3.29	2.87	3.12	3.11	2.59	3.08	3.42
Sheep livestock (thousand heads)													
World	1204026	1182013	1158937	1135973	1124790	1090899	1079830	1064414	1065982	1068669	1057827	1056184	1034008
EU-15	115551	116162	115632	115641	115164	112512	109630	113868	116495	115187	112220	106966	105061
Hungary/ world %	0.17	0.16	0.16	0.15	0.11	0.09	0.09	0.08	0.08	0.09	0.09	0.11	0.11
Hungary/ EU%	1.79	1.61	1.56	1.52	1.09	0.84	0.89	0.77	0.74	0.79	0.83	1.06	1.08

Source: FAO statistical database

Hungary's meat production makes up only 0.5 percent that of the world's production, representing a decline, since its share used to be around 1 percent in the beginning of the nineties. Hungary's share in the case of meat production is also relatively small in relation to that of the EU, only 3 percent.

The situation is similar in the case of egg production; Hungary's share of the world's production is 0.3 percent with the tendency toward decline.

However Hungary's situation is different regarding some kinds of meat. Hungarian cattle and sheep production compared to that of the EU is insignificant, and Hungarian pork production isn't strong either, but its share of pork entails 3.3% of that of the EU. Regarding chicken production, it's important to note that Hungary's share constitutes 5% of that of the EU and Hungary has been able to pretty much maintain this level ever since the beginning of the nineties.

In both fishing production and logging Hungary represents only a negligible value. Hungary is not a big player in these fields compared with the EU either. In the year 2000, Hungary's share of fishing production was 0.3 percent, and its share in terms of logging was 1.5% in the year 2002.

Examining the data in production changes involving the more important products, we can see that the production rate of the 11 most important products generally increased worldwide in 2002 in comparison to the data of 1990. (Only wheat and sugar beet production could be said to be an exception). The situation is similar within the EU Member States, (in the year 1990, calculated from the data of the 15 EU Member States); the production rate has shown an increasing trend among the majority of the 11 products. At the same time, an increasing trend could only be observed for maize, sunflower seed and vegetable production, and there has been a decline in the production of the rest of the products. We consider this to be a warning sign, indicating a decreasing share of the world's agriculture. Stronger indications of decline could be seen in animal livestock, where, with the exception of sheep, the amount of world livestock has increased while the amount Hungarian livestock has decreased significantly in the case of every breed.

Table 11

The production of animal products in comparison to that of the world and the EU (hand corrected)

Denomination	Year												
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Meat production (thousand tons)													
World	179579	183687	187434	192125	198463	204626	206897	214934	222917	225945	232965	236541	245047
EU-15	32983	33293	33300	33641	33770	34156	34835	34705	36007	36046	35966	35863	36244
Hungary in the world %	0.90	0.78	0.67	0.58	0.53	0.52	0.55	0.49	0.49	0.49	0.48	0.50	0.46
Hungary in the % of the EU.	4.89	4.31	3.78	3.32	3.10	3.10	3.26	3.05	3.01	3.06	3.14	3.29	3.12
Milk production(thousand tons)													
World	542491	534779	527763	529531	534328	539794	543271	547825	557664	562466	578080	584651	598687
EU-15	130416	127616	125776	124402	124316	126098	126052	125022	124989	124740	125940	125930	125616
Hungary in the world %	0.53	0.47	0.45	0.40	0.37	0.37	0.37	0.37	0.38	0.38	0.38	0.37	0.38
Hungary in the EU %.	2.22	1.99	1.87	1.70	1.58	1.60	1.59	1.61	1.71	1.72	1.74	1.73	1.82
Egg production (thousand tons)													
World	37554	39185	39831	41508	45042	47067	50212	50302	52035	53745	55392	56594	58102
EU-15	5245	5268	5200	5178	5346	5359	5287	5367	5408	5397	5201	5303	5380
Hungary in the world %	0.70	0.64	0.59	0.57	0.48	0.40	0.37	0.38	0.37	0.36	0.32	0.28	0.32
Hungary in the EU %	5.03	4.74	4.50	4.56	4.07	3.53	3.50	3.56	3.53	3.54	3.45	3.01	3.48

Source: FAO statistical database

Table 12

The convergence of meat production in comparison to that of the world and the EU, (also, hand corrected)

Denomination	Year												
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Beef production (thousand tons)													
World	53378	53836	52962	52404	53131	54000	54535	55169	55316	55867	56517	56647	57883
EU-15	8948	9389	8863	8205	7869	7983	7950	7895	7736	7609	7396	7454	7502
Hungary in the world's %	0.21	0.23	0.23	0.19	0.14	0.13	0.12	0.11	0.12	0.10	0.09	0.07	0.08
Hungary in the EU%	1.27	1.31	1.39	1.18	0.92	0.86	0.79	0.80	0.84	0.75	0.69	0.54	0.64
Pork production(thousand tons)													
World	69908	70953	73088	75480	77963	78883	78830	82731	88000	88430	89584	91188	94186
EU-15	15476	15096	15237	16057	16164	16095	16483	16365	17606	17862	17618	17544	17706
Hungary in the world's %	1.46	1.31	1.05	0.89	0.78	0.73	0.85	0.69	0.65	0.67	0.71	0.66	0.61
Hungary in the EU%	6.58	6.16	5.02	4.19	3.76	3.59	4.07	3.48	3.23	3.33	3.63	3.45	3.25
Poultry production (thousand tons)													
World	40827	42982	45207	47736	50467	54267	55875	59017	61243	63249	68010	69949	73869
EU-15	6511	6734	7105	7272	7654	7935	8259	8374	8563	8461	8826	8852	9030
Hungary in the world's %	1.10	0.82	0.75	0.67	0.68	0.71	0.68	0.67	0.70	0.67	0.61	0.73	0.66
Hungary in the EU%	6.92	5.24	4.79	4.39	4.46	4.88	4.57	4.74	4.97	5.03	4.69	5.78	5.37
Sheep production (thousand tons)													
World	9697	9894	9943	10165	10395	10631	10658	11048	11314	11294	11437	11291	11549
EU-15	1223	1234	1215	1219	1196	1187	1177	1105	1134	1137	1136	1034	1055
Hungary in the world's %	0.06	0.06	0.06	0.02	0.01	0.02	0.02	0.02	0.02	0.03	0.07	0.08	0.08
Hungary in the EU%	0.44	0.49	0.49	0.15	0.09	0.16	0.14	0.17	0.22	0.32	0.66	0.85	0.82

Source: FAO statistical database

Table 13

The production share of fishing within the world and the EU production

Denomination	Year										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Fishing production (thousand tons)											
World	98550	98129	100742	104358	112190	116043	119944	122139	117790	126652	130434
EU-15	7114	7253	7600	7480	7919	8287	7725	7862	7968	7548	7236
Hungary/ world %	0,03	0,03	0,03	0,02	0,02	0,02	0,02	0,02	0,01	0,02	0,02
Hungary/EU, %	0,48	0,41	0,39	0,31	0,30	0,28	0,27	0,28	0,22	0,26	0,28

FAO statistical database

Table 14

The share of production of industrial wood in the world and the EU production

Denomination	Year												
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Industrial wood production (thousand m3)													
World	1701447	1562623	1487012	1479695	1480631	1512626	1503779	1546882	1515688	1526288	1574634	1552132	1579115
EU-15	264548	199636	197017	198588	221136	230518	212891	223139	225808	224611	259346	248286	234539
Hungary./world, %	0.21	0.20	0.19	0.15	0.17	0.16	0.12	0.15	0.15	0.22	0.21	0.21	0.22
Hungary./EU, %	1.33	1.60	1.44	1.14	1.11	1.03	0.85	1.05	1.02	1.47	1.27	1.33	1.47

Source: FAO statistical database

Table 15

**The convergence of production in the case of main plant and animal products in 2002
1990=100**

Denomination	Production of plant originated products							
	Wheat	Maize	Sugar beat	Sunflower	Vegetable	Tomato	Fruit	Apple
World	96.7	124.7	79.7	105.2	170.4	142.4	134.8	139,2
EU-15	117.8	167.8	97.7	64.0	103.7	107.5	98.2	93,3
Hungary	62.9	135.3	47.4	113.9	104.3	43.6	57.6	49,7
	The production of animal products			Animal livestock				
	Meat	Milk	Egg	Cattle	Poultry	Hen	Sheep	
World	136.3	110.3	154.8	105.3	109.9	148.4	85.7	
EU-15	109.9	96.3	102.6	88.1	101.5	108.5	90.9	
Hungary	70.2	79.1	71.0	49.0	63.0	65.0	54.9	

Source: FAO statistical database

2. Capacities of Hungarian agriculture

The basic resources of agricultural production, (labour-force, assets, land) along with certain variables, is still a source of comparative advantage on the international level for the national economy as well as for those living in rural areas. This definition is valid despite the tremendous changes that took place in terms of quantity, quality, ownership, methodology, and the economic environment of production assets. This social and economic reshaping has brought new pressures and a continual sequence of problems and difficulties to the surface. Some of these pressures were eased by the consolidated development over the past few years, but Hungary hasn't been able to eradicate the rest of the problems during the thirteen years since the political-economic transition. Due to the economic and rural character of the agricultural sector, the upcoming EU accession will propel rural society into a new phase. The reasonable application of resources and the rapid liquidation of anomalies, coupled with Hungarian national interests, will also play an important role in EU accession

In the following part of the study we shall observe the conditions of usage and ownership of land from the nineties up to the present period. Later we will analyse the distinct character of agricultural employment, living conditions and wages. In order to realistically evaluate the Hungarian situation, we will make comparisons with the international community, based on available data.

2.1. Arable land as the greatest resource of Hungary

Hungary's most important resource is productive land. Based on general criteria, the quality of arable areas, land types, physical conditions, climate, and landscape are favourable for agricultural production. However, factors influencing the quality of land show different tendencies in different parts of the country. The differences mainly pertain to the landscape, the physical characteristics and fertility of the soil, and also to water economisation/ irrigation. Climatic differences have also materialised in different geographical conditions, however climatic fluctuations limiting agricultural production are rare. There are smaller areas of production characterised by special conditions for production. They are *rural* which makes the cultivation of special products possible, and are further enhanced by culturally specific and traditional processing, thus increasing their individual quality.

Based on the statistical data (of 31st of May 2002), 83% (82.9%) of the country's entire 9.3-hectare territory is productive land. Sixty-three percent (62.9%) of the above territory is under agricultural cultivation. A large portion of this area, about half of the entire territory, is arable. Forests cover nineteen percent of the country's land, and one tenth belongs to the sector of grass land.

Table 16

The utilisation of land according to branches of cultivation

Denomination	1990	1994	1995	1996	1997	1998	1999	2000	2001	2002
The territories of cultivation branches, thousand hectares										
Arable	4712.8	4714.4	4715.9	4712.7	4710.8	4709.5	4708.0	4499.8	4504.5	4515.5
Garden	341.2	35.0	90.2	98.2	109.2	109.4	107.7	101.6	97.9	98.5
Orchard	95.1	92.7	93.9	94.3	95.6	96.3	96.4	95.4	98.0	97.3
Vineyard	138.5	131.9	131.3	130.9	130.9	129.7	127.0	105.9	104.4	92.8
Grassland	1185.6	1148.0	1148.0	1148.3	1148.1	1147.8	1147.2	1051.2	1048.5	1063.1
Agricultural territory	6473.1	6122.0	6179.3	6184.5	6194.6	6192.7	6186.3	5853.9	5853.2	5867.3
Forest	1695.4	1766.5	1762.9	1764.5	1766.7	1769.3	1774.9	1769.6	1762.4	1771.7
Reed	40.3	40.8	41.3	41.2	41.3	41.2	41.1	60.0	60.4	60.0
Fish-Pond	26.9	27.2	27.0	27.0	33.0	32.8	32.8	32.0	32.3	33.0
Cultivated areas	8235.7	7956.5	8010.5	8017.2	8035.6	8036.1	8035.1	7715.5	7708.3	7732.0
Uncultivated areas	1067.5	1346.5	1292.5	1285.8	1267.4	1267.6	1267.9	1587.5	1595.1	1571.0
Total	9303.2	9303.0	9303.0	9303.0	9303.0	9303.0	9303.0	9303.0	9303.0	9303.0
The division of the branches of cultivation, %										
Arable	50.7	50.7	50.7	50.7	50.6	50.6	50.6	48.4	48.4	48.5
Garden	3.7	0.4	1.0	1.1	1.2	1.2	1.2	1.1	1.1	1.1
Orchard	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0
Vineyard	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.1	1.1	1.0
Grassland	12.7	12.3	12.3	12.3	12.3	12.3	12.3	11.3	11.3	11.4
Agricultural territories	69.6	65.8	66.4	66.5	66.6	66.6	66.5	62.9	62.9	63.1
Forest	18.2	19.0	18.9	19.0	19.0	19.0	19.1	19.0	18.9	19.0
Reed	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.7
Fish-Pond	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.4
Cultivated areas	88.5	85.5	86.1	86.2	86.4	86.4	86.4	82.9	82.9	83.1
Uncultivated areas	11.5	14.5	13.9	13.8	13.6	13.6	13.6	17.1	17.1	16.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: The Statistical Yearbook of Agriculture, 2000, KSH 2001: Hungarian Statistical Yearbook 2000, Monthly statistical data: 2002/7, KSH, 2002

Note: The comparison of land areas is limited by the fact that between 1992-1994, the gardens of urban areas had to be registered as uncultivated territories, which were classified according to their realistic utilisation from 1995. The growing area of uncultivated land area reached 320 thousand hectares between 1999-2000 mainly affecting the sector of arable and grassland.

Examining the changes that took place between 1990-2002, a significant change was the 10-percent decrease in agricultural areas, which was mainly the result of the loss of territories from arable and horticultural areas. The fast decrease of productive land is reflected in the growing area of land (147.5%) withdrawn from cultivation. As a result of this, the share of land withdrawn from cultivation grew from 11.5% to 16.9%. The chronological comparison of the data must be viewed cautiously due to several changes of data resulting from their multiple utilisation. Horticultural areas for instance were categorised as uncultivated areas from 1992. From 1995, they continuously began to be categorised in their corresponding branches of cultivation. Change in terms of land registration also draws attention to the large amount of uncultivated areas.

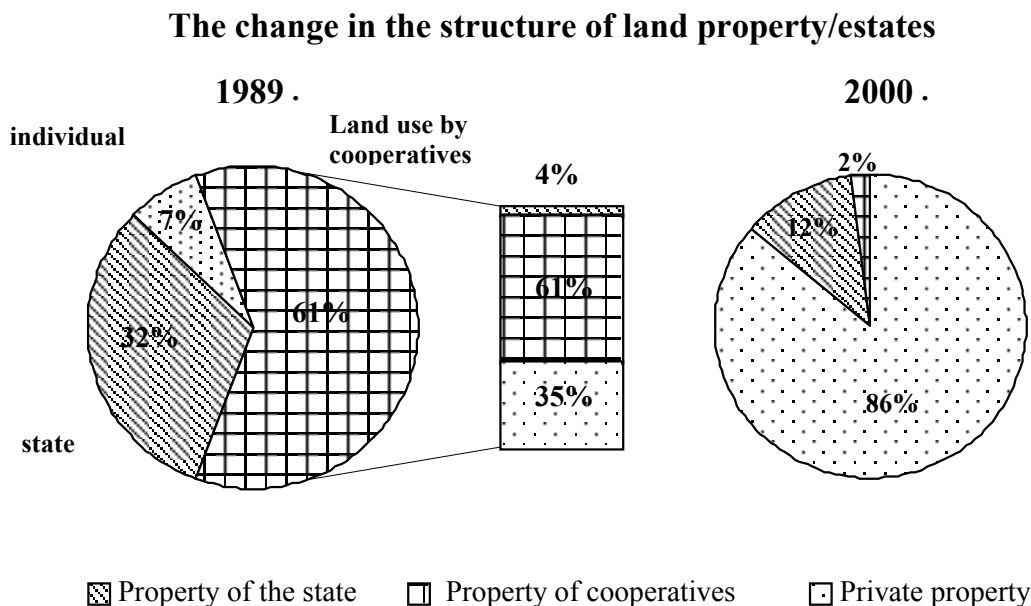
Another cause for concern is the 10% decrease in arable land, meaning more and more land is unsown. The amount of unsown land increased by 150% between of 1990-2002. This means that over 100 hectares of land were withdrawn from production.

The rate and the extent of the decrease in agricultural land described above will need special attention in the future given that conditions for agricultural production in Hungary are quite favourable, even in an international sense. The amount of agricultural land, (arable, horticultural areas/inner gardens, vineyards, grassland) is still pretty high, exceeding 60% despite the decrease that has taken place in the past few years. Out of the EU Member States, only Denmark approaches this number, where the proportion of agricultural land is around 50%. The Hungarian proportion of agricultural land exceeds that of the EU-15 by 23 percent and the proportion of arable land is 20% higher than that of the EU-15. However Hungary's proportion of forested areas is 16% lower than that of the EU-15. Another important factor, other than the proportion of arable land, is the combination of production factors (topology, climate, land quality and production traditions), which is a priceless, irreplaceable resource. The reasonable and compatible utilisation of this resource is fundamentally necessary.

During the past one and a half centuries several contradictory (in terms of their targets and purposes) land reforms have reshaped the ownership and the utilisation of land in Hungary. These changes basically hampered the co-ordinated development of agriculture, land-ownership, and utilisation. This co-ordination is a distinct part of EU agriculture, which is protected and encouraged by the state and has proven viable in the long run. Land utilisation in Hungary has been a mixture of legal structures in terms of ownership over the past 50 years. This phenomenon was characterised by the separation of land ownership and land utilisation.

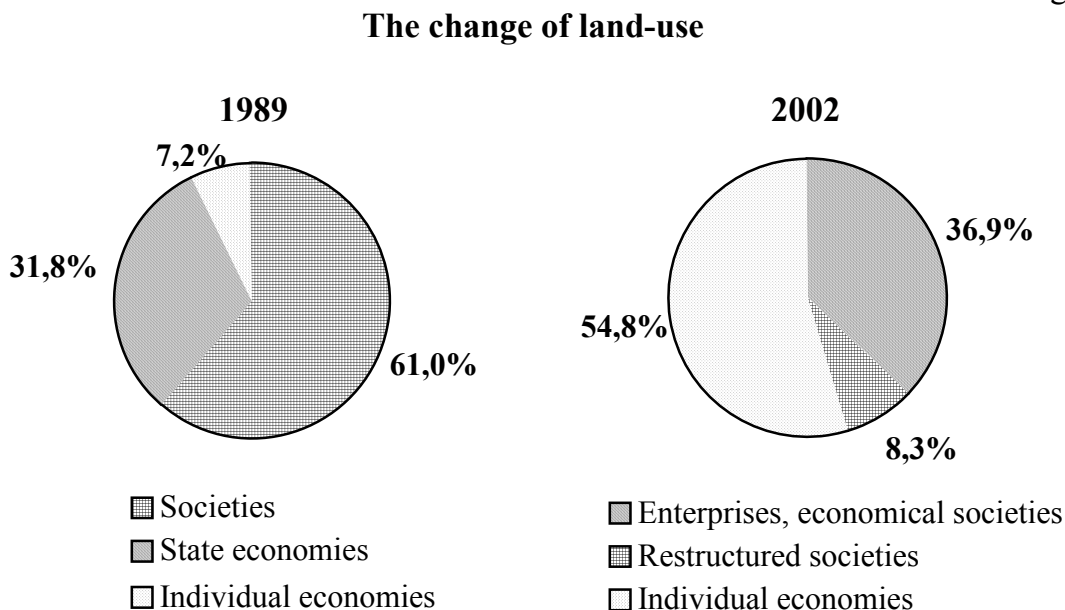
According to the data registered about ownership and utilisation at the end of the 1980s, 31.8% of the land had been utilised by state farms and enterprises, societies (economic organisations); 61% had been utilised by production co-operatives, (agricultural, fishing and specialised cooperatives combined) and 72 % of the land had been used by individual and small-scale operations. State and private farms including small-scale operations were all legal structures, representing individual and state ownership as well. Land utilisation and ownership were dealt with separately by the co-operatives, based on the make-up of co-operatives and individual land use. The corporations cultivated 3.5% as state holdings and 61.1% as common ownership of the co-operatives while 35.1% percent of the land was handed over for individual usage, meaning that it was owned by individual members of the co-operation. The purpose of the political-economic transition of Hungary, beginning in the 1990s, was the restructuring of ownership and the reintroduction of the dominance of private ownership. As a result of the changes about 86% of the land is privately owned. About 12 percent of the land under state control is let to business operations (government organisations, nature protection territories, national parks), and the restructured corporations make up two percent of the remaining area.

Figure 1



The changes of the nineties have significantly restructured the nature of land usage thus linking it to varying forms of commercial operations. As a result of the changes, the proportion of individuals utilising land attained (54.8%), exceeding half the area of productive land in the year 2002. The number of larger size operations and usage of public land has been constantly increasing and has reached over 1/3rd of the productive area, (36.9%). The share of cooperational land has decreased to barely more than 8% of the productive land.

Figure 2



We only have partial information and estimated data on the true state of land ownership, as well as on the make-up of landowners and on the slightly flourishing land market, as well as on land rental. The KSH may serve as information regarding the 50% of land affected by land-lease, revealed every year on the 31st of May which reflects the present state of land ownership. More descriptive and detailed data could be found in the complete summarisation of agriculture, which is done in every ten years, most recently in the publication of (ÁMÖ2000).

Table 17

The change of land use* according to organisational forms (1990-2001)

Denomination	1990	1995	1997	1998	1999	2000	2001	2002
Enterprises, corporations								
- land area, 1000 hectares	2145.8	2268.8	2093.5	2128.5	2318.5	2623.4	2734.9	2739.8
- share, %	26.1	28.3	26.1	26.5	28.9	34.0	35.5	36.9
Cooperatives								
- land area, 1000 hectares	4937.8	2083.6	1730.6	1584.8	1412.7	1178.5	854.9	616.99
- share, %	60.0	26.0	21.5	19.7	17.6	15.3	11.1	8.3
Economic organisations								
- land area, 1000 hectares	7083.6	4352.4	3824.1	3713.3	3731.2	3801.9	3589.8	3356.1
- share, %	86.0	54.3	47.6	46.2	46.4	49.3	46.6	45.2
Private farms								
- land areas, 1000 hectares	1152.1	3658.1	4211.5	4322.0	4303.9	3913.6	4118.5	4070.7
- share, %	14.0	45.7	52.4	53.8	53.6	50.7	53.4	54.8
Total								
- land territory, 1000 hectares	8235.7	8010.5	8035.6	8036.0	8035.1	7715.5	7708.3	7732.4
- share, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: KSH.

A more detailed analysis of the above data could be done based on the dates of General Agricultural Census of 2000 (ÁMÖ 2000). The purpose, the method, the timing, and the system of criteria of the summarisation different from those of the annual publications; therefore there are numerical differences between the two databases. The summarised data in correlation with those of the EU, do not include those economies where the farm size², does not reach the minimal size as well as those areas where the users or cultivators cannot be identified personally.

² Economy: A productive unit of agricultural activity which is separate in terms of an economic sense as well as in terms of technology.

 Utilised at the 31st of March in 2000

- Productive area-arable, orchard, vineyards, meadow, grassland, reed, fish-pond separately or altogether at least 1500m² or
- Orchard and vineyard separately or altogether at least 500m².
31st of March, 2000
- One large size of livestock (cattle, pig, sheep, horse, goat and **buffaloes**)
- 50 heads of poultry (hen-kind, goose, turkey, guinea fowl), separately or altogether.
25-25 Hungarian rabbit, furry-animal-meat pigeon or 5 families of bee
During the 12 month of summarisation
- Has been doing agricultural services or
- Intensive horticultural production, (ex: green house-production, production under foil.)

This explains the differences between the statistical data and the data of ÁMÖ 2000 on land areas. The majority of economies with statistical size possess land, 96.2%. The land utilisation (meaning their relationship to the land) of the two legal structures, however differs significantly. The activities of the private farms are tightly connected to the land, while this is only true for barely 2/3rd of the economical organisations that deal only with animal husbandry or different services. A much greater proportion of landless commercialisation constitutes a severe problem for land-privatisation and land usage. A significant part of the operations suffer from a lack of land they can lease, or experience financial difficulties in doing so and are compelled to change their economic structure, and this is coupled with the expense of fodder (which also risks increasing production costs) in order to feed their animals.

Table 18

The number and the territorial share of private farms and economic organisations, 2000

Denomination	The number of holdings Total	Holdings with land areas out of these			
		Number per pieces	Share from all %	Scattering	Territorial share
Private farms	958534	924788	96,5	99,4	40,5
Economic organisations	8382	5392	64,3	0,6	59,5
Aggregated economies	966916	930180	96,2	100,0	100,0

Source: ÁMÖ 2000 – Territorial data, KSH 2000

The current utilisation of land also indicates a lack of balance between economic structures. Sixty percent of land usage is connected to a negligible share (0.6%) of economic operations, mainly the legal inheritor of the earlier large size corporations. The private farms that entail 99.4% of the agricultural units cultivate on 40.5% of the land. We must also pay attention to those units that don't reach the statistical size, and that cultivate on land (including for hobby purposes) around the house, producing food for personal needs. Out of the 1.8 million units included in the census 960 thousand reached the minimal statistical farm size. Close to one half (46,4%) of the examined units do not belong to this category of holdings, but cultivate 16% of the productive land, meaning 1.3 million hectares of land.

There are differences between the two basic forms of land usage in terms of land – share and economy. The numerical proportion of private farms exceeds the national average by 8-10% in the case of agricultural areas such as Southern Transdanubia, and the Southern Great-Plains. Another determining factor is the equally high participation rate in the Northern Great Plains, where the majority of the great corporations experienced liquidation without any form of restructuring. Its role in the agricultural life is affected by the lack of other employment, which results in overproduction.

Table 19

The regional scattering of agricultural lands areas (2000)

Regions	Involved in agricultural activity				
	Economic organisations	Private farms	No-economy	Economic organisations	Private farms
	Their number in terms of share ¹⁾ ,%			Their number in terms of territorial share ¹⁾ ,%	
Middle-Hungary	0.3	34.1	65.6	62.5	37.5
Middle-Transdanubia	0.5	45.1	54.4	67.6	32.4
Western-Transdanubia	0.6	54.6	44.8	68.9	31.2
Southern- Transdanubia	0.7	63.5	35.8	67.7	32.3
Northern-Hungary	0.3	48.1	51.5	66.5	33.5
The Northern Great Plains	0.4	59.2	40.4	48.4	51.6
The Southern Great Plains	0.5	62.3	37.2	47.6	52.4
Country in total	0.5	53.2	46.4	59.5	40.5

¹⁾ The number of economies, and their area together=100.0%

Source: General Agricultural Census, 2000-Territorial Data, and KSH 2000

Southern Transdanubia has maintained her position not only in terms of numerical share but in terms of territory also. However, in the Southern Transdanubian region, the amount of private farms remains way under (half) their numerical ratios. This can be traced back to legal successors of mainly former corporations. The land occupancy by economic organisations exceeds the national average by a 6-8-point average in every region of the country with the exception of the Southern and Northern Great Plains. We may conclude that these are signs of the different capacities, and traditions of the regions and indicative of their need to adjust.

The major changes in land ownership that took place in the nineties, (the compensation of earlier landowners and subsequent inheritance of land), the designation of territories of partial share and their subsequent classification.), have significantly increased the number of those legally connected to land, meaning ownership. This is regardless of whether they were connected to agriculture earlier or whether they intend to continue any agricultural activity on the land in their possession. Therefore the restructuring of the nineties resulted in a pretty chaotic and divided system of land ownership, where a secure livelihood from farm operations is still rare even a decade after changes in ownership structure.

The unfavourable effects of land ownership, resulting from the division of land according to legal possession, is somewhat compensated by the opportunity to lease land. The average size of land within economies with land is 2.8 hectares and it is 711.7 hectares within economic organisations. (The territorial average in terms of the entire economy does not show much difference in the case of private farms, however the difference in the case of economical organisations is pretty big, when those cultivators not holding land at their disposition are included, it comes out to be 457 hectares.)

The bipolar application of land is well illustrated by the comparison of economies according to size-categories: Nominatively:

- While the number and territorial rate of private farms tend towards smaller estates, the economic organisations represent the higher end of the scale, indicating the bi-polar usage of land and the characteristics as well as the differences in economic opportunities.
- An interesting distinction is that while there is a 9% difference in the territorial share of the two economic structures; there is a 110-fold difference in the number of economic organisations, tilting in favour of private farms.
- The sharp division of land in terms of private farms is reflected in their average size which barely reaches 3 hectares and the majority (95%), - along with close to 1/3rd of the productive land (34.1%)- are in the category of “ below 10 hectares”; moreover, the majority of economies cultivating on less than 5 hectares of land (90.4%), pull the average down, meaning less than 1 hectare of land is used per economy.
- The third (37%) of the economic organisations at the other end of the land utilisation scale belong to the category above 300 hectares, constituting 90% of the economic group/sector, on a average territory of 1100 hectares.
- We may conclude that the number of middle-sized corporations is insignificant among private farms as well as their territorial share. One of the main objectives of the EU accession is to increase the number of these economies.

Table 20

Private farms and economic organisations bearing regional territories and economic organisations in 2000

Denomination	Economies		The size of area		The average territory of an economy/ac
	Number	Division, %	Hectares	Scattering, %	
Private farms					
Under 10 hectares	874037	94.5	890590	34.1	1.02
10-50 hectares	43630	4.7	916730	35.1	21.01
50-100 ac	4653	0.5	324920	12.4	69.83
100-300 ac	2219	0.2	360209	13.8	162.33
Above 300	249	0.0	121551	4.7	488.16
Total	924788	100.0	2614000	100.0	2.83
Economic Organisations					
Under 10 hectares	787	14.6	3067	0.1	3.90
10-50 ac	1356	25.1	40640	1.1	29.97
50-100 ac	593	11.0	45625	1.2	76.94
100-300 ac	1101	20.4	232724	6.1	211.38
Above300	1555	28.8	3511944	91.6	2258.48
Total	5392	100.0	3834000	100.0	711.05

Source: General Agricultural Census, 2000-Territorial Data, and KSH 2000

More time will be necessary for the formation and consolidation of those private farms capable of providing a livelihood and capable of surviving on an economic basis. The process is not hindered by intentions; however, it is hindered by lack of capital which troubles the economy as a whole, and the low production profitability. Even though the area of the private farms has increased five-fold in the last decade, it still does not reach 3 hectares. The majority of the economies still remain under 5 hectares, and do not provide livelihood for a family who must thus find other sources of income. Owners with less land usually let their land to economic organisations, or to private farms. This means that leasing reduces the unfortunate tendency of dividing land into smaller portions. However leasing is not without risk and results in cost increases as well as other disadvantages.

Table 21

The number and territory of private farms owning land, according to the size of their holdings

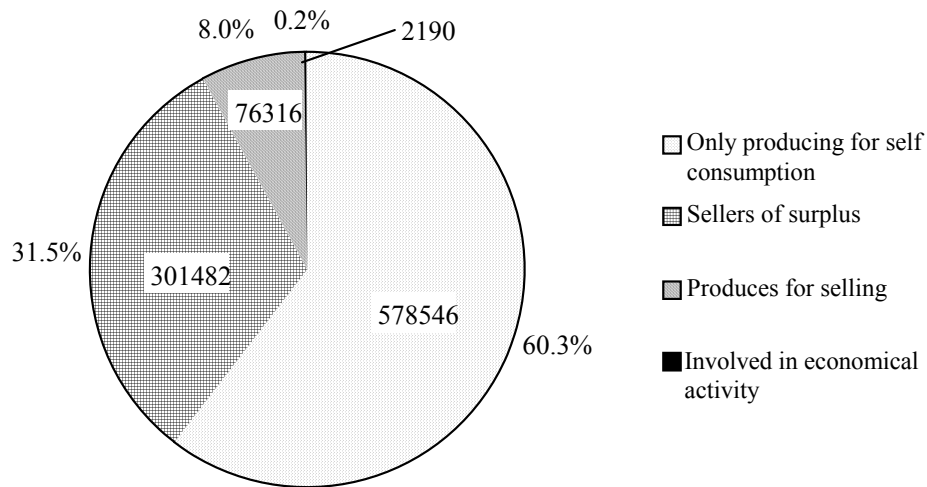
Size of holding	Private farms		Land area		The average territory of one economy, ha
	Number	Share, %	Hectare	Share, %	
In 1991					
-5.0	1388551	99.5	566147	88.4	0.4
5.1-10.0	5556	0.4	36505	5.7	6.6
10.1-	1646	0.1	37647	5.9	22.9
Total	1395753	100.0	640299	100.0	0.5
In 2000					
-5.0	831666	89.9	588150	22.5	0.7
5.1-10.0	42731	4.6	303224	11.6	7.2
10.1-50.0	43630	4.7	917514	35.1	21.0
50.1-	7121	0.8	805112	30.8	113.1
Total	924788	100.0	2614000	100.0	2.8

Source: Agricultural small-scale production I. KSH 1993, Private farming in agriculture 1994. KSH, 1995, General Agricultural Census 2000- Territorial Data, KSH.2000.

The slow territorial concentration of land and the compensating characteristic of production are expressed by the diversity of the 960 thousand private farms.

A large portion of the private farms (60.4%) only produce for self consumption, meaning that their contribution to families is not negligible, but may not be considered as vital. Above 30% have indicated that they produce above their personal consumption, meaning that they use this amount to complement their income. The proportion of commercial farms is only 8% (76.6 thousand). The proportion of those involved in economical services is only 0.2%. The 80,000 economies producing for the market will certainly be able to compete. The number of these holdings could be increased by EU subsidies and could come from the semi-commercial holdings.

Figure 3

The division of private farms according to the purpose of farming


Source: ÁMÖ 2000, KSH, 2001

To estimate the consequences of EU accession on private farms, we must consider the significant differences between the utilisation of land in Hungary and the EU average as well as the Member States themselves. The average size of EU corporations (18.4 hectares), which is increasing, represents great fluctuations within the Member States. For instance, there is a sixteen-fold difference between the two fluctuating values, (Greece: 4.3 hectares, Great Britain: 69.3 hectares. A small average size also exists in Italy and Portugal, which is tightly connected to the large amount of sowed land. The size of corporations is increasing in every Member State, even if this tendency is different in each Member State. This increasing tendency was the most obvious (an increase in the size of the estate by over a third.) in Spain, Portugal and France in the nineties. The concentration of productive land is around 15-25% in the rest of the Member States also. Due to a declining agricultural population, coupled with the desire to keep the holdings intact, the Union tries to encourage the concentration of holdings by different means.

Within the EU It can be stated that the usage of land capacities greatly varies between the different size classes of holdings, and even within the size classes. These factors are a good solution toward disparities in terms of areas, employment and wages. In terms of their economic effect, they are a clearly defined, reliable, efficient base for the subsidy schemes. Obviously, these distinct solutions cannot be adapted to the Hungarian structure and usage of estates. However the adaptation of the experience, and the formation of an carefully considered political concept would serve to ease contradictions as well as the process of consolidation.

Table 22

The average size of holdings in the EU countries

Denomination	Average size of co-operation, ha			Change: 1990=100%
	1990	1995	1997 ¹⁾	
Greece	4.3	4.5	4.3	100.0
Italy	5.6	5.9	6.4	114.3
Portugal	6.7	8.7	9.2	137.3
Austria	-	15.4	16.3	-
Netherlands	16.1	17.7	18.6	115.5
Belgium	15.8	19.1	20.6	130.4
Spain	15.4	19.7	21.2	137.7
Finland	20.7	21.7	23.7	114.5
Ireland	26.0	28.2	29.4	113.1
Germany	26.1	30.3	32.1	123.0
Sweden	32.9	34.5	34.7	105.5
France	30.5	38.5	41.7	136.7
Luxemburg	31.7	39.7	42.5	134.1
Denmark	34.2	39.6	42.6	124.6
U.K.	67.9	70.1	69.3	102.1
EU-15	-	17.5	18.4	-

¹⁾ The list of the Member States by the size of the holdings is based on the annual data of 1997.

Source: Agricultural Statistical Yearbook, EUROSTAT

2.2. Employment and the convergence of average salaries within the agriculture

2.2.1. The national-economic characteristics of employment

The changes of employment and economic activity have all been affected negatively by unfavourable demographic factors (high mortality rate, low birth-rate, disadvantageous structure). Economic decline that lasted until the last trimester of the nineties, as well as the modifications in the different sectors of the nationaleconomy, have also affected it unfavourably. The massive liquidation of jobs and the unhealthy growth of the economically inactive followed the social and economic changes that influenced employment in the nineties. The above phenomenon still exists and is valid nowadays despite a decreasing rate of unemployment (which peaked at 12.6% in 1993,) and the flourishing economy in the last few years. Due to several contradictory factors influencing the labour market (increasing numbers of employable people, the massive liquidation of jobs and the decreasing rate of unemployment) the number of employable but inactive people has increased 1.7 times, by 169.3% between 1990-2002. If one considers the growth in idle potential workers by 940 thousand, and combines it with official unemployment figures, it has almost reached a level of 2.3 million persons. The gap between the active labour force and the inactive layers of the

population is the result of (in a way a positive trend but in the long-term risky in terms of job opportunities) the growing number of younger people continuing their studies, the large amount of early retirement when compared to other countries, and especially premature retirement that people are being pressured into. A third of the inactive population is made up of those staying at home or those that are pushed out of the labour force or those that do not even get in. Unemployment among women is 43.8%, which exceeds men by 10%.

As a result of the above phenomenon, all indicators of the economy show a significant decline compared to 1990, despite the fact that economic consolidation and employment have increased in the past few years. Regional differences have increased compared to the (5%), at the beginning of the decade. The unemployment situation is still the worst in northern Hungary and the Northern plains, which are only monolaterally industrialised and unfavourable for agricultural production. Less favourable tendencies are appearing in the Transdanubian regions also, where the rate of employment barely reaches 50%. The differencing pace of agricultural development is reflected in the fact that the western Transdanubian regions now have a slight advantage and took the lead in employment between 2000-2001 from the central Hungarian regions.

Table 23

The change of economic activity

Denomination	The share of employment ¹⁾ , %			The rate of activity ²⁾ , %		
	1996	2000	2001	1996	2000	2001
Middle Hungary	56.8	60.5	60.8	62.2	63.8	63.6
Middle Transdanubia	52.7	59.2	59.8	58.8	62.2	62.5
Western Transdanubia	59.3	63.4	63.2	63.9	66.2	65.9
Southern Transdanubia	50.3	53.5	52.5	55.6	58.1	57.0
Northern Hungary	45.7	49.4	49.6	54.0	55.0	54.2
Northern Great Plain	45.6	49.0	49.6	52.5	54.0	53.8
Southern Great Plain	52.8	56.0	56.2	57.6	59.0	59.4
Italy	52.4	56.3	56.5	58.2	60.1	59.9
EU -	60.1	63.3	63.3	67.5	69.0	..

¹⁾ Rate of employment: The rate of economically occupied people from (15-64) population;

²⁾ The rate of activity: The combined rate of the people within employable age group, including employed and unemployed.

Source: The chronology of examinations of labour force 1992-2000, KSH, 2001.

Employment in Europe 2001, European Commission, Luxembourg 2001.

Examining the current employment trends in different types of **settlements**, there is no reason to believe that the 30.4% employment rate of villages examined in 1996 differs from the regions where the most critical employment conditions exist, such as the northern plains, and northern Hungary. Employment opportunities are

decreasing as a result of the smaller population. In those villages where the population is between 50-100 persons, the number of inactive people unable to support themselves and thus forced to rely on social welfare or other help exceeds 70%

Due to the decline in the active labour force, there is great pressure on those employed, which is indicated by the growing gap between the active and the inactive population. While 100 employed persons had to support only 123 economically inactive people in the year 1990, this number increased to 168 after the peak of 1996 when the rate of the inactive population was 186 for 100 workers. In some counties of the most severely touched regions, an inactive population of 250-280 persons has to be supported by 100 active people. The gap between the active and inactive population is the greatest in the following counties: Szabolcs-Szatmár-Bereg, Borsod Abaúj-Zemplén and Nógrád. There are other labour market indicators, which justify the above statement, and the same thing could be said about the majority of communities.

Severe regional employment problems are also increased because of ethnic make-up, meaning the high amount of gypsies, which sometimes entail up to 40% of the population. While over 60 percent of the population live in cities, a similar amount of the gypsy population choose less populated regions, which do not provide them with job opportunities.

Those villagers, mainly living from agriculture, are less productive and thus their income becomes lower than that of the average person. Therefore, they assume a much greater burden than other people in supporting their families. The only thing dependent individuals can rely on, in a socio/economic sense, is their family as they haven't been able to receive social benefits from a system which is strongly tied to having employment. Support mechanisms introduced in 1999 have somewhat alleviated the above problem, but without creating job opportunities we can hardly expect any improvement. An obstacle to positive change is the fact that many families who had two working members, (which provided them with secure and stable support), have become families of only one breadwinner. In the worst regions, with small populations, it is not unusual to find that no family member enjoys any sort of job opportunities.

The Hungarian rate of employment was 7-9%, behind that of the EU average - and the gap measured by indicators only decreased by 1-1%, during the years examined. Our results regarding employment come closest to the Member States at the bottom of the employment rate list, meaning Greece and Spain. Our rate is below (10%) that of the Portugal average, which in many ways has similar economic capacities to Hungary.

EU employment policies, which are merely "recommendations", orient Hungary as well as the other candidate countries waiting for accession. These suggestions contain tips for the optimal utilisation of labour, creation of job opportunities, and for furthering adaptation, and for equal job opportunities. It is urgent to change Hungarian labour market conditions and an indicator of this urgency is the extremely high rate of unemployment among potentially active people, which

increased from (using our rate of 1990 as the basis) 22.8% to 36.32% by the year 2002.

2.2.2. Changes in the structure of employment in the various sectors

Negative factors influencing economic and social restructuring were just as strong up until the last trimester of the nineties. Following the low point in 1997, the anomalies of unemployment began to soften on a national economic level. The 1.3 million (26.7%) decrease in the number of unemployed was overturned by an average of 1-1.5% increase of the employment rate after 1997. However the growing number of working people did turn out to be permanent.

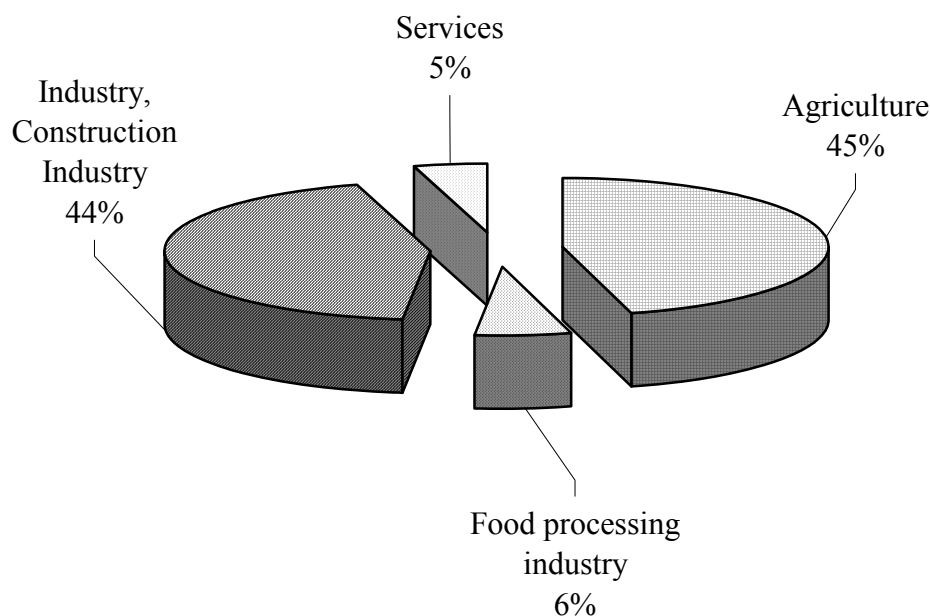
The decrease in the labour force market has significantly restructured the nature of employment according to national economic branches. The changes-similar to international trends- is characterised by a decline in the importance of the production sectors and the increasing significance of the service sector. The forest and agricultural sectors' share of the labour force decreased from 17.5% in 1990 to 6.2% in 2002. The partial share of industry, including the construction industry, has gone below one third, (34.2%), and the service sector has approached 60%.

The decrease in the agricultural sector by 650 thousand people entailed the greatest unit of redundancies. About two-thirds of agricultural employees working in 1990 have been shed from the sector. Ninety percent of the dismissals were done during a critically short period, between 1990-1994. The shedding of employees exceeded the national average by 2.5 fold during the above period.

Figure 4

The decrease in the number of the employed population within the major sectors of the economy

All labour force output within the national economy between 1990-2000=100%



Source: The balance of the national economy, KSH, the data of the corresponding values

In the national economy close to 250,000 new jobs were created between 1997-2001. Undoubtedly this positive trend represents fluctuations of different directions in each economic sector. Unfortunately the rate of the above phenomenon shows a slow decrease. The newly created jobs are insufficient to employ the new demographical wave or to resolve the problem of the permanently unemployed. The increase in employment has barely had any positive effect on the situation of lightly populated rural areas. The agricultural sector was the only place where the shedding of employees has continued. The positive effects of employment did not have much of an influence on the rural communities; they only increased the rate of fluctuations there.

The trend toward growing service sector employment is similar to that of the economically developed countries. The basic difference is that this restructuring results in the development of engineering-technologies, the increase of labour force productivity, and the increase of purchasing power. In Hungary a similar trend in terms of employment was followed by a decline in productivity, and a catastrophic lag in engineering and technologies in certain sectors. Based on randomly chosen factor-pairs, several analysts have come to the conclusion of a favourable increase in labour productivity.

Table 24

**The change of the employed¹⁾ within the major sectors of the national economy
(1992-2002)**

Denomination	The employed					
	Number, 1000 pers	Division%	Number, 1000 pers.	Division %	Number 1000 pers.	Division %
	1992		1997		2002	
Agriculture	460.1	11.3	287.8	7.9	240.9	6.2
Industry, Construction Industry	1431.0	35.0	1207.9	33.5	1319.9	34.1
Producing sectors	1891.1	46.4	1495.7	41.4	1560.8	40.3
Service	2191.6	53.6	2114.5	58.6	2309.8	59.7
Total	4082.7	100.0	3610.3	100.0	3870.6	100.0

Source: The regional chronological order of the labour force-1992-2000. KSH 2000. Periodic Statistical Reports, 2001/12 KSH 2002.

1) The long term examination of the number of active population according to sectors, and the number of employment type from 1992 which is based on the referred source. This means that it should be the demand of the analysis between 1990-2001.

A common characteristic of all regions of the country is the decreasing role of agriculture, meaning a slight employment increase of the industry and services. The national data show different results due to variations in the capacities and the production traditions in different regions. On the one hand, due to the decrease of employment in the agricultural sectors affecting every region, the differences in employment rate have somewhat evened out. On the other hand, those regions of significant agricultural production and favourable capacities, and traditions are still currently important and are registered because of their economic importance. The Southern Great Plains as well as the Southern Transdanubia along with the slightly industrialised and Northern Great Plains exceed the average agricultural production by 1.5-2.5 times. Characteristic of this type of activity, the people in these regions bond 3-4 times as strongly compared to the people living in cities.

Table 25

The division of labour force according to sectors of the national economy per regions

Denomination	Agri-culture	Industry ¹⁾	Services	Agri-culture	Industry ¹⁾	Services	Agri-culture	Industry ¹⁾	Services
	1992			1997			2001		
The share of labour force, %									
Middle Hungary	3.8	33.3	62.9	2.2	27.8	70.0	1.9	26.4	71.7
Middle Transdanubia	10.8	41.1	48.1	8.2	41.5	50.3	6.0	44.6	49.4
Western Transdanubia	12.6	39.3	48.1	7.2	39.7	53.1	5.4	42.1	52.5
Southern Transdanubia	16.3	32.7	51.0	11.7	31.5	56.8	9.8	33.9	56.3
Northern Hungary	9.1	40.8	50.1	5.6	39.3	55.1	4.8	39.0	56.2
Northern Great Plains	15.9	35.2	48.1	12.3	32.6	55.1	8.1	34.2	57.7
Southern Great Plains	22.9	31.2	45.9	16.6	32.1	51.3	14.2	33.9	51.9
Italy	11.4	35.5	53.1	7.9	33.5	58.6	6.2	34.4	59.4
EU-15-	6.4	33.2	60.4	4.9	27.8	67.3	4.2	26.4	69.4

¹⁾ Industry and construction industry altogether

Source: The regional time lines of the labour force market 1992-2000. KSH, 2000

Employment in Europe 2001, European Commission, Luxembourg 2001.

Teréz Laky: Hungarian Labor Force Market, OFA, 2003.

Economic changes in the structure of employment, which have occurred in Hungary along with a severe decline in economic activity, are similar to trends in other countries. Employment in the service sector is 10% below that of the EU average (69.4%), and the employment rate in the industrial sector (26.4%) is (8%) lower than that of the EU. Involvement in the agricultural sector barely exceeds that of the EU (by 2%), which represents a value of 4.2% within the Union.

Employment trends in the various sectors became similar to those in the EU during the nineties. On the one hand, this fact represents positive trends in Hungarian economic structure as it is now more and more similar to that of the EU, but it also shows the fiercely competitive situation which Hungary will face after accession. Another important fact is the urgent need for Hungary to prepare for economic competition prior to accession. Development of rural regions in connection with agricultural employment is thus an issue requiring special attention. The demands of the labour force and the role of the sector are influenced by several factors at the same time, (population, the share of agricultural territories, the capacities of land and the frequency of manpower). It would be a mistake to merely consider a minimum standard as an objective. In the highly populated countries with low agricultural employment rate, (Belgium, The Netherlands and the UK), the low employment rate in the agricultural sector does not mean that it is insignificant in terms of jobs. On an international scale, the data indicate that Hungary is much closer to the EU average in

terms of land capacity, and frequency of manpower in relation to the share of employees in agriculture. Of course there are significant differences behind the above parallels. In order to estimate the importance and in order to retain a role for the agricultural sector, one must consider the more favourable production conditions of the EU members.

2.2.3. The characteristics and measures of employment in agriculture

The number of people employed in the agricultural sector shrank to half the amount (went down to 54.7%) between the years of 1992-2000, which amounts to (6.5%). One year later only 48% of those working in the sector in 1992 were employed in agriculture. The official rate at this time was 6.2%. The share of those depending on or connected to agriculture (even in order to supplement their income) highly exceeds this value and it would be difficult to tell the difference based on the statistics of different content and definition.

Based on the statistically measured number of occupants of the sector, on a regular basis, it can be stated that there has been decrease and restructuring in all the legal entities within the sector. The most obvious change was the changing ratio of legal employment and membership of the corporations. The change in their share was barely any different at the beginning. This is the result of the restructuring of corporations into economic societies. The rate of the above process was sparked by initially modest intentions, which later on turned into the politics of agriculture. The share of employees within the sector approaches 60% (57.2%), while the share of cooperative members is 11.6% as their number had shrunk to one fifth of its original value.

Table 26

The convergence of employment within the agriculture

Year	Number of employees within the agriculture								
	Their number total, 1000 pers	Broken down to:							
		Employed		Member of cooperative		Enterprises		Helping family member	
		1000 pers	%	1000 pers	%	1000 pers	%	1000 fő	%
1992	460.1	193.4	42.0	176.0	38.2	69.5	15.1	18.9	4.1
1993	349.4	172.7	49.4	101.8	29.1	53.7	15.4	15.9	4.5
1994	327.6	167.0	50.9	80.7	24.6	55.2	16.8	13.8	4.2
1995	295.1	150.1	50.8	66.4	22.5	53.6	18.2	13.1	4.4
1996	302.4	162.0	53.6	60.3	19.9	59.0	19.5	12.9	4.3
1997	287.8	152.2	43.5	50.9	17.7	60.6	21.0	14.5	5.0
1998	278.8	158.6	56.9	42.3	15.2	57.2	20.5	13.1	4.7
1999	270.4	151.7	56.1	34.5	12.8	65.2	24.1	12.2	4.5
2000	251.7	144.1	57.2	29.2	11.6	62.9	25.0	10.0	4.0
2001	243.4	..	..	..	..	..	..	..	..
The rate of change ¹⁾	52.9	74.5	-	19.6	-	93.8	-	64.5	-

¹⁾ The value of change in %, shows the change between the two corresponding fluctuating data, with the exception of all agricultural workers the index is: 2000:1992=100%

Source: KSH

The number of people involved in agriculture part-time or for other purposes are the multiples of those officially working in agriculture. According to the data of the ÁMÖ in the year 2000, close to 2 million people were involved in farming for short or long periods. Their share within the national economy is 20.3%. This share increases a little when we relate the number of agricultural workers to the active population engaged in agriculture above the age 15.

Table 27

The demography of the active workers and agricultural employees according to regions and counties (2000).

Denomination	Population within the active range					The share of agricultural workers	
	Total, persons	Broken down to:		Population engaged in agriculture, persons	From this:		
		15-59	60-		15-59		60-
		annual, %		annual, %			
	2403185	76.3	23.7	158387	70.5	29.5	6.6
Middle-Transdanubia	914718	77.9	22.1	188173	71.1	28.9	20.6
Western-Transdanubia	823370	76.4	23.6	222595	69.3	30.7	27.0
Southern-Transdanubia	808417	76.0	24.0	259134	71.0	29.0	32.1
Northern-Hungary	1037605	75.3	24.7	287772	69.4	30.6	27.7
Northern Great Plains	1226118	77.2	22.8	450486	72.5	27.5	36.7
Southern Great Plains	1112568	75.0	25.0	409226	70.9	29.1	36.8
Total	8325981	76.3	23.7	1975773	70.9	29.1	23.7

* Unemployed

Source: The work-force of the private farms, 2000, KSH Budapest 2001

There is a 5.5 fold difference between the proportion of people working in agriculture in different regions. The most people tied to agriculture live in the regions of the Southern Great Plains: Southern Transdanubia and the Northern Great Plains. In the first two places the motivation comes from favourable circumstances and traditions while in the third region the main reason for involvement in agriculture is the result of the lack of job opportunities and critical employment conditions.

The significance of agricultural production based on the index of population is around 20% in the economically consolidated northern region of the country. At the same time agriculture remains in the background in the capital and larger cities in Hungary.

The majority of the 958.5 thousand private farms are run by one household, and there is only one elderly person living in every five households. The number of private farms operated by more than one household is insignificant, only (1.9%). There are no significant differences regarding the make-up of private farms, households and people.

2.2.4. Quality traits of the agricultural employees

In line with international tendencies, an ageing population within agriculture is a typical trend. Recent data reflecting the demography of the population indicate the extent of the process. Fifty-nine percent of the agriculturally employed population belongs to the middle-aged and elderly layer of the population, showing an increase of 13 percent. A quarter of the employees are over the age 50 and the proportion of 40-49 year old people is increasing. There are no signs that there is a young population ready

to replace their elders in agriculture. The involvement of young people is at its lowest in this sector when compared to other sectors (17.95). The enduring nature of this age factor is reflected by the 10% lower rate of young people planning to work in the sector and the 8-9% of the elderly population participating in different sectors.

Table 28

The composition of labour force according to age groups (1990-2001)

Age groups-	The division of labour force according to age categories. %								
	Agriculture			Industry			National Economy		
	1990	1996	2001	1990	1996	2001	1990	1996	2001
14-29 year	23.5	21.8	17.9	28.2	29.7	28.4	27.2	28.5	26.6
30-39 year	31.0	25.9	23.1	30.9	25.1	24.4	31.4	26.3	25.1
40-49 year	27.2	35.1	34.0	26.5	32.7	30.1	26.9	32.3	29.8
50-X year	18.3	17.2	25.0	14.4	12.4	17.1	14.4	12.9	18.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹⁾ The division according to the composition of age groups in the first two periods, according to the number of occupied population in 2001.

Source: The convergence of employment, 1980-1996, Microcensus, 1996, KSH, BP, 1997, Population counting, 2001, 2. Detailed data based on the samples of representative data, KSH, 2001.

Contrary to the above tendency, a clearly positive change has occurred in the educational make-up of those employed in agriculture. Over half (55.3%) of the people working in agriculture in the nineties had only finished elementary school. This proportion decreased to 42.4% by 1996, and by the year 2001, it was only true for one third of the people. Currently close to 60 percent of the population involved is educated to an intermediate level (their rate has increased by 5.5 percent) and using 1990 as a base, the share of people with college or university degree has increased by 7.7%.

Table 29

The composition of the active earners according to their education (1990-2001)

Education	The division of the employed according to their education								
	Agriculture			Industry			National Economy		
	1990	1996	2001	1990	1996	2001	1990	1996	2001
Elementary school	55.3	42.4	34.0	42.3	25.1	19.5	38.6	21.3	15.4
Middle school	39.2	50.4	58.2	51.2	66.4	71.2	49.2	61.6	65.0
Superior education	5.5	7.2	7.7	6.5	8.5	9.2	12.3	16.8	19.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: The convergence of employment, 1980-1996, Microcensus, 1996, KSH, Bp 1997. Population counting: 2001. 2, Detailed data based on the representative sample, KSH, 2001

However we are not satisfied with the development of the people's educational background in agriculture when we compare it to the average value of the national economy or to industry. The share of those with low education entails up to one third of agricultural employment which is still very high, 1.7-2.2 times that of the ratio in industry and the economy as a whole. The agricultural sector still lags 10-20% behind a similar index in industry. The "brain drain" of professionals is much worse. The service

sector enjoys a 20-% advantage in terms of highly qualified people in the national economy.

The make-up of the labour force in this sector, which is worse than that of the national average, leads to the conclusion that the nature of the work, the strong bond with the villages, and the low salaries are not attractive to young people. This particular phenomenon hinders Hungary's adjustment to EU requirements as well as to the new circumstances. It is worrisome that the rising educational level and the organisational and proprietorial changes happening in agriculture are linked to major lay-offs in the sector. The restructured economic organisations laid off their uneducated employees in the first place, which in itself resulted in a higher educational level.

The education level of those working in private farms is similarly low. Close to half of the people working in agriculture are over the age 50 (47.9%). The rate of young people (under 30) working in the sector is only 17.5%. The proportion of the elderly working in agriculture exceeds the number of the youngest workers by 1.7 times. This changes when we consider commodity production where the younger generation exceeds the number of those above the age 60 by twofold.

We observe that in terms of education, the majority (92%) of the educated population has a degree (either middle or basic) that is not related to agriculture. The share of those that are highly educated is only 6%. In commodity production the average level of education is higher.

A troubling picture appears in terms of agricultural education, because an important condition of obtaining EU subsidies is to have people trained in agriculture working within the sector. Although agricultural training may be replaced by several years of professional experience, due to the reluctance of the younger generations and the upcoming departure of the elderly, it will be hard to meet EU standards for agriculturally trained workers. Out of the people working in private farms, 94.2 percent have very little or no education in terms of agriculture. The rate of those with no education is 38.8% and the rate of those with basic education is 55.4%. This lack of education is presumably complemented by several years of experience in the sector. Only 5.5 percent of agricultural producers hold intermediate or higher degrees. With the higher education in commodity production, the number of qualified people shall increase.

2.2.5. Income conditions of those working in agriculture

The incomes of the working population have very much deteriorated in the past decade. The real value of income for those people living from wages decreased by 26%, in two separate sequences, between 1990-2000. Up until 1996, the real value of wages had been decreasing. Following this period, thanks to economic consolidation, income began to increase slightly. As a result, wages exceeded real value by 13% in the year 2000 compared to the previous 4-year period.

The above tendency, present in most sectors in the national economy, has not occurred in a few sectors, including agriculture where the augmentation of net salaries did not match the inflation of consumer prices, which has in turn lead to the continuous decline of the real value of agricultural wages. Income disparity has become a problem for agriculture.

Another disadvantage is the traditionally low position of agriculture, the lower educational level of the employees, and the opportunity for supplementary income which is taken into consideration by the decision makers also, and finally the low profitability of the sector.

We may only talk about the even division of income between different sectors in reference to the years at the end of the eighties. Then people working in the agriculture sector had been able to achieve this by doing a great deal of overtime. In the period afterwards, the disparity of income increased, then became a typical negative factor in the sector. The traditional integrated opportunities for supplementary income (supplementary and household plots), became very narrow. This phenomenon also negatively impacted on those living in rural regions but working in different branches of the economy. Because of the insufficient source of supplementary income, self-subsistence rapidly became a solution. This was especially true for those regions in economic crisis, where these options have become the main source of income for those in poverty.

Based on the national data of income disparity between 1990-2001, we can see that the average gross agricultural income fell 20-35 below the average in the industrial and economic sectors.

In analysing personal income tax, a smaller difference may be observed between the averages in net income. In terms of HUF, this means that in the year 2001, the gross income of people working in agriculture was 29,000-32 000 lower than the average of those occupied in the industrial and economic sectors. Also, the average agricultural income was 15000-16000 HUF lower than the national average net income. Summarising, we can state that the income disadvantages in agriculture increased during the 90s. The determining difference in average income 2200 HUF (1200 HUF net) in the year 1990, increased by ten times this amount, which is tremendous even considering the devaluation of HUF.

The constant and increasing gap between agricultural wages and other groups or branches between 1990-2001 were a result of lower annual increases in salaries than those in the industrial and other sectors of the economy.

Table 30

The gross and the net income of the people employed in agriculture in comparison with the other sectors of the national economy

Denomination	1990	1992	1994	1996	1998	2000	2001
Gross average income (HUF/person/month)							
- in the agriculture	11268	15317	24671	34992	46171	59538	72144
- in the industry	13700	22038	33949	50223	68451	91533	104776
- in the average of the economic sectors	13446	22294	33939	47491	66192	87330	103254
<i>Agricultural gross income</i>							
- In the %- of the industrial wages	82.2	69.5	72.6	69.7	67.5	65.0	68.9
- in the % of the average of economical sectors	83.8	68.7	73.6	73.7	69.8	68.0	69.9
Net average income (HUF/person/month)							
- in the agriculture	8817	11710	18261	24809	33636	40905	45553
- in the industry	10273	15495	23387	32402	45437	57668	65438
- in the average of the economical sectors	10108	15628	23424	31086	44266	55650	64624
<i>Agricultural net income</i>							
- In the % of the industrial wages	85.8	75.6	78.1	76.6	74.9	70.9	74.6
- In the % of the average of economical sectors	87.2	74.9	78.0	79.8	76.0	73.0	75.5

* 1992-1996 is above 20 persons, the data of full time employees above 4 person from 1998.

Source: The ratio of employment and wages 1998-2001.KSH 2002

The rise in minimal wages in the past few years from HUF25.500 to 50.000 did not decrease the salary disparities between the different sectors. However, it is not negligible that the disadvantage of wages in the case of both the gross and the net income decreased by 1-2 percent in the first years of 2000. This way, the gross salary of the those involved in agriculture has reached 70% of the average of the national economy and three quarters of that of the net average.

Agricultural salaries in the nineties fell below those of the national and the industrial economy, in each year of the nineties. However in the year 2001, the situation altered. In the national economy average, there was an augmentation of 17%, and an augmentation of 15% within the industrial sector and an augmentation of 20% within the agricultural sector in terms of gross salaries. Contrary to the prior tendencies, the wage rises, for the first time, exceeded those of the other two sectors.

3. The role of agriculture in the national economy, distributive shares and absolute numbers

3.1. The position of agriculture in the national economy

In the previous period agriculture was a crucial sector within the national economy. Although its importance is declining, which is a natural phenomenon of economic development, its importance should not be underestimated. This importance is not only in an economic sense, but also in terms of sociology, and political interpretations. Through agricultural leadership and policies we should reach this target, and various factors should not be ignored when evaluating the sector. At the same time, those that give the sector a leading role within the Hungarian national economy should be viewed with caution. We must accept that agriculture cannot be a leading sector in a developed or moderately developed country. However, it can be a successful sector.. We are convinced that with astute and balanced leadership and policies, targets can be met.

The share of agricultural production in the GDP gradually decreased in the nineties and it made up 3.5% in the year of 2002. It is important to mention in connection with the chronological comparisons of data, that the activities beyond the basic activities of the large corporations fell under individual control in the years of 1991 and 1992. They managed their activities like other organisations and had partially left the sector. There was also a change in statistical classifications. All these factors played a role in the fact that while agriculture had been 12.5% of the GDP in the year of 1991, it did not even reach 8% in the following year 1992. This ratio has continuously decreased throughout the years. Along with the deteriorating results in agricultural production, we must take into consideration the fact that as a result of external capital investment, the output of other sectors has increased significantly.

The share of agriculture and food production, in other words agri-business, in the GDP was a source of political debate in the past decade. Calculations indicate that the 3-4% partial share of agriculture mentioned before made up a further 3-4% of the food industry. Should we include the other industrial sectors linked to agriculture, we may say that the agri-business makes up 12-15% of the GDP.

Agriculture's share of consumption has continuously decreased, with the exception of the years of 2000-2002 but not nearly as fact as within the GDP production. We could have evaluated the decreasing food consumption as a positive change, had it occurred within an augmentation in gross consumption. Unfortunately this was not the case. We have to talk about the realistic decline in food consumption, which resulted from the deterioration of living standards lasting till the end of the nineties. Professionals writing about food consumption state that there has been a 30% decrease in terms of nominal consumption. In our opinion, this is an exaggerated value. It isn't the rate of food consumption that has decreased, but rather the food consumption of retail stores has decreased by such a value. We are afraid that the

black and grey market began to gain a greater role in the food trade in the first part of the decade, as well as the role of individual production for personal consumption which could not be officially registered by the statistics.

The share of agricultural products and commodities of the food industry in gross exports has also decreased significantly. At the beginning of the nineties the share was 25-26 percent. However at the end of the decade it was only 8-9%. This share was still greater than that of agriculture, forestry, fishing and the food industry of the GDP. The balance of the external trade has constantly increased partially due the inflation, with the exception of the year 1999. Its value exceeded HUF 300 million in the years 1998 and 2000 (calculations based on the main products of the sectors), and reached HUF 352 million in the year 2002. Out of the productive sectors, the agricultural sector is the only one to have improved the country's current account balance.

Investments from part of the economic organisations of forestry and fishing amounted to HUF 90 billion in the year 2001, exceeding that of the prior year, by 16.1%. 3% of all national economy investments were placed in the sector. In the period between 1980-1989 the agricultural sector had been receiving 10-11% of all the gross investments³ according to statistics from that period.

When talking about the diversity of the role of agriculture within the national economy, we must mention its role in employment. At the beginning of the period analysed, the sector used to have a determining role, especially in terms of rural employment. Seventeen percent of the employed population was employed by this sector. By the end of the examined period this ratio decreased to 6.2 percent. This was the main reason for the horrendous unemployment in villages and certain rural regions of the country.

³ According to the calculations taken from the year 2002, the KSH takes into consideration the investments of agricultural nature from part of the households, and the share of agriculture including the above investors made up 6.3% from the investments of the national economy in 2002.

Table 31

The share of agriculture in the national economy
Calculated at current price

Year	The partial share of the agriculture					The balance of external trade flow in billion HUF
	Within GDP production	In consumption	In export	Within investment	Within employment	
	%					
1990	12.5	37.0	24.9	8.7	17.0	104.1
1991	7.8*	31.9	26.2	4.3	15.2	150.8
1992	6.5	31.0	24.8	2.9	13.0	156.6
1993	5.8	28.7	22.4	3.1	9.3	109.4
1994	6.0	28.7	21.6	2.9	8.7	132.5
1995	5.9*	28.4	22.7	2.9	8.9	246.6
1996	5.8	27.3	21.0	3.4	8.3	276.8
1997	5.2	26.9	15.0	3.6	7.9	332.3
1998	4.9	26.5	12.1	3.6	7.5	338.2
1999	4.2	26.2	9.2	3.3	7.1	313.9
2000	3.7	29.2	8.0	2.7	6.9	350.4
2001	3.8	29.6	7.5	3.0	6.2	374.8
2002	3.5	29.9	7.8	6.3*	6.2	352.4

* Methodological change.

Source: KSH, AKI

3.2. Investments

The evolving situation of the agricultural sector along with the effects of the social-economical revolution sweeping the sector caused a drastic decline in production. At the same time, strategic targets like EU accession made the stabilisation of the sector even more urgent, as well as innovations within the sector, which are mainly limited by lack of technology. Investment that may improve the conditions of agriculture is the means for improving efficiency and competitiveness of the sector.

Hungarian agriculture achieved a relatively high level in terms of agricultural assets from the beginning (beginning of the nineties) of the period examined, compared to that of the surrounding countries and compared to Hungary's previous history. Hungary could thank its better output for the higher level of assets.

The sector had reached its highest level of investment in the year 1987, (with an amount of HUF 37.5 billion). This value decreased to 26 billion by the initial year of the examined period, 1990. At the beginning of the decade, the rate of investments declined severely every year, and calculated at current prices it was only HUF 16 billion by 1992. In the years following that period, the investment rate of the sector increased steeply and it reached HUF 90 billion in the year 2001.

However we may only obtain a realistic time-adjusted value of investment output by analysing at a constant price. Based on this analysis it can be seen that the investments implemented between 1992 and 1995 were 41-44% of the year 1990. Starting from this point however, even the volume of the investments increased annually. By the year 1998, it was almost twofold of the initial year, but the increasing trend in terms of volume stopped in 1999, therefore, the value of investments did not reach the data of the basic year, even in the year 2001.⁴

The decreasing significance of the sector is also revealed by the convergence of its share of the investments of the national economy. While this rate approached 10% at the end of the eighties and at the beginning of the nineties, it only accounted for 2% by the year 1992. Even though it subsequently increased, it was unable to exceed 3.7%. Altogether, agricultural investments devaluated in comparison with the significance of the sector, opening a dangerous door towards deterioration in competitiveness.

Sources of investment significantly changed throughout the past decade. Obviously, the sector's own sources of investment decreased. While the share of its sources was 70%, in certain years it exceeded 80%, but it did not reach 50% from 1992. This negative tendency is linked to the deterioration in profitability of the sector, coupled with years of drought and the excessive deficit in the period of adjustment.

The trends in agricultural investments in the past decade definitely support one thing: the biggest loser of the economic and marketing changes is the agricultural sector. On the one hand, the unfavourable make-up of resources of the agricultural sector was the cause for this phenomenon. On the other hand, weak and unreasonable agricultural policy was also responsible, and this because of contradictory objectives. This is mainly the reason why a HUF 600-700 billion investment has not been carried out, why the agricultural sector has such trouble recovering, and why it has been put on a steep, downward track: As a result of lack of innovations and compensation, the ability to adjust to market trends weakened; also the economic indicators regarding competitiveness and efficiency measured in natural resources have deteriorated: The sources for income have all been exhausted: These factors all serve as a principal basis for the devaluation of national subsidies.

⁴ The value of investment tendencies is a little less due to the fact that the annual economic KSH of the year 2002, only discounted the data of economic organisations, without taking in consideration the agricultural sort of investments of individual households. The share of the post mentioned investors has increased in the period examined.

Table 32

The convergence of agricultural, game farming and forestry as well as the convergence of fishing

Year	The value of investments			
	On current price, million HUF	It's price index Prior year=100	On the same price of 1990 million HUF	Volume index Prior year=100
Agriculture, Forestry and game farming				
1990	26396		26396	
1991	21117	128.0	16498	62.5
1992	16200	118.6	10671	64.7
1993	19686	115.1	11266	105.6
1994	24476	120.6	11615	103.1
1995	29608	125.4	11205	96.5
1996	46134	121.5	14369	128.2
1997	61462	116.8	16390	114.1
1998	76677	110.9	18437	112.5
1999	79388	107.3	17791	96.5
2000	76759	108.3	15883	89.3
2001	89473	106.5	17384	109.5
Total	567376		187905	
Fishing				
1990	52		52	
1991	73	117.2	62	118.9
1992	59	126.1	43	68.4
1993	85	116.8	49	115.5
1994	114	116.6	57	115.0
1995	291	119.1	121	214.3
1996	67	121.5	23	18.9
1997	371	116.9	109	473.7
1998	842	110.5	224	205.4
1999	720	109.1	175	78.4
2000	961	108.4	216	123.1
2001	798	107.9	166	77.0
Total	4433		1298	
Summarised	571809		189203	

Note: The data of the economic organisations: contain the sum of non-deductable VAT.

Source: KSH

Table 33

Share of agricultural investments from the investments of the national economy and the GDP

(at current price, %)

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Investment*	8.7	4.3	2.9	3.1	2.9	2.9	3.4	3.6	3.6	3.3	2.7	3.0	.
GDP	12.5	7.8	6.5	5.8	6.0	5.9	5.8	5.2	4.9	4.2	3.7	3.8	3.5

*Based on the calculations in terms of economic organisations

Source: KSH

Table 34

The division of agricultural investments according to the material-mechanical composition of the investments

(at current price, %)

Year	Building asset	Machinery asset	Other
1991	34.0	46.1	19.9
1992	36.0	44.8	19.3
1993	34.2	48.5	17.3
1994	30.5	51.8	17.7
1995	33.8	58.0	8.3
1996	34.1	57.0	8.9
1997	36.8	55.7	7.5
1998	37.9	55.1	7.0
1999	33.8	47.9	18.2
2000	35.0	45.0	20.1
2001	22.7	40.9	36.4
2002	27.9	43.2	28.9

Note: Data of economic organisations.

Source: KSH

3.3. The convergence of external trade in the Hungarian agricultural sector⁵

The examination of the agricultural sector's significance is reasonable from several aspects. Most importantly, Hungary is an open economy with a high rate of participation in international trade. This is characterised by the fact that the gross share of external trade (meaning the import and export altogether) was 1.23 times the amount of the annual GDP in 2001.

The other important aspect is the share of the agricultural sector in external trade: The share of agriculture and the food industry show a decreasing tendency regarding total external trade.

⁵ In his chapter the agricultural external data include the data of the HS nomenclature based on the 01-24 group of commodities. This difference of content can be seen within the data of Tables 31 and 36. (The greater content of the prior).

Table 35

**The share of agriculture and the food industry (A+FI)¹ from the flow of the entire external trade, million HUF,
(at current prices and marginal parity)**

Year	Export			Import			Balance		
	Gross	Out of this: A+ FI	A+ FI share %	Gross	A+FI from this	Share of A+FI %	Gross	From this: A+FI	Gross without A+FI
1990	603636	150551	24.9	544921	46454	8.5	58715	104097	-45382
1991	764274	200333	26.2	855643	49511	5.8	-91369	150822	-242191
1992	843566	209105	24.8	878503	52553	6.0	-34937	156552	-191489
1993	819915	183400	22.4	1162491	74044	6.4	-342576	109356	-451932
1994	1128695	244353	21.6	1537002	111881	7.3	-408307	132472	-540779
1995	1621991	368826	22.7	1936387	122271	6.3	-314396	246555	-560951
1996	2001654	420017	21.0	2468050	143171	5.8	-466396	276846	-743242
1996 ²⁾	2392273	420017	17.6	2763879	143171	5.2	-371606	276846	-648452
1997	3566839	535374	15.0	3961164	203033	5.1	-394325	332341	-726666
1998	4934502	594666	12.1	5511511	256444	4.7	-577009	338222	-915231
1999	5938525	549073	9.2	6645562	235205	3.5	-707037	313868	-1020905
2000	7942804	637024	8.0	9064022	286668	3.2	-1121218	350356	-1471574
2001	8748170	656200	7.5	9665060	281400	2.9	-916900	374800	-1291700
2002	8874000	689396	7.8	9704100	337015	3.5	-830100	352381	-1182481

¹⁾ The data of agriculture and the food industry for 1990 are the results of calculations based on the nomenclatures of KSH and SITC and the summarised data of 01-24 group of products of the HS from 1991. (The two types of data are of similar content suitable for macro-economical calculations, the difference considering the year of 2000 is 1.6%, that is, the figures of SITC are higher)

²⁾ The KSH reports its 1996 dates with two different methods. The first one does not contain while the second one contains the data on the trade flow of bonded areas. The products of agriculture are only present in the custom free trade to a very small extent. This is because it is mainly made up of mechanical products.

Source: KSH, AKII database, and own calculations.

By the second part of the eighties, the value of the food industry in total international exports stabilised around 22-23%. This share had been increasing until 1991, even exceeding 25%. In the following period, (ignoring minor changes), the share of the sector in exports decreased drastically: It was only 7.8% by the year 2002. (The data of HS is based on the group of commodities 01-24). Several factors played a role in the convergence in the above phenomenon; on the one hand, the decreasing rate of agricultural exports, which experienced greater and lower fluctuations from 1996 and, on the other hand, the increase in total Hungarian exports.

The decline in the sector's exports was the most dramatic in the year 1997, while the exports of the entire national economy were increasing dramatically. (The escalating exports of the national economy were continuous from 1994, which was mainly the result of the exports in the mechanical-industry, especially influenced by external capital.) At the same time a methodological factor (of statistical calculation) also played a role in the decreasing share of the agricultural sector: Contrary to prior practice, the KSH reported that exports combined with commerce of the exports in related areas since 1996. The share of agricultural products in the export of related trade was very little, since this is mainly made up of the products of the mechanical industry.

The import contributed even to a smaller extent in the gross imports of the national economy than were experienced in terms of exports. Its share is also declining. It peaked at the beginning of the examined period at 9% in 1990. It has continuously decreasing since then. It was only 3.5% in 2002. This is especially important given that the imports of the food industry shows an increasing tendency. However the import of other sectors within the national economy is increasing even faster.

Table 36

The share of the agriculture and the food industry (A+FI) from the entire turnover of Hungarian external trade, million USD, (at current prices, marginal parity).

Year	Export		Import		Balance			A+FI index (1989=100)	
	Gross	Out of this: A+FI	Gross	Out of this: A+FI	Gross	Out of this: A+IN	Without A+FI	Export	Import
1990 ¹⁾	9588	2387	8647	735	941	1652	-711	106,2	104,1
1991 ¹⁾	10187	2669	11382	660	-1195	2009	-3204	118,7	93,5
1992	10705	2653	11079	660	-374	1993	-2367	118,0	93,5
1993	8 907	1974	12530	799	-3623	1175	-4798	87,8	113,2
1994	10701	2307	14554	1060	-3853	1247	-5100	102,6	150,1
1995	12867	2901	15466	978	-2599	1923	-4522	129,0	138,5
1996 ²⁾	13145	2746	16209	940	-3064	806	-4870	122,2	133,1
1996 ²⁾	15704	2746	18144	940	-2440	1806	-4246	122,2	133,1
1997	19100	2857	21234	1088	-2134	1769	-3903	127,1	154,1
1998	23005	2772	25706	1199	-2701	1573	-4274	123,3	169,8
1999	25013	2310	28008	995	-2995	1315	-4310	102,8	140,9
2000	28092	2256	32080	1017	-3988	1239	-5227	100,4	144,1
2001	30498	2544	33682	1135	-3184	1409	-4593	102,6	160,8
2002	34337	2668	37612	1306	-3275	1362	-4637	105,2	170,7

¹⁾ The figures of agriculture and the food industry are the calculations of this table in 1990-1991. The calculation was done in such a way that we took the % shares of the table and reflected them onto the entire external trade. We had to do this because in these three years there was a large quantity of commercial flow in Rubel. From 1992, the data of the products groups 0-24 HS of the AKII database.

Source: The KSH reports its 1996 data with two different methods. The first one does not contain while the second one contains the data of the trade flow of bonded areas. The products of agriculture are only present in the custom free trade to a very small extent. This is because it is mainly made up of mechanical products. Source: KSH, AKKI database, and own calculations.

The decreasing share of agriculture in the food industry is not a distinctly Hungarian phenomenon, since the same occurs within the EU where the share of the agricultural sector was 11% in 1990 and 8% in 2001. The share of “extra-EU” trade, meaning trade carried out with third countries is especially low and decreasing within the category of agricultural products. While it was 8% in 1990, it was only 6% by 2001.

Altogether, these are all part of a world trend, which are supported by WTO data. Agriculture represented 12% of world trade in 1990 and only 9% in 2000.

Another important question is the share of external trade that the food economy entails in the production value of the sector. The determination of the above was limited by many methodological obstacles. This is because agricultural exports contain the summarised data of the agricultural and food industrial exports while the production value related to both sectors is only indicated in a cumulative form. (This is because the food industry uses raw agricultural resources in large quantities). In order to avoid this accumulation, we have calculated the combined value of the production for both sectors by adding the gross value represented in the GDP of tobacco, food and beverages to the gross output of agricultural production (including with forestry and fishing). Based on this calculation, the share was between 25-31% at the beginning of the decade while it reached an increased value of 32-36% by the end of the decade. The reason for the increase was that the production value of the sector decreased in a lower rate than that of the export based on HUF data.

Table 37

The shares of the Hungarian agricultural exports in terms of the food-industry from the production value of these combined sectors.

Year	Production value, million HUFs	Export	The shares of export %
1991	665698	200333	30,1
1992	665193	209105	31,4
1993	713124	183400	25,7
1994	855589	244353	28,6
1995	1094237	368826	33,7
1996	1351180	420017	31,1
1997	1509544	535374	35,5
1998	1655154	594666	35,9
1999	1705660	549073	32,2
2000	1868984	637024	34,1
2001	2132597	656200	30,8

Note: We make the production value based on the following: The total value of gross agricultural output + the added value of food, drinking beverages, and tobacco manufacturing in GDP. (Since the addition of the of the gross production value of the agriculture and food industry would have caused a significant cumulation)

Source: own calculation based on the Hungarian Statistical Yearbook of KSH Budapest, 1997-2002.

We also have to stress the fact that in a country permanently struggling with debts, and constantly forced to rely on imports at an increasing rate due to a narrow production structure and limited Hungarian energy sources, the food industry remains the only source left which is able to produce a positive balance of external trade in the long run. (Tourism is the only other that has a positive balance. However this does not constitute part of the balance of external trade of the national economy, and it only shows up in the balance of payments).

Evaluating the convergence of Hungarian external trade from different viewpoints, we come to different conclusions. Relating the convergence of Hungarian exports to the prior output of Hungarian production, we may not be pleased since there has not been any increase, only fluctuations. On the other hand, imports have grown dynamically and continuously: If we begin from the potential of the agricultural sector, we may not be pleased either, since Hungary was not able to capitalise on its opportunities and capacities. Should we examine it in terms of international comparison, we get a controversial picture. In terms of Western Europe, the amount of exports of the Hungarian agricultural sector could be said to be low. The value of agricultural export per one hectare was USD 14112 in the Netherlands; USD 12286 in Belgium and USD 3297 in Denmark while in Hungary was only USD 372 per hectare. (interestingly, in Portugal it is only 364). Still we got a positive result when we compared these results with those of the former socialist exporter countries in the year

2000: in this respect, Hungary could be considered a unique country in terms of exports and positive agricultural external trade balance (Poland: 131, Bulgaria, 94, Romania 25 USD/ha).

Examining the data of the agricultural and food industry exports, we may state that the rate of export has increased dynamically calculated on HUF parity. Taking 1990 as the basic year, the augmentation of exports reached 458% by the year 2002. At the same time, the USD based index, which reflects reality much accurately, only indicated an increase of 112%. The inflation of HUF, in other words its significant devaluation compared to the currency of USD and other currencies, is responsible for the above phenomenon: Based on the weighted average of the external trade's average, the HUF/USD currency in 1990 was HUF 63, in the year 2002 it was 258HUF. So the exchange rate index, despite the HUF revaluation between 2001-2002, was 409.5.

Table 38

**The basic indices of the values of Hungarian food export
(calculated on current and marginal parity values)**

Year	Million HUF	Million USD	Index (1990=100)	
			HUF-based	USD-based
1990	150551	2387	100,0	100,0
1991	200333	2669	133,1	111,8
1992	209105	2653	138,9	111,1
1993	183400	1974	121,8	82,7
1994	244353	2307	162,3	96,6
1995	368826	2901	245,0	121,5
1996	420017	2746	279,0	115,0
1997	535374	2857	355,6	119,7
1998	594666	2772	395,0	116,1
1999	549073	2310	364,7	96,8
2000	637024	2256	423,1	94,5
2001	656200	2544	435,1	106,6
2002	689396	2668	457,9	111,8

Source: calculations based on the KSH, AKII database.

Consequently the USD-based calculations show a much more realistic picture. A much more realistic reflection is provided by Eurobased calculations; transactions have been Euro-based in the past few years. In the majority of the examined period, USD-based calculations were typical, therefore at this point we will maintain the traditional form of presentations in USD. Euro-based calculations are going to be significant at the convergence of the balance of the agricultural external trade.

Hungarian agricultural export reached its peak in 1995; the export value based on the HS codes exceeded USD 2.9 billion at that time. Another year within the decade, where agriculture was able to approach this level, was 1997 when the export was USD 2.86 billion. By the end of the decade an export of USD 2.3-2.7 billion became typical

The imports of the sector were also fluctuating during the examined period. However while exports showed a fluctuating and downward tendency, the rate of imports was definitely increasing. The level of imports was USD 735 billion in 1990, and by the last two years of the decade it stabilised around 1 billion dollars. In the year 2002, it exceeded 1.3 billion dollars. In terms of share, the same tendency could be seen in the case of imports as that of exports: The share of food-economy drastically decreased from the annual 8.5% in 1990 to 3.5% by the year 2002.

Table 39

The flow of agricultural and food industrial external trade, million USD, million ECU (EURO), (at current price and marginal parity)

Year	Export		Import		Balance		Currency 1 ECU=USD
	Million USD	Million ECU	Million USD	Million ECU	Million USD	Million ECU	
1990	2387	1875	735	577	1652	1298	1,27343
1991	2669	2154	660	533	2009	1621	1,23916
1992	2653	2044	660	508	1993	1535	1,29810
1993	1974	1686	799	682	1175	1003	1,17100
1994	2307	1939	1060	891	1247	1048	1,18952
1995	2901	2218	978	748	1923	1470	1,30801
1996	2746	2163	940	740	1806	1422	1,26975
1997	2857	2519	1088	959	1769	1560	1,13404
1998	2772	2473	1199	1069	1573	1403	1,12109
1999	2310	2167	995	934	1315	1234	1,06578
2000	2256	2452	1017	1105	1239	1347	0,92000
2001	2544	2830	1135	1263	1409	1567	0,89900
2002	2668	2824	1306	1384	1362	1440	0,94200

Source: KSH AKII database, Eurostat B-4-Finanz-und Währungsstatistik.

Calculating the external trade of agriculture and the food industry in ECU (EUR), the figures represented in USD indicate that the balance deteriorated significantly in the past decade. At the same time, however, we would have had a much favourable picture, had we indicated the figures in ECU, in other words EUR.

The make-up of the balance of external trade for agriculture was made up of the following elements: 51% by EU members, 19% by the CEFTA countries, 18 by the former member states of Yugoslavia, (The CEFTA countries without Slovenia) and also 18% by the former states of the Soviet Union. Hungary's balance is only negative with Latin America, primarily because of the fodder, coffee and citrus fruit imports.

The following characterise the product make-up of the balance: The list of commodities producing the greatest positive balance (annual figures of 2002):

Meat	USD 464 billion
Crop	USD 326 billion
Processed vegetable and fruit	USD 234 billion

Commodities with the greatest negative balance:

Animal fodder	- USD 110 billion
Fruit/ walnut	- USD 33 billion
Cocoa	- USD 30 billion

Different world economic factors came into effect at the beginning and at the end of the period as well. The most important factors at the beginning of the decade were the following: the termination of COMECON (Council for Mutual Economic Aid = KGST), the restructuring crisis of the Central and Eastern European countries, the collapse of the Soviet Union and the former Yugoslavia, and the division of the former Czechoslovakia. In the second part of the examined period these factors had a milder effect. (with the exception of the unexpected Russian crisis of 1998). By the second part of the examined period Hungary had already been through the market transition and the influence of other international effects was stronger at that point.

The share of transaction/commercial business grew dynamically in the nineties within Hungarian external trade. Contrary to prior commercial business, which was mainly true for the import of tropical products, it was a new phenomenon in the external trade of agriculture. Commercial business occurred for almost every product. Another new phenomenon in the transactions was that the majority of these were done with the former COMECON states and the trans-traders were primarily Western-European countries (Austria, Switzerland, Italy, The Netherlands, France and Germany). The middleman, or triangular trade as they call it in the Western cultures, represented a pretty significant share in agricultural trade of Hungary directed towards the central and eastern European countries. This form of trade was already popular in 1991 in the trade with Yugoslavia, Czechoslovakia, and the Soviet Union. Later on, this form of trade reached a pretty high share of Hungary's agricultural export directed towards the former COMECON countries: At the beginning of the decade it made up 20% of the entire agricultural commerce, and by 1995 this share reached 26%.

Table 40

The share of transition trade within the Hungarian agricultural exports (USD million, at current price, and marginal parity)

Year	Gross	Out of this: transition	The rate of transition, %
1991	2636	534	20,3
1992	2653	688	25,9
1993	1974	304	15,4
1994	2307	409	17,7
1995	2901	748	25,8
1996	2746	570	20,8
1997	2857	749	26,2
1998	2772	778	28,1
1999	2310	547	23,7
2000	2256	513	22,7
2001	2544	543	21,3
2002	2668	586	22,0

Source: AKII database, own calculations

Globalisation is a determining factor impacting on Hungarian trade in the food economy. This is an effect which Hungary cannot escape from. Hungary mainly enjoys the effects of globalisation, especially through external capital investments on the one hand, and on the other through the decrease of marketing limitations. The globalisation of trade had a negative effect on Hungarian exports in general; however these effects, in terms of the agricultural and food Industrial products, referring primarily to the decreasing level of Hungarian production, and Hungary's lack of compatibility to enter the market were suppressed. The same holds true for opening of the economy, which could be felt in all of Hungarian external trade, but it has only affected Hungarian agricultural export to a very small extent. The effects of the free trade agreements were pretty controversial in the case of Hungarian agricultural exports and several factors of which a positive result was expected turned out to have negative effects as well.

Out of all the international agreements WTO agricultural treaties had the strongest effect on external trade in the nineties, which was the only one that enabled the partial liberalisation of agricultural products because of GATT/WTO negotiations. The organisation CEFTA, created in 1993, and enlarged by the second part of the nineties, was just as important for the Eastern European countries and Hungary; furthermore, the effects of the EU társulási megállapodás***signed in 1991, has had a flourishing influence on the economy.

The GATT/WTO agreement did not exclusively make us feel the favourable effects of liberalisation, but it also limited the export of Hungarian exportable products by regulating the export supports. Mostly EU exporters were able to take advantage of the favourable quotas of the agreement rather than the Hungarian exporters toward the EU market. The CEFTA agreement could only be considered completely successful in

terms of the industrial articles; we may only speak of partial success in the agricultural sector as well. Still we may say that out of the three international agreements, this was the only one that obviously had a trade increasing effect.

The European Union occupies an important place both in exports as well as in imports. Its share of Hungarian exports is around 50%, while its share of Hungary's imports was 40%, but in the last decade it has increased to 50%. The opportunities provided by the Accession Agreement between the EU and Hungary signed in 1991 had a significant role in the above convergence. A factor resulting in a much stronger flow of EU exports towards Hungary than vice versa was that Hungary had only been able to partially capitalise (even though at an improving rate, but still not completely) on the export quotas defined in the agreement, while the EU exporters, exporting towards Hungary, were able to take better advantage of the quotas.

The new agricultural liberalisation agreement valid from June of 2000 and further expanded in 2001 and 2002 played a significant role in the preparation for EU accession. The restructuring of quota-management /the implementation of the principle of sequence/, could be considered a further development in breaking down custom barriers. The quota management allows the inclusion of new, not even exported products on the list, as well as for the combination of quotas at different levels for the same products.

The Hungarian exports directed towards the CEFTA countries are increasing in terms of absolute numbers as well. It has doubled from the annual USD 248 billion of 2000 to USD 481 billion by 2002⁶. On the one hand, its share of all the exports of the food industry is also increasing as it grew from the annual 9% of 1993 to 20% by the end of the period examined. This figure also indicated the share-restructure of the Hungarian absorptive capacity and the increase of the role of the middle European countries.

This group of countries were involved in 17% of the Hungarian food industry by the year 2002, so it can be stated that the CEFTA countries share of the Hungarian external trade balance of the food economy showed a continuously positive tendency: the positive balance barely exceeded USD 200 billion in 1993, and it was USD 257 billion in 2002, (in the year 1998 it was much greater, over USD 400 billion).

⁶ For the sake of comparison we calculated with the current membership in both cases, meaning: Poland, Slovenia, Slovakia, Czech Republic, Romania and Bulgaria.

Despite of the favourable tendencies, one may observe that Hungary's exports directed towards the CEFTA countries differ both in terms of product structure and in terms of the direction of export. This means that Hungary's exports increase evenly within the region, but the internal structure of Hungarian exports is pretty uncertain (contrary to Hungarian exports in the EU), meaning that Hungarian exporters and products have to compete with varying partners and varying product structures. Upon examination of the import tendencies we must mention that the stable USD 30 billion commerce up till 1996 increased by seven-fold in the past 6 years (USD 202-224 billion), therefore we may speak of a significant expansion of imports along with the improvement of our export positions.

Table 41

Hungary's agricultural external trade with the more important regions, million USD

Region	1993						2002					
	Export	Division %	Import	Division %	Balance	Division %	Export	Division %	Import	Division %	Balance	Division %
Countries total	1974	100.0	800	100.0	1174	100.0	2668	100.0	1362	100.0	1362	100.0
Out of this:												
EU-15	1057	53.5	435	54.4	622	53.0	1333	50.0	637	48.9	696	51.1
EFTA	68	3.4	12	1.5	56	4.8	71	2.7	16	1.2	55	4.0
CEFTA ^{1/}	168	8.5	38	4.8	130	11.1	481	18.0	224	17.2	257	18.9
Former Soviet Union	394	20.0	14	1.8	380	32.4	259	9.7	11	0.8	248	18.2
Former Yugoslavia	—	—	—	—	—	—	265	9.9	14	1.1	251	18.4

^{1/} The data of the standard CEFTA members

Source: AKII database

If we were to examine the target markets and the suppliers of agricultural external trade in terms of the main partner countries we would see that the first ten, but especially the first five most important export markets and import suppliers have not changed in the last decade.

Table 42

**The five main target countries of the Hungarian agricultural exports
in 1991 and 2002**

1991			2002		
Countries	Value (million USD)	Share (%)	Countries	Value (million USD)	Share (%)
Germany	560	21	Germany	527	20
Soviet Union	478	18	Austria	195	7
Italy	282	11	Russia	167	6
Yugoslavia	182	7	Italy	166	6
Austria	161	6	Romania	130	5
Total	1163	63	Total	1185	44
Altogether	2636	100	Altogether	2668	100

Source: own calculation based on the Food 98 database

In the first part of the nineties the targets of Hungarian agricultural exports were more concentrated, the share of the first ten countries of entire exports was at a stable 80% and the share of the 3 first countries was especially high. On the contrary, in the second part of the decade, the share of individual target markets was somewhat lower, and the share of the ten first countries was only around 60%. Hungary's most significant export partner was Germany in the decade with a share of around 20%. Russia was in second place up to 1998. Out of the EU Member States, Italy and Austria, and out of the East European countries, Poland, Romania, Bosnia, and Hercegovina had a significant share of our agricultural exports.

Table 43

**The five main suppliers of the Hungarian agricultural import
in 1991-2002**

1991			2002		
Countries	Value (million USD)	Share(%)	Countries	Value (million USD)	Share (%)
Brasilia	103	16	Brasilia	158	12
Austria	66	11	Germany	154	12
Germany	59	9	Netherlands	115	9
USA	41	7	Italy	85	7
Netherlands	34	5	Poland	84	6
Total	302	48	Total	596	46
Altogether	627	100	Altogether	1306	100

Source: own calculation based on the Food 98 database

Even though Brazil, Germany, Austria and The Netherlands had an important role throughout the entire decade, the change in imports was much greater than in the case of exports. The constant presence of the top ten countries with the greatest share of exports are France and Italy within the EU and Poland's share is significant within the Eastern European countries. The United States is among the most important importers each year and Uganda from the beginning of the decade. We may also observe the significance of Slovakia in the Hungarian agricultural market.

Based on the analysis of Hungarian external trade of agriculture according to regions and countries, we have come to the conclusion that the radius of our imports but especially of our exports is quite narrow as it is mainly concentrated in Europe (the EU and Eastern European countries). The only exception to this is Latin America and especially Brazil in the case of imports.

We may say (on a macro level) that in terms of the restructuring of agricultural exports and imports that the main product groups of animal husbandry contributed to our export profits by 34% at average between 1991-2002; the main groups of plant production/horticulture by 27%, and the main groups of food-production by 39%. By the end of the decade, 1997-1999 animal husbandry's share was below average, The export income and share of the sectors involve plant production (in terms of crop production), fluctuated pretty strongly, and reached 23% below the average in 2002. The partial share of food processing increased above 43% by 1997, but declined steeply afterwards; however in the year 2002 it rose again above the average.

Table 44

**The share of certain sectors of the agriculture from the agricultural exports
between 1991-2002 (million USD, in %)**

Unit.: million USD

Sector	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Animal husbandry	1168.8	865.5	713.2	779.6	829.7	964.3	890.2	832.1	760.0	804.5	931.1	895.3
Plant production	709.5	959.7	476.7	598.3	990.4	603.8	736.0	819.8	682.9	636.7	755.9	624.1
Food processing	757.9	827.7	783.0	927.4	1080.4	1177.6	1230.7	1120.5	865.2	812.5	854.7	1148.4
Total:	2636.2	2652.9	1972.9	2305.3	2900.5	2745.7	2856.8	2772.3	2308.1	2253.7	2541.6	2667.8

Unit: %

Sector	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Animal husbandry	44.3	32.6	36.1	33.8	28.6	35.1	31.2	30.0	32.9	35.7	34.1	33.6
Plant production	26.9	36.2	24.2	26.0	34.1	22.0	25.8	29.6	29.6	28.3	28.5	23.3
Food processing	28.7	31.2	39.7	40.2	37.2	42.9	43.1	40.4	37.5	36.1	37.3	43.1
Total:	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: own calculations based on Food database

The main groups of meat and butchery products show a remarkable trend (above USD 100 million on average) within the more important main groups with an annual share of 21% and with a USD 548 million export income average. The main markets for meat products are the EU Member States. There was a decline in the profit of meat products at the end of the nineties: (USD 6451 million in 1996, 545 million in 2002), mainly due to the devaluation of the EURO against the USD. The export of live animal stock contributed to the income by 5%, however the 139 million average income is the result of its stable position at the first part of the nineties. It produced an income below USD 100 million in 1999 for the first time, (USD 95.9 million). The fact that the sector was able to overcome the shock caused by the BSE disease is supported by the fact that the sector was able to produce an income of USD 135 billion in the year 2002. The third main group of animal husbandry is the export of milk and dairy products, which increased above USD 100 million by the end of the decade, therefore it is worthy of mention, not only because of its 4% (USD 99 billion share) but because of its improving market position.

Regarding the export of the main crops, cereals stand out. It attracts attention not only because of its 11% annual average share, but because of its strongly fluctuating income. It has been able to produce an income of USD 400-500 million in good years, and only USD 100-150 million in weaker years. In this sense, the period between 1999 and 2000 counted as a year with a medium value despite the weaker production results. As a result of good production the export value of the sector increased to USD 354 million in the year 2002.

In second place, we must mention the groups of vegetable and fruit products. The export of horticultural products have made up altogether 10%, USD 232 million in our agricultural export, and the sector maintains stable markets, (exports primarily towards the EU). Their annual fluctuations are much lower than in the case of crops, despite their dependence on the weather. In the main groups of oil seeds and fodder, the stability of the prior years is over. After 1997 and 1998, this main group reached a result below average even in the year 2001. Despite this fact, it still belongs to the more important main groups with its 5%, USD 124 million share. An important fact is that it was able to reach a value of USD 171 billion in the year 2002.

Out of the main groups belonging to the food processing industry, the most important are the groups of processed vegetable and fruit products, with an annual share of 11%, USD 282 billion. This product group has been affected severely by the Russian monetary crisis; its export profits decreased by USD 264 million in 1999 to the level of the year 1993, and it was only able to get above the average by a result of USD 283 million in 2001. The branch was able to overcome this result by an export income of USD 301 million in 2002. The main group of animal and plant oils along with the animal products brought an average income above 100 million USD. (USD 101 and 127 million at the average). However their share has shown a decreasing tendency in the export markets in the past few years, due to the changing consumption habits.

The export income of animal fodder has shown an increasing trend as well. The sector produced an annual average income of USD 80 million between the period of 1991-2002 reached the average of USD 100 million in 2000 for the first time, and exported USD 165 million in the year 2002. In the year 2000, the Hungarian fodder export towards the CEFTA countries doubled in comparison to the prior year and it further increased by 16% in the year 2002. What stands in the background of this phenomenon is that the majority of Western European business people have settled and created joint ventures in Hungary to expand them towards the countries in the region.

The main group of vinegar, potable-alcohol and drinking beverages plays an important role too primarily through the exportation of wine. In the last 12 years it has contributed to the Hungarian export output by 6%, 158 million. The main group of tobacco and tobacco products produced a greater increase in the beginning of the nineties, however the progress following the 1997 peak came to an end, and by the year 2002 the export income shrank to USD 10 million.

Table 45

The export of agricultural and food industrial products according to main product groups, 1991-2001, (million USD)

	Denomination	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
1.	Live animals	187.7	156.8	120.2	131.4	128.5	142.4	135.4	111.8	95.9	126.2	155.1	135.3
2.	Meat, slaughter products	759.6	552.3	436.7	473.4	539.9	640.6	597.4	529.5	488.7	492.7	573.7	544.9
3.	Fish, animals of sweet water	11.7	13.3	10.7	17.0	14.9	15.4	10.0	13.8	12.2	8.5	7.3	5.9
4.	Diary products	136.5	84.3	75.6	60.8	76.3	87.9	75.1	104.8	92.0	101.8	129.5	134.2
5.	Other animal products	73.3	58.8	70.0	97.0	70.1	78.0	72.2	72.2	71.2	75.2	65.4	75.0
6.	Wood/ other plants	8.7	8.8	7.2	10.5	12.6	12.3	15.0	15.6	14.7	14.6	15.3	17.5
7.	Vegetables	169.2	155.4	113.9	139.8	153.8	145.5	120.4	138.3	141.5	123.9	143.9	147.2
8.	Fruits/walnut	144.9	117.1	102.3	105.5	78.7	95.8	90.8	94.2	79.5	69.2	74.7	67.4
9.	Coffee/tea/spices	35.6	27.4	21.6	27.2	32.4	29.0	24.8	26.0	34.4	27.4	28.5	29.4
10.	Crops	190.0	478.2	107.0	167.2	471.7	125.0	305.7	395.7	255.2	221.0	334.7	353.9
11.	Products of the meal industry	28.0	49.9	7.4	17.7	88.7	35.6	62.4	40.9	41.5	47.5	40.6	34.8
12.	Oily seeds/fodder	125.6	115.8	110.4	122.4	145.4	154.8	111.8	102.6	109.1	126.5	109.6	170.5
13.	Plant abstracts	0.1	0.1	0.3	0.6	0.3	0.5	0.3	0.6	0.3	0.4	0.6	0.7
14.	Other plant products	7.4	7.0	6.6	7.4	6.8	5.3	4.8	5.9	6.6	6.2	8.2	7.9
15.	Animal plants/fat	117.3	119.8	84.4	92.6	88.9	96.1	180.5	152.1	116.2	83.0	54.6	57.8
16.	Animal food unfit for human consumption	147.1	140.7	132.0	132.8	143.8	158.7	192.8	144.1	101.4	96.1	101.0	102.9
17.	Sugar. Sugar prod.	54.4	63.0	15.2	11.9	31.8	31.9	44.0	64.1	30.9	25.5	33.1	54.9
18.	Cocoa, cocoa prep	24.4	32.7	26.7	39.8	39.3	48.8	40.4	34.8	25.9	27.1	32.1	39.1
19.	Pastry products	18.3	14.9	12.0	21.4	35.1	49.1	50.9	53.4	33.5	34.1	37.1	37.0
20.	Veg and fruit prod..	234.2	202.8	227.0	331.9	321.8	334.5	319.4	284.0	246.0	259.7	283.1	301.1
21.	Other edible ready to eat products	13.2	18.1	30.4	46.4	61.8	60.3	77.7	83.5	71.6	54.1	60.0	69.0
22.	Drinking beverages, alcohol and vinegar	83.5	144.6	189.6	183.5	263.3	238.4	187.0	178.7	116.6	104.0	99.7	105.8
23.	Animal Fodder	54.9	59.9	42.2	32.6	44.6	71.4	55.9	63.5	79.0	109.8	137.5	165.2
24.	Tobacco and prod.	10.6	31.2	23.5	34.5	50.0	88.4	82.0	62.4	44.2	19.1	16.5	10.4
	Consolidated main groups:	2636.2	2652.9	1972.9	2305.3	2900.1	2745.8	2856.8	2772.3	2308.1	2253.7	2541.6	2667.8

Source: Own calculations based on the Food database.

Table 46

The export of agricultural and food industrial products according to main product groups, 1991-2001 (%)

	Denomination	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
1.	Live animals	7.1	5.9	6.1	5.7	4.4	5.2	4.7	4.0	4.2	5.6	6.7	5.1
2.	Meat, slaughter products	28.8	20.8	22.1	20.5	18.6	23.3	20.9	19.1	21.2	21.9	22.9	20.5
3.	Fish, sweet water animals	0.4	0.5	0.5	0.7	0.5	0.6	0.3	0.5	0.5	0.4	0.3	0.2
4.	Diary products	5.2	3.2	3.8	2.6	2.6	3.2	2.6	3.8	4.0	4.5	5.6	5.0
5.	Other animal prod	2.8	2.2	3.5	4.2	2.4	2.8	2.5	2.6	3.1	3.3	2.5	2.8
6.	Wood, other plant	0.3	0.3	0.4	0.5	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.7
7.	Vegetables	6.4	5.9	5.8	6.1	5.3	5.3	4.2	5.0	6.1	5.5	5.9	5.5
8.	Fruit, walnut	5.5	4.4	5.2	4.6	2.7	3.5	3.2	3.4	3.4	3.1	3.8	2.5
9.	Coffee tea spices	1.4	1.0	1.1	1.2	1.1	1.1	0.9	0.9	1.5	1.2	1.2	1.1
10.	Crops	7.2	18.0	5.4	7.3	16.3	4.6	10.7	14.3	11.1	9.8	10.5	13.3
11.	Products of the mill ind	1.1	1.9	0.4	0.8	3.1	1.3	2.2	1.5	1.8	2.1	2.1	1.3
12.	Oily seeds, fodder	4.8	4.4	5.6	5.3	5.0	5.6	3.9	3.7	4.7	5.6	3.2	6.3
13.	Plant abstracts.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.	Other plant prod	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3
15.	Lard and plant oil	4.4	4.5	4.3	4.0	3.1	3.5	6.3	5.5	5.0	3.7	2.3	2.2
16.	Animal or prep	5.6	5.3	6.7	5.8	5.0	5.8	6.7	5.2	4.4	4.3	4.0	3.9
17.	Sugar, sugar prod	2.1	2.4	0.8	0.5	1.1	1.2	1.5	2.3	1.3	1.1	1.3	2.1
18.	Cocoa, cocoa prep	0.9	1.2	1.4	1.7	1.4	1.8	1.4	1.3	1.1	1.2	1.1	1.5
19.	Pastry prod	0.7	0.6	0.6	0.9	1.2	1.8	1.8	1.9	1.4	1.5	1.5	1.4
20.	Vegetable and fruit prep	8.9	7.6	11.5	14.4	11.1	12.2	11.2	10.2	10.7	11.5	10.0	11.2
21.	Other edible ready prod	0.5	0.7	1.5	2.0	2.1	2.2	2.7	3.0	3.1	2.4	2.7	2.5
22.	Drinks, alcohol, vinegar	3.2	5.5	9.6	8.0	9.1	8.7	6.5	6.4	5.1	4.6	4.3	4.0
23.	Animal fodder	2.1	2.3	2.1	1.4	1.5	2.6	2.0	2.3	3.4	4.9	6.1	6.2
24.	Tobacco and tob prod	0.4	1.2	1.2	1.5	1.7	3.2	2.9	2.3	1.9	0.8	0.9	0.4
	Total main groups:	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own calculations based on the Food database.

The main groups connected to animal husbandry from Hungary's agricultural imports increased by 13% on the average between 1991 and 2002, and the main product groups connected to plant production contributed 27%, and the main groups connected to food industry 60%. The mean income: 128, 263 and 560 million USD as an annual average. The proportions could be considered pretty stable, but only the food industry's proportion showed an increasing tendency by the end of the millennium, and has been above 60% between 1999 and 2002.

Examining the structure of Hungarian agricultural imports according to the main groups, we may state that the share of animal fodder is by the the greatest. Its share is a stable 20%, between a minimum of 15.7% and a maximum of 23.2% This definitely high share is especially significant if we take into consideration that they have preserved their leading role within fodder importation along with the increasing value of imports in the last ten years. Within the 12-year average, the import expenditures making up USD 195 million were greatly exceeded by USD 275 million import of the year 2002. The other important main groups in Hungarian imports only have 6.2-7.7% partial share, mainly products from tropical regions, such as coffee, tea, spices, cocoa products, fruit, and walnut. The diversity of Hungary's agricultural imports is also indicated by the fact that while in 1991 the first ten main product groups provided 80% of entire imports, they only provided 7% of it in the year 2002.

Table 47

The import of agricultural and food industrial products according to main product groups, 1991-2001 (million USD)

	Denomination	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
1.	Live animals	15.1	14.2	7.5	9.3	8.7	9.9	15.0	17.9	15.7	18.9	21.4	23.3
2.	Meat and slaughter products	1.0	24.1	46.5	108.4	75.7	37.3	62.6	76.8	23.4	49.6	71.3	81.3
3.	Fish and sweet wat. anim	5.4	8.8	11.1	12.7	11.0	10.4	13.8	16.5	14.6	13.9	15.9	17.4
4.	Diary products	9.9	30.6	36.5	42.2	27.3	23.0	42.7	40.7	34.1	43.0	49.9	57.0
5.	Other animal products	7.5	13.1	14.6	18.7	17.1	19.3	23.1	23.0	20.9	19.8	16.9	17.8
6.	Wood/other plant	10.4	19.6	24.1	25.3	20.3	15.0	16.9	22.0	22.3	24.8	25.8	33.9
7.	Vegetables	13.8	13.1	15.9	22.7	22.6	17.6	21.0	20.8	21.4	27.9	34.2	42.0
8.	Fruit/walnut	84.0	56.9	48.2	60.6	62.3	61.5	61.0	65.3	61.9	58.9	59.4	99.6
9.	Coffee tea spices	50.0	34.9	44.1	83.3	100.6	80.7	82.6	89.9	83.6	65.8	49.6	41.3
10.	Crops	66.5	21.2	33.4	45.5	20.3	40.4	28.6	27.4	31.9	32.6	37.0	28.4
11.	Prod of the meal ind.	9.6	11.2	9.9	13.0	9.0	5.3	6.5	5.9	4.1	5.2	4.4	5.2
12.	Oily seeds, fodder	25.6	25.9	28.9	49.7	47.0	38.9	45.2	61.3	44.8	37.0	49.3	54.3
13.	Plant abstracts	3.9	6.0	6.4	7.0	7.4	10.6	9.1	12.1	8.3	7.3	7.0	7.7
14.	Other plant prod.	0.6	0.4	0.4	0.5	0.6	0.7	0.5	0.7	0.8	0.6	1.2	1.3
15.	Lard, plant oils	16.6	21.3	30.3	48.4	59.2	48.8	98.9	127.2	60.3	61.0	64.0	73.4
16.	Animal food products	8.5	9.9	8.0	11.6	9.4	9.6	10.5	13.1	10.4	12.4	14.6	18.8
17.	Sugar, sugar prod.	8.0	7.9	40.3	22.2	20.5	17.9	15.9	17.5	20.4	20.4	29.0	28.3
18.	Cocoa, prod.	36.6	37.2	41.8	49.1	44.8	56.0	56.9	57.1	53.8	45.8	54.0	69.1
19.	Pastry products	4.0	6.9	19.5	31.8	26.4	20.8	29.5	36.7	43.6	45.2	55.4	76.6
20.	Vegetable and fruit prod.	20.1	21.8	26.3	45.3	49.9	45.6	54.1	54.5	49.5	62.4	56.0	66.8
21.	Other edible ready to eat products	39.4	61.5	74.6	92.3	53.3	47.4	51.5	58.7	70.1	71.9	79.7	100.0
22.	Drinking bev, alcohol, vinegar	35.1	35.2	29.4	32.8	44.8	32.7	26.4	26.9	29.3	29.5	33.7	51.2
23.	Animal fodder	117.6	131.9	157.0	166.5	187.0	217.7	236.6	250.1	194.9	220.7	259.4	274.6
24.	Tobacco and tob prod.	37.1	45.7	43.9	60.1	51.1	71.4	77.2	74.3	71.9	39.1	42.6	36.9
	Consolidated main groups:	626.2	659.3	798.7	1058.9	976.1	938.5	1086.1	1196.0	991.9	1013.4	1132.0	1306.2

Source: Own calculations based on the Food database

Table 48

The import of agricultural and food industrial products according to main product groups, 1991-2001 (%).

	Denomination	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
1.	Live animals	2.41	2.15	0.94	0.87	0.89	1.06	1.38	1.50	1.58	1.86	1.43	1.78
2.	Meat and slaughter prod.	0.16	3.66	5.82	10.24	7.75	3.98	5.77	6.42	2.36	4.89	5.43	6.22
3.	Fish and sweet water animals	0.86	1.34	1.39	1.20	1.13	1.10	1.27	1.38	1.48	1.37	1.44	1.33
4.	Diary prod	1.59	4.64	4.57	3.98	2.79	2.45	3.93	3.40	3.43	4.24	4.57	4.36
5.	Other anim or prod	1.20	1.98	1.83	1.77	1.75	2.06	2.13	1.93	2.11	1.96	1.54	1.36
6.	Wood/other plant	1.66	2.97	3.01	2.39	2.08	1.60	1.56	1.84	2.25	2.45	2.45	2.60
7.	Vegetables	2.20	1.99	1.99	2.15	2.31	1.87	1.93	1.73	2.16	2.75	3.70	3.22
8.	Fruit/walnut	13.42	8.63	6.04	5.72	6.38	6.55	5.61	5.46	6.24	5.81	4.65	7.63
9.	Coffee tea spices	7.98	5.30	5.52	7.87	10.30	8.60	7.61	7.51	8.43	6.49	4.49	3.16
10.	Crops	10.63	3.22	4.18	4.30	2.08	4.30	2.63	2.29	3.22	3.21	4.07	2.17
11.	Prod of the meal ind.	1.54	1.70	1.23	1.22	0.93	0.56	0.59	0.49	0.41	0.51	0.36	0.40
12.	Oily seeds, fodder	4.09	3.93	3.62	4.70	4.81	4.15	4.16	5.13	4.52	3.65	4.91	4.16
13.	Plant abstracts	0.62	0.91	0.81	0.66	0.76	1.13	0.84	1.01	0.84	0.72	0.65	0.59
14.	Other plant production	0.09	0.06	0.05	0.05	0.06	0.07	0.05	0.06	0.08	0.05	0.11	0.10
15.	Lard, plant oils	2.64	3.22	3.79	4.57	6.07	5.20	9.11	10.63	6.08	6.02	5.45	5.62
16.	Animal food products	1.36	1.50	1.01	1.10	0.96	1.02	0.96	1.09	1.05	1.23	1.15	1.44
17.	Sugar, sugar production	1.27	1.19	5.05	2.09	2.10	1.91	1.47	1.46	2.05	2.01	2.45	2.17
18.	Cocoa, products	5.84	5.64	5.24	4.63	4.58	5.97	5.24	4.78	5.42	4.52	4.28	5.29
19.	Pastry products	0.63	1.05	2.44	3.01	2.70	2.22	2.71	3.07	4.40	4.46	4.62	5.86
20.	Vegetable and fruit products	3.21	3.30	3.30	4.28	5.11	4.86	4.98	4.55	4.99	6.16	5.01	5.11
21.	Other edible ready to eat products	6.29	9.34	9.34	8.72	5.46	5.05	4.74	4.90	7.07	7.09	7.42	7.66
22.	Drinking bev, alcohol, vinegar	5.60	5.34	3.69	3.09	4.59	3.49	2.43	2.25	2.95	2.91	2.88	3.92
23.	Animal fodder	18.78	20.01	19.65	15.72	19.16	23.20	21.78	20.91	19.65	21.78	23.08	21.02
24.	Tobacco and tob. prod.	5.92	6.93	5.50	5.67	5.23	7.61	7.11	6.21	7.25	3.85	3.85	2.82
	Consolidated main groups:	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own calculations based on the Food database

4. Agricultural structures

4.1. Ownership structures within agriculture and within the food industry

The structure of ownership within the agricultural sector became fundamentally restructured during the 1990s. State ownership, the share of private capital (in other words the share of external investors along with Hungarian investors) have affected the individual sectors of the national economy very differently.

Following the political-economic transition, as a consequence of the Acts on corporations and on transformation, the registered capital within the agricultural sector was fixed and determined. Following this period, even its nominally summarised quantity changed very little. As a result of this the share of registered capital in privately owned assets decreased from the annual 89% of 1992 to 46.4% by the year 2002. This also means that the capital not registered under the owner's name has doubled in ten years. The 64% coverage of all registered capital shrank to only 25.5%.

The structure of ownership is also characterised by the fact that the property of cooperatives shrank quickly from the annual 47% of 1992 to 18% and then by 2002 was only 7.1%. The state properties decreased from 15% to 7,6% by 2001, and they have begun to increase again reaching 11.21% in 2002. The values of properties of non-foreign private persons increased from the annual HUF 85 billion of 1992 to HUF 160 billion by 2000. Then it decreased to HUF 130 billion by 2002. The capital of foreign property has increased ten-fold; this 23% investment means an 8.5% share.

Table 49

The share of major owners in agricultural enterprises practising double entry bookkeeping

Unit: Billion HUF

Denomination	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	years											
State property	.	44.1	41.3	26.3	23.6	21.5	50.6	23.1	24.9	25.3	21.1	30.5
Property of the local gvnmt	1.3	1.6	1.8	1.4	2.1	1.8	1.4	1.7	2.2	2.3
Property of Hungarian private persons	..	84.8	187.4	186.6	189	181.2	175.8	176.7	165.8	159.6	150.9	129.4
Property of Hungarian corporations	9.8	11.3	15.6	22.7	27.2	32.2	30.8	36.1	51.2	62.9
Employees' share of assets	..	0.6	0.5	1.2	1.8	1.9	2.1	2.1	1.2	1.6	1.4	1.8
Share of external properties	..	2.5	7.3	9.9	15.4	18.3	20.9	22.1	30.9	32.6	24.4	23.0
Property of cooperatives	..	141.1	54.7	46	39.7	42.4	40	35.8	41.2	32.5	23.7	19.2
Other property	0.9	1.3	1.9	1.6	4	1.8	2.5	1.3	2.8	3.9
Registered capital	238.5	298.5	304.7	284.2	288.8	291	292.7	295.6	298.7	290.8	277.8	271.7
Own capital	319.4	334.2	333.5	328.1	358.4	382.6	408.8	443.6	450.6	457.4	509.7	585.3

Source: AKII calculations based on the urgent report of APEH

As a result of the change of the ownership structure, the external share is 50% in over 9% of the agricultural organisations. The majority of the economies have remained under Hungarian control.

Table 50

The distribution of agricultural and fishing organisations according to the trait of property in 2002

The type of owner	Number of organisations*	Registered capital, billion HUF	Private Hungarian	External
			The share of property from registered capital, %	
100 %- Hungarian property	6916	243.3	51.5	0.0
Foreign share above 50%	655	22.8	2.4	79.4
External share between 25-50%	62	1.9	45.7	41.4
Share below 25%	35	3.7	36.8	8.2
Total	7668	271.7	47.1	7.1

* Only those organisations doing double-entry bookkeeping and tax reports

Source: AKII calculations based on the urgent report of APEH

Foreign capital obtained a role in the economic organisations at this time. In the year 2001 the share of external capital within the 706 foreign interested economies was 64%.

Table 51

Enterprises of foreign interest in the agricultural sector according to the form of ownership

Denomination	1993	1994	1995	1996	1997	1998	1999	2000	2001
	year								
Number of organisations with external interest									
Limited liability companies	288	480	548	594	628	637	663	671	634
Joint stock companies	13	13	15	17	18	17	22	18	18
Cooperatives			4	4	5	10	11	12	10
Other organisations	10	12	12	12	7	10	73	21	44
Altogether	311	505	579	627	658	674	769	722	706
External share of all registered capital, billion HUF									
Limited liability companies	4.7	6.9	11.4	13.2	14.1	14.9	22.8	24.5	16.9
Joint stock companies	2.1	2.3	2.4	3.3	5.8	5.7	6.6	6.9	5.6
Cooperatives			0	0	0.1	0.1	0.1	0	0.2
Other organisations	0.5	0.7	1.6	1.8	0.9	1.4	1.4	1.2	1.2
Total	7.3	9.9	15.4	18.3	20.9	22.1	30.9	32.6	23.8

Source: The major data on agricultural and food industrial organisations doing double-entry bookkeeping, 1997-2001, AKII, Budapest

The foreign inquiry primarily preferred economies of plant and horticulture production.

Table 52

The division of external investments according to major activities

The direction of specialisation of economic forms	1993	1994	1995	1996	1997	1998	1999	2000	2001
	years								
The number of organisations with external interest									
Horticulture and gardening	177	338	390	437	465	479	491	487	473
Animal husbandry	56	79	90	97	110	110	133	150	153
Mixed holdings	17	24	28	24	25	27	27	23	24
Agricultural services of plant production, gardening. Animal husbandry and assistance	61	64	71	69	58	58	58	62	56
External share of all registered capital, billion HUF									
Horticulture and gardening	4.8	7.1	11.1	14.1	16.9	17.7	24.6	25.6	14.6
Animal husbandry	1.4	1.6	2.7	3.1	2.6	3.1	4.4	5.7	7.7
Mixed holdings	0.6	0.7	0.8	0.3	0.5	0.5	0.6	0.2	0.4
Services of horticulture, gardening, animal husbandry and assistance	0.5	0.5	0.8	0.8	0.9	0.8	1.2	1.1	1.1

Source. The major data of agricultural and food industrial organisations doing double-entry bookkeeping 1997-2001. AKII, Budapest.

Following the course of privatisation, the share of external capital has been greatest in the sector of the food industry. In the meantime, the economic role of the state decreased to a minimum.

Table 53

The share of state and external capital of all registered capital within the sectors of industry*

Sector	Year 1995		Year 1997		Year 2000		Year 2001	
	State	External	State	External	State	External	State	External
	The share of all registered capital %							
Production of food and drinking beverages	14.2	51.5	2.2	60.3	1.6	62.9	5.1	60.1
Production of tobacco	0.2	97.3	0.1	93.3	0.2	82.3	0.1	61.4
The production of food and drinking beverages together	132.6	53.3	2.1	61.5	1.6	63.4	1.6	61.2
Mining, processing industry, electricity, gas, heat, and water supplies in total.	40.3	32.5	25.9	43.4	17.1	48.8	16.7	50.6

*/ The data of enterprises doing double-entry bookkeeping

Source: Statistical Yearbook of Industry and Construction 1996: KSH, Budapest, 1997.

1998. KSH, Budapest, 1999

2001. KSH, Budapest, 2002.

The foreign share increased by 240 percent (1 to 3.4) between the years 1992 and 2002, reaching a share of 60%. The rate of foreign investments exceeded the augmentation of the registered capital on a sectorial level. The role of the state in terms of properties did not change much regarding enterprises doing double-entry bookkeeping. The low share that local governments obtained throughout privatisation did not change very much. The share of cooperative property did not change either, however its nominal value somewhat increased until 1994. Following that year however, the value of the registered capital at their disposal decreased. The annual share in terms of ownership by Hungarian private persons was HUF 41.9 billion, indicating a 12% share. 24.8 percent of the Hungarian food industries are under Hungarian control.

Table 54

The major enterprise owners in the agricultural and food industries doing double and single entry-bookkeeping

Unit: billion HUF

Denomination	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001*	2002*
	Years											
State property	..	102.2	73.0	49.4	37.1	18.1	4.2	3.6	5.1	4.3	2.1	9.0
Property of the local gvmnt	4.2	3.7	3.0	3.0	3.8	2.8	2.3	2.2	1.8	1.6
The property of Hungarian private persons	..	25.0	18.7	22.0	22.8	28.4	33.4	31.7	37.0	39.7	42.4	41.9
Hungarian social property	34.9	50.5	62.7	73.5	87.1	93.0	93.9	90.4	85.0	86.5
Employees' share of assets	..	0.1	3.8	5.7	6.4	5.8	5.5	4.9	4.1	3.5	3.4	3.5
Share of external property	..	72.2	111.5	134.9	158.4	158.0	215.8	235.9	234.4	247.5	214.4	199.9
Cooperative property	..	7.9	9.8	11.0	5.5	6.1	4.5	3.6	5.1	4.8	4.1	4.0
Other property	2.8	4.2	3.1	1.7	1.8	1.2	1.2	2.2	1.0	1.7
Registered capital	238.5	227.0	258.7	281.4	299.0	294.6	356.1	376.7	383.1	394.6	354.1	348.1
Own capital	319.4	251.9	296.3	325.1	345.5	355.4	460.4	507.4	545.6	613.7	618.8	679.7

*/Only enterprises doing double-entry bookkeeping

Source: AKII calculations based on the urgent report of APEH

The share of Hungarian private persons of all organisations of Hungarian properties was 35% in 2001, and this rate had hardly reached 31% in 2002.

Table 55

The distribution of food industrial organisations according to property traits in 2002*

Trait of owner	Number of organisations	Registered capital/ billion HUF	Private/ Hungarian	External
			The share of property from the registered capital, %	
100 % Hungarian property	3000	119.6	30.5	0.0
External share above 50%	316	205.7	0.7	93.5
External share between 25-50%.	68	16.7	18.9	42.6
Foreign share below 25%	33	6.0	14.4	6.8
Altogether	3417	348.1	21.2	57.4

*/ Only enterprises of double-entry bookkeeping

Source: AKII calculations based on the fast urgent report of the APEH

External investors were interested in 335 limited liability companies, 62 joint stock companies and a further 15 other organisations. They obtained 51% of their HUF 216 billion capital from different joint stock companies.

Table 56

Enterprises of foreign interest within the food industry according to operational status

Denomination	1993	1994	1995	1996	1997	1998	1999	2000	2001
	Years								
The number of organisations of foreign interest									
Limited liability companies	363	400	442	425	422	418	379	361	335
Joint stock companies	67	71	76	70	67	73	70	69	62
Other organisations	8	8	12	12	10	11	10	14	15
Total	438	479	530	507	499	502	459	444	412
External share of the registered capital									
Limited liability companies	45.8	56.1	70.3	68.7	106.0	119.9	102.7	96.4	99.8
Joint stock companies	61	74.2	82.1	80.2	103.6	111.2	125.7	144.6	109.1
Other organisations	4.7	4.6	5	6.1	6.2	4.8	6.0	6.5	6.5
Total	111.5	134.9	157.4	155.0	215.8	235.9	234.4	247.5	215.5

Source: The major data of the agricultural and food economic organisations, 1997-2001, AKII, Budapest.

The absolute value of the greatest foreign capital is close to HUF 40 billion which was in the sectorial branch of “the manufacture of other non-classified food products” with a share of 90.6%

External capital:

*This mostly became significant in the production of soft drinks to the value of HUF 27.6 billion, obtaining a share of 96.1%, followed by:

- Beer and malt production (HUF 28.4 billion, 96.1%)
- The sweets industry (HUF 24.5 billion, 96.1%)
- Production of vegetable oils (HUF 10 billion, 94.8%)
- Production of preserved flour-based goods (HUF 11.6 billion, 92.3%)
- Manufacturing of tobacco products (HUF 8.9 billion, 82.3%)
- Milk processing (HUF 14.7 billion, 78.2)
- Sugar production (HUF 18.4 billion, 68.9%)

Controversially the share of registered capital in external interest is low in the following sectors:

- production of pastries (4.2%)
- bread production (6.8%)
- fish processing (8.9%)
- wine production (13.0%)

Table 57

The role of external capital within each sector of the food industry, according to the classification of 1997

Sector	External share from the registered capital					Foreign share from the registered capital of external enterprises					External interest of a given sector from the registered capital of all its enterprises %				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
	Years														
Meat processing	14.9	17.2	20.2	17.8	22.4	71.0	68.4	64.1	55.7	65.3	33.6	33.4	34.4	30.1	36.1
Broken down into: meat processing and preservation	7.0	6.5	8.2	7.6	9.0	76.7	67.0	71.5	66.8	65.8	39.3	36.9	47.0	42.9	42.5
Poultry processing + preservation	4.7	7.7	10.5	7.9	10.7	58.3	66.2	60.1	45.0	62.0	23.3	28.8	29.7	23.4	32.0
Production of meat and poultry meat preparations	3.2	3.0	1.5	2.3	2.7	84.8	79.0	58.7	74.3	80.1	50.9	48.3	25.2	29.9	35.8
Fish processing	0.0	0.0	0.0	0.0	0.0	100.0	100.0	83.1	74.6	77.5	66.6	34.6	34.5	9.7	8.9
Fruit and vegetable production	18.1	19.9	16.2	18.0	15.6	85.3	88.0	84.0	83.1	85.5	53.0	57.3	52.6	51.0	47.5
Production of lard and plant oils	10.0	10.0	9.9	9.8	10.0	99.3	99.4	99.5	99.7	99.2	97.3	95.9	97.0	94.8	94.8
Operation of dairies and cheese making	13.9	14.7	18.3	16.9	14.7	93.7	92.6	85.2	97.1	96.3	59.1	61.7	70.2	80.1	78.2
Manufacturing of products from the cereal industry and starch.	2.0	2.8	2.1	3.9	4.8	80.7	85.4	86.8	74.3	77.5	9.9	14.9	10.3	20.7	38.4
Manufacturing of goods from the cereal industry	7.2	5.7	5.7	5.3	5.3	74.4	69.8	69.8	68.0	68.0	74.2	69.5	69.5	67.7	67.7
Manufacturing of fodder	8.9	9.1	9.4	9.7	10.1	93.2	93.9	95.8	97.4	97.2	63.2	54.8	63.7	58.4	61.1
Manufacturing of other food products	47.2	61.5	72.8	93.6	63.7	76.4	79.2	83.5	87.9	87.5	54.1	62.9	67.6	75.0	69.4
Broken down into: manufacturing of bread and fresh pastry goods and cakes.	5.8	4.5	1.0	1.0	0.9	83.1	73.8	44.2	57.2	56.1	30.9	24.9	7.1	7.5	6.8
Manufacture of rusks and biscuits	0.3	1.6	11.7	11.6	11.6	99.3	99.2	99.8	96.8	99.9	35.9	92.7	96.6	90.7	92.3
Manufacture of sugar	10.9	12.7	15.1	15.5	18.4	47.7	47.0	53.8	57.3	68.9	35.9	47.0	53.7	57.3	68.9
Manufacture of cocoa, chocolate and sugar confectionery	11.8	24.9	25.3	25.7	25.4	99.0	99.7	99.7	99.7	99.7	89.6	94.5	94.6	95.1	95.9
Manufacture of pastry	0.3	0.0	0.1	0.1	0.1	17.5	77.7	91.0	87.8	85.7	9.6	6.2	6.8	8.3	4.2
The manufacture of other non-classified products	18.1	17.8	19.6	39.7	7.3	99.5	99.6	99.5	99.9	99.6	85.1	76.6	77.5	90.6	61.7

Source: The major data on the agricultural and food industrial organisations doing double-entry bookkeeping, 1997-2001

Table 57 (continued)

The role of external capital within each sector of the food industry, according to the classification of 1997

Sector	External share from the registered capital					Foreign share from the registered capital of external enterprises					External interest of a given sector from the registered capital of all its enterprises %				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
	Years														
Manufacture of beverages	82.0	83.9	70.7	63.6	60.0	94.5	95.3	96.7	97.2	96.5	81.6	82.0	74.2	71.0	71.0
Broken down into:															
manufacture of potable alcoholic beverages	2.7	2.6	1.7	1.7	1.7	58.4	58.0	83.2	81.9	81.2	38.3	40.8	25.6	23.5	23.2
Wine production	2.1	2.7	2.2	2.3	2.4	86.5	85.6	89.4	92.8	89.5	17.4	19.0	11.9	11.3	13.0
Beer production	21.2	21.8	27.5	28.3	28.4	91.8	94.5	94.6	96.3	95.5	90.4	92.9	93.2	95.0	94.3
Production of soft drinks, beverages	56.0	56.8	39.3	31.3	27.6	98.8	99.2	99.3	99.3	99.4	96.9	97.2	96.6	96.4	96.1
Manufacturing of tobacco	11.6	11.0	9.0	8.9	8.9	97.3	92.1	86.6	86.6	86.6	93.3	88.1	83.8	82.3	82.3
Total	215.8	235.8	234.3	247.5	215.5	86.6	86.6	86.5	86.5	87.1	60.6	62.6	61.2	62.7	60.8

Source: The major data on the agricultural and food industrial organisations doing double-entry bookkeeping, 1997-2001

4.2. Agricultural enterprises by legal status of farming

The 1990s was a decade when drastic restructuring of Hungarian agriculture took place. Due to the political-economic transition of the country the large-size holdings and collective ownership were replaced by a new type of management based on direct interests and by small-size holdings; the government provided assistance with the transformation process.

In the first year of the period analysed, that is, following the political-economic transformation, the dominance of large-size enterprises in state and co-operative ownership was characteristic. However, the significance of enterprises in state ownership was smaller than in other sectors of the economy. In agriculture the most common legal operational status was the co-operative. As a result of capital accumulation supported by government subsidies, high level production concentration also took place also in the co-operatives. The size differences among co-operatives was much larger than that among state holdings.

Before the political-economic transition about two-thirds of the agricultural production value was generated by 13 state holdings and by nearly 1200 agricultural co-operatives⁷. Farmers (in the majority part-timers) of small-size holdings (about 1.5-1.6 million farms) provided more than one third of agricultural production.

Earlier the proportion of small holdings was also significant and in some sectors their role was indeed determinant. The close relationship between large-size and small-size holdings and the functional labour-division between them were characteristic in the Hungarian agricultural model. The large-size holdings with high level technological background assisted the operation of the small ones.

Following the political-economic transition the main goal of transforming the ownership - becoming dominant also in the management structure of the enterprises - was to replace the state and co-operative ownership by private ownership in order to ensure the interests of private capital and to encourage the general entrepreneurial spirit amongst farmers. This was, however, a task without any precedent since in the history of this industry and its legislation no such restructuration had taken place in any part of the world before.

Based on Government Decree No. 126/1992 (VIII.28.) 25 holdings of strategic importance were selected and became state holdings in permanent state ownership due to their role in protecting the genetic resources and ensuring propagating material. The rest of the holdings were to be 100 percent privatised. From among the state holdings – (corporations) – in permanent state ownership 12 joint stock companies were privatised in 2001.

⁷Enterprises engaged in fishery and specialist cooperatives are not included here.

Privatisation in general took place in several phases. The first phase was the decentralised privatisation (division of activities). This served a double purpose, on the one hand, the large-size holdings were divided into small units and, on the other hand, the debts were to be decreased. The process started by publishing invitations for bids for certain units of the enterprises, independent parts of plants, machines and stocks all with free price competition. In addition to superfluous stocks marketable business shares and factories were sold by abolishing numerous elements of vertical integration in "production-processing-commerce" as well as the means and ways of integration. Obviously this provided opportunities to establish independent plants instead of unifying parts which were far away from each other and without real connections. The other goal was to improve liquidity by selling business stocks/shares or assets; this depended on incomes obtained since in this way the enterprises could pay back their debts accumulated and rid themselves of increasing loan interest.

In the second phase of privatisation the farms were transformed into agricultural enterprises - a) joint stock companies - RT and b) limited liability companies – KFT- and then were sold partially or as a whole.

The ownership and structural transformation of agricultural co-operatives was much different from that of state holdings due to their different characteristics. The transformation of co-operatives, which used to be determinant in agriculture - was an extraordinarily complex process. The political and economic affects of it were both significant.

The co-operatives set about co-operation and transition at an accelerated rate; this process involved about 1 million people, 5.6 million hectares of land and other assets of about HUF 260 billion. In addition to liquidation the forms of transformation were as follows:

- Division,
- Break-away by groups,
- Individual break-away by establishing independent units,
- Establishing agricultural enterprises.

According to the Acts passed by Parliament in 1992, in the transformation process the co-operatives were to distribute their total assets among their employees and those persons or their inheritors who were eligible according to the Acts to claim a certain share of the assets. By applying the Acts the collective assets were distributed in the forms of share tickets and business shares among the owners, who individually had only limited rights but jointly constituted a significant part.

The number of enterprises engaged in agriculture, hunting and forestry increased rapidly up to 1995 and from then the sizes of the companies decreased. However, even at present the structure of holdings cannot be considered stable.

At the end of 2002 in agriculture, hunting, forestry and fishery 38,112 agricultural enterprises (agricultural enterprises and private farmers) were

operational; 451 more than in the previous year. The increase was most significant regarding the number of private farmers.

Private farmers account for 66 percent of total enterprises in operation. In 2002 there were 25,167 private farmers and 12,945 agricultural enterprises; in 2002 their number decreased by more than 19 percent. The most prevalent legal operational status is still the limited company and only 1,654 co-operatives were engaged in agriculture in that year.

The enterprises engaged in agriculture are characterised by the predominance of organisations with only a small staff. While until 1992 the companies with not more than 20 employees did not account for more than 50 percent in total agricultural enterprises, in 2002 approximately 82 percent in total agricultural enterprises were in the category of **less than 10 employees**.

As for the food industry, the number of enterprises (including the number of enterprises with various legal status) also increased during the period of privatisation. A great number of private farmers gave up their activities and closed down after 1996.

Table 58

Number of enterprises engaged in agriculture, hunting and forestry *

Legal operational status of holdings	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	at the end of the year												
Total enterprises	13705	16210	17105	18022	30491	26465	32321	38149	39042	38203	39160	37661	38112
In which:													
Private farms	11428	12589	12678	11579	22493	18288	22682	27427	27832	26434	26595	24583	25167
Agricultural corporations	2277	3621	4427	6443	7998	8177	9639	10722	11210	11769	12565	13078	12945
Breakdown of agricultural corporations:													
Limited liability companies	446	1297	1628	2434	3140	3185	3805	4516	4725	4909	5255	5614	5689
Joint stock companies	17	42	45	109	171	179	191	204	197	242	259	316	312
Co-operatives	1405	1493	1621	1971	2048	1965	1930	1915	1715	1832	1886	1808	1654
General partnership	41	41	51	89	103	91	103	97	90	104	155	156	155
Limited partnership	124	510	918	1715	2348	2183	2773	2925	3291	3463	3806	3965	3987

*Agricultural enterprises in operation since 1996

Source: Hungarian Central Statistical Office (KSH)

Table 59

Number of agricultural enterprises by staff categories *

Staff category	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	at the end of the year												
< 10	..	..	..	1434	2420	3692	7219	8432	9090	9431	10162	10716	10674
11-20	413	1031	1456	1006	1012	701	633	576	540	687	777	774	782
21-50	106	297	430	667	761	834	752	738	701	773	817	858	863
51-300	860	1060	1191	1272	1209	1062	963	906	818	811	839	730	626
> 300	722	666	374	247	126	96	72	67	61	67			

*Agricultural enterprises with legal status engaged in agriculture and hunting between 1990-1995.

Source: Hungarian Central Statistical Office (KSH)

Table 60

Legal operational status of enterprises operating in the food, beverage and tobacco production

Legal status	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Corporations with legal operational status	1724	2370	2794	2640	2931	3235	3097	3012	3083	3142
Agricultural corporations	1542	2214	2648	2550	2846	3153	3022	2929	2981	3038
of which limited liability companies	1422	2022	2415	2320	2610	2003	2746	2692	2755	2819
Joint stock companies	108	182	226	226	232	247	245	236	225	218
Co-operatives	65	92	97	70	67	69	69	80	101	103
Other legal statuses of corporations (enterprise)	117	64	49	20	18	13	6	3	1	1
Corporations with legal operational status	857	1259	1434	1197	1379	1365	1347	1348	1395	1369
General partnership	29	52	60	51	50	47	43	51	98	108
Limited partnership	529	971	1166	1010	1203	1208	1203	1220	1276	1254
Other corporations	299	236	208	136	126	110	101	77	21	7
Private farmers	..	..	6172	4668	5009	4792	4252	4001	3900	3649

Enterprises registered up to 1994

Enterprises operating since 1995

Source: Data of the Hungarian Central Statistical Office (KSH) and the Tax and Financial Control Authority (APEH)

In the food industry, within the enterprises in operation and with legal operational status the number of companies employing only several workers increased significantly.

Table 61

Agricultural corporations with legal operational status in operation by staff categories engaged in food, beverage and tobacco production

Staff number	1995	1996	1997	1998	1999	2000	2001	2002
over 300	146	140	110	389	385	399	98**	93**
between 51-300	272	253	268				295***	323***
between 21-50	320	321	309	383	408	443	890	917
between 11-20	273	326	280	426	449	440		
less than 11*	1629	1891	1774	1814	1833	1853	2016	2084
Total	2640	2931	2741	3012	3075	3135	3299	3417

*/ Including the organisations of undefined staff number

**/ over 250

***/ between 51-250

Source: Hungarian Central Statistical Office (KSH)

4.3. Structure of production

During the last decade the volume of agricultural production decreased significantly compared to 1990. Agricultural production reached its nadir in 1993. Following the record in 1996 - which was only 76 percent of 1990 - production dropped again. The volume of crop production started to grow in 1994 but after 1996 the crop production fell again. The gross production of Animal husbandry decreased also in 1994 and even in the second part of the nineties it fluctuated between 63-67 percent of the production level of 1990.

Between 2000-2002 the change of the volume of crop production was induced first of all by the fluctuation of crop production, while the production of animal products hardly changed. In 2001 crop production accounted for 93.7 percent of the production volume of 1990, that is, it was the second largest production in the period analysed.

Table 62

Volume index of gross agricultural production
(1990 = 100%)

(at constant prices, %)

Year	Total agricultural production	of which:	
		Crop production	Animal husbandry
1991	93.8	102.5	84.4
1992	75.0	76.1	73.8
1993	67.7	69.1	66.1
1994	69.8	75.9	63.3
1995	71.6	77.3	65.5
1996	76.1	84.9	66.6
1997	73.6	84.0	62.6
1998	74.1	80.9	66.5
1999	74.4	82.8	65.4
2000	69.6	70.9	67.9
2001	80.6	93.7	66.9
2002*	74.7	80.4	66.8

Source: Hungarian Central Statistical Office (KSH)

*/ based on EAA

By considering the production structure (if farming conditions are favourable) we see that the share of crop production, horticulture and of Animal husbandry account for 50 percent each. In the case of unfavourable weather conditions, particularly if it is unfavourable for most crops the above shares might deviate by 5-10 percent.

The internal structure of gross agricultural production are basically determined by the prices which were applied to the calculations. Between 1990-2000 the value of live animals and animal products increased compared to crops and horticultural products. Each year the production prices of animal products based on the 1990 base price exceeded the crop production index of the same period. This fact somewhat modifies the production structure and the change calculated by the two different price bases.

Table 63

Value of gross agricultural production
Based on constant prices of 1991

Unit.: billion HUF

Year	Total agricultural production	Of which:		Distribution, %	
		Crop production	Animal husbandry	Crop production	Animal husbandry
1991	449.1	254.2	194.9	56.6	43.4
1992	359.2	188.9	170.3	52.6	47.4
1993	324.2	171.6	152.6	52.9	47.1
1994	334.5	188.3	146.2	56.3	43.7
1995	342.9	191.8	151.1	55.9	44.1
1996	364.4	210.7	153.7	57.8	42.2
1997	352.9	208.3	144.5	59.0	41.0
1998	374.3	197.2	177.1	52.7	47.3
1999	377.3	212.0	165.3	56.2	43.8
2000	444.3	237.7	206.3	53.5	46.5
2001	462.9	236.6	226.4	51.1	48.9
2002	491.0	253.4	237.7	51.6	48.4

Source: data of the Hungarian Central Statistical Office (KSH) and own calculations

Remark: Since 1998 the calculations are based on EAA

In the first half of the period analysed above, the price increase was characteristic for live animals and for animal production. However, Animal husbandry decreased more significantly. In the production structure at current prices the 49.4 percent share of crop production and horticulture increased in 1996 to 60 percent. In 1998 due to the drastic drop of cereal production the gross production of crops approached 50 percent. In 2000 the shares of the two main product types in total production was balanced. This was mainly due to the volume decrease of crop production - cereals, industrial plants, potato and vegetables - and even the high production prices could not compensate this. In 2002 the shares of the two main sectors was approximately 50 percent each.

4.3.1. Crop production and horticulture

The production structures of crop production and horticulture as well as the change of production area are shown in the following tables.

Table 64

Production values in crop production and horticulture by main sectors

(based on current prices, billion HUF)

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002*
Cereals and leguminous plants	91.6	112.0	79.1	94.7	124.6	148.2	261.4	269.9	197.1	206.3	269.4	280.5	291.8
Industrial plants	24.2	29.0	21.5	19.0	33.3	50.1	66.5	58.5	72.1	87.4	56.4	85.9	100.2
Potato	10.1	15.3	15.0	14.2	18.6	37.0	25.9	20.0	42.2	47.9	28.1	31.2	27.4
Seed hay and juicy fodder	13.6	19.6	12.4	13.5	19.0	22.5	25.7	27.2	37.3	36.7	26.3	33.3	31.1
Vegetable	28.0	28.2	32.7	35.9	38.4	48.3	60.4	85.2	94.9	105.4	87.4	105.9	105.7
Fruits	18.3	24.3	19.1	19.9	24.3	32.6	36.7	43.1	46.1	48.1	52.0	41.4	36.5
Wine growing	18.4	13.9	11.0	12.1	15.1	17.8	30.4	37.9	35.5	29.6	38.1	62.7	50.6
Other crops	16.5	13.6	14.6	19.7	23.0	32.9	43.1	21.7	21.9	42.6	40.5	40.1	52.1
Crop production and horticulture	220.6	255.8	205.4	228.9	296.3	389.5	550.1	563.5	546.7	604.1	598.2	681.1	675.3
Live animals and animal products	225.7	192.1	193.0	197.7	238.6	319.9	373.6	438.8	517.9	478.5	564.5	683.9	653.0
Total gross production	446.3	447.9	398.4	426.7	535.0	709.5	923.7	1002.3	1064.6	1082.6	1162.7	1365.0	1348.3
Production structure, %													
Cereals and leguminous plants	20.5	25.0	19.8	22.2	23.3	20.9	28.3	26.9	18.5	19.1	23.2	20.5	21.6
Industrial plants	5.4	6.5	5.4	4.4	6.2	7.1	7.2	5.8	6.8	8.1	4.9	6.3	7.4
Potato	2.3	3.4	3.8	3.3	3.5	5.2	2.8	2.0	4.0	4.4	2.4	2.3	2.0
Hayseeds and fodder	3.0	4.4	3.1	3.2	3.6	3.2	2.8	2.7	3.5	3.4	2.3	2.4	2.3
Vegetable	6.3	6.3	8.2	8.4	7.2	6.8	6.5	8.5	8.9	9.7	7.5	7.8	7.8
Fruits	4.1	5.4	4.8	4.7	4.6	4.6	4.0	4.3	4.3	4.4	4.5	3.0	2.7
Viticulture (wine products)	4.1	3.1	2.8	2.8	2.8	2.5	3.3	3.8	3.3	2.7	3.3	4.6	3.7
Other crops	3.7	3.0	3.7	4.6	4.3	4.6	4.7	2.2	2.0	3.9	3.5	2.9	3.9
Crop production and horticulture	49.4	57.1	51.6	53.7	55.4	54.9	59.6	56.2	51.4	55.8	51.4	49.9	51.6
Live animals and animal products	50,6	42,9	48,4	46,3	44,6	45,1	40,4	43,8	48,6	44,2	48,6	50,1	48,4
Total gross production	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Source: own calculations based on the data of the Hungarian Central Statistical Office (KSH).

*/ based on EAA

Table 65

Production area of the main crops
(continued on the next page)

Unit: thousand hectares

Crop	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002 ⁺
Cereals ¹	2778	2778	2658	2708	2895	2749	2807	2937	2835	2402	2764	3081	2929
wheat ²	1221	1152	846	986	1059	1108	1193	1247	1183	734	1 024	1206	1111
rye	92	93	70	68	88	77	59	67	62	39	43	51	48
winter barley	189	209	220	185	197	187	154	..	..	125	151	203	202
spring barley	108	149	258	244	226	206	171	..	..	208	174	164	170
total barley	297	358	478	429	423	393	325	370	369	334	325	367	372
oat	48	50	51	53	56	53	48	52	52	71	58	61	64
maize	1082	1106	1159	1121	1204	1033	1053	1059	1023	1115	1193	1258	1201
rye	12	9	5	5	5	4	3	2	3	2	3	2	..
Bean	4	..	4	44	4	5	5	5	5	5	4	3	..
Peas	135	114	111	88	54	57	52	53	54	50	25	26	..
Bread bean	3	1	1	1	1	1	0	1	1	0	0	0	..
Sugarbeet	131	161	108	95	105	124	118	98	80	66	57	66	56
Tobacco	9	10	9	9	8	7	6	6	6	8	6	5	5
Sunflower	347	389	428	389	416	491	473	440	427	521	299	320	418
Colza	60	65	34	22	28	45	94	89	52	181	116	110	127
Flax	9	..	6	2	2	1	1	0	1	2	1	1	..
Soya-bean	42	25	28	15	9	10	13	14	24	32	22	21	..
Papaverous	3	..	4	4	4	6	3	4	3	5	3	2	..
Hemp	1	1	0	0	0	0	1	1	1	0	0	0	..
Potato	44	48	52	56	57	57	62	64	53	56	47	36	34

Production area of the main crops (continued)

Unit: thousand hectares

Crop	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002 ⁺
Silage maize	321	243	243	222	213	196	162	156	145	143	147	129	..
Green maize	14	13	9	8									
Mixed green fodder harvested in autumn	14	..	10	9	12	13	9	11	10	9	5	4	..
Lucerne	302	32	280	255	254	253	247	233	222	210	159	155	..
Red clover	21	16	15	11	12	12	12	11	9	11	8	8	..
Vegetables on free ground ³	116	112	82	83	98	119	95	118	109	112	90	101	114
white cabbage	4	4	4	5	5	7	6	7	7	6	4	5	6
carrot	4	..	2	3	4	5	4	5	5	5	3	3	3
onion	5	7	6	6	6	9	7	6	6	7	5	6	5
cucumber	3	..	2	3	3	4	3	7	5	5	3	3	3
water melon	7	..	4	4	4	7	6	6	7	7	8	8	10
French bean	4	..	3	3	3	4	3	4	3	4	3	3	3
green peas	31	20	13	12	12	14	12	18	13	13	15	19	22
tomato	15	12	7	7	9	12	10	14	13	11	6	6	7
green pepper ⁴	8	6	8	7	7	9	8	10	10	9	7	7	7
Sweet corn	..	11	9	11	14	15	15	15	16	19	22	26	33
red pepper	9	9	5	5	5	5	5	6	7	5	5	6	6

+/- Preliminary data. 1/ Wheat, rye, barley, oat, maize, triticale, meslin, rice, millet, sorghum and buckwheat. 2/ including durum wheat

3/ Up to 1996 including red pepper. 4/ including bonnet pepper (small-scale farming)

Source: Hungarian Central Statistical Office (KSH).

Agricultural statistical pocket book 2001. AKII, Budapest

Table 66

Total production of the main crops
(continued on the next page)

Unit.: thousand tonnes

Crop	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002 ⁺
Cereals	12561	15797	9981	8520	11709	11269	11308	14121	13005	11376	10037	15047	11630 ²
of which: wheat ¹	6198	6008	3453	3021	4 874	4614	3910	5258	4895	2638	3692	5197	3896
maize	4500	7745	4405	4044	4 761	4680	5989	6828	6143	7149	4984	7858	6087
rice	28	39	15	13	15	13	7	7	8	7	11	8	..
barley	1369	1555	1723	1138	1558	1408	921	133	1305	1042	901	1299	1052
rye	232	223	136	113	193	171	98	153	129	80	86	121	95
oat	163	135	147	96	131	139	112	138	132	180	97	150	138
Potato	1226	1219	1212	1057	946	1099	1308	1140	1148	1199	864	908	745
dry leguminous	316	281	251	148	144	152	110	118	140	118	54	69	..
of which: bean	4	6	4	4	4	5	5	0	6	6	4	4	..
pea	305	269	242	140	134	143	101	111	131	108	48	64	..
oil seeds	876	1000	857	734	743	903	1056	737	875	1243	..	..	..
of which: sunflower	684	813	765	682	667	789	868	540	718	793	484	632	779
colza	106	112	44	22	53	89	138	145	73	328	179	205	..
tobacco	14	18	13	11	12	11	10	11	13	16	10	9	11
Sugar beet	4743	5867	2928	2182	3370	4199	4677	3691	3361	2934	1976	2903	2249
Mass green fodder	6383	7269	4009	4191	4565	4955	4311	4371	4232	4373	2581	..	..
of which: silage maize and green maize	5690	6167	3549	3712	3898	4220	3918	3946	3835	4000	2407	3000	..
Seed-hay and hay	2993	3355	2336	1858	2145	2200	1463	1404	..	..	..	..	..
of which: lucere hay	1468	1812	1230	1020	1167	1145	1272	1171	1145	1157	683	843	701
Grass hay	1247	1241	921	692	786	854	912	904	946	927	600	699	..

Total production of the main crops (continued)

Unit.: thousand tonnes

Crop	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002 ⁺
Vegetable ³	2036	1993	1401	1336	1419	1537	1597	1548	1796	1972	1500	1857	1850
of which: onion	160	185	168	138	134	195	180	128	150	149	117	174	122
carrot	119	119	91	94	98	106	121	117	118	117	89	99	104
tomato	527	468	251	202	224	231	263	220	330	201	203	236	247
cucumber	96	108	99	89	93	94	102	119	126	126	103	99	96
water melon	87	82	61	66	61	91	92	76	112	125	133	130	166
green peas ⁴	314	218	118	108	162	72	76	70	71	65	61	113	102
French bean	40	40	30	29	24	28	29	32	28	33	27	29	25
white cabbage	127	135	106	124	117	131	153	171	178	174	120	161	157
green pepper ⁵	142	154	125	120	117	123	131	141	152	171	134	135	117
sweet corn	109	132	80	105	123	146	173	185	203	256	291	416	468
red pepper	69	95	34	34	41	41	52	45	65	33	40	60	57
Fruits	1444	1332	1151	1271	1049	684	980	883	834	822	1 038	917	699
In which: apple	945	859	666	819	657	353	552	500	482	445	695	605	527
pears	64	70	65	64	43	41	41	37	36	39	37	21	13
cherry	27	26	28	24	24	20	22	22	19	20	18	16	7
sour cherry	64	63	77	76	73	48	66	65	49	45	49	56	38
plum	152	140	142	123	116	105	114	123	104	98	91	90	49
apricot	42	36	40	36	27	18	45	25	17	38	21	16	7
peach	72	61	61	62	50	42	76	54	65	71	64	57	22
raspberry	27	26	23	18	18	18	2	18	20	22	20	13	..
strawberry	16	15	14	12	12	12	13	13	13	14	12	13	..
Grape	863	759	662	607	614	544	665	717	720	570	684	811	501

+/- Preliminary data 1/ including durum wheat 2/ not including millet, sorghum buckwheat and rice.

3/ From 1996 including red pepper. 4/ Up to 1995 green peas were registered in in-shell weight and since 1996 in grain weight. 5/ including bonnet pepper

Source: Hungarian Central Statistical Office (KSH).

The sector of cereals - ones supplying products for human consumption, for fodder crops or as a source of foreign currency - is of key importance in the Hungarian agricultural economy. Since the cereal sector supplies products for human consumption, crops for fodder and is a source of foreign currency, it plays an important role in the Hungarian agriculture. In utilising the arable land cereals have a determinant role too; based on last year's data the area of cereals accounted for 60-70 percent. In recent years the area of wheat and maize fluctuated between 760-1280 thousand hectares varying by species.

Table 67

Main characteristics of grain production

Year	Cereals ¹	Of which:		Harvested area ³	Harvested quantity		
		Wheat ²	Maize		Total cereals	Of which:	
	Share in area, %			Thousand ha	Thousand tonnes		
					Wheat ²	Maize	
1990	59.8	26.3	23.3	2778	12561	6198	4500
1991	60.2	25.0	24.0	2778	15797	6008	7745
1992	60.7	19.3	26.5	2658	9981	3453	4405
1993	62.9	22.9	26.1	2708	8520	3021	4044
1994	64.6	23.6	26.9	2895	11709	4874	4761
1995	60.8	24.5	22.8	2749	11269	4614	4680
1996	62.6	26.6	23.9	2807	11308	3910	5989
1997	64.5	27.9	23.5	2937	14121	5258	6828
1998	64.4	26.7	23.5	2835	13005	4895	6143
1999	57.3	17.8	26.6	2402	11376	2638	7149
2000	70.5	26.1	31.2	2744	10025	3692	4984
2001	70.3	28.7	29.2	3081	15047	5197	7858
2002 ⁺	70.4	26.3	29.3	2929	11630 ⁴	3896	5543

+/- Preliminary data. 1/ not including millet, sorghum and buckwheat. 2/ including durum wheat

3/ Up to 1992 crop land 4/ not including millet, sorghum and buckwheat.

Source: Hungarian Central Statistical Office (KSH).

When Hungarian grain production reached its lowest level in 1993, yields were low and the production area was the smallest in the decade. Due to the high grain prices in the middle of the decade the production area of grain increased - in particular that of wheat - and consequently the grain harvested increased. However, the production volume only approached the levels seen at the end of the eighties and at the very beginning of the nineties. Between 1999-2000 - partially as a consequence of the efforts of agricultural policy and due to the flood and inland water problems- wheat was harvested only on 734 and 1025 thousand hectares of land, respectively. In these years yields per hectare were fluctuating around 3.6 tonnes, which was almost 30 percent down on yields of 1990. In 2000 due to the production price drop of the previous year the production area of cereals decreased, it was most significant in the cases of wheat and corn. Due to the dry weather wheat production fell by 25 percent compared to the previous year.

Between 1999 and 2002 the harvested area of maize increased to between 1100 and 1260 hectares, which together with the higher yields of 1999 and 2001 resulted in a record production.

By considering production values, the second most important arable crops are the industrial plants. During the last decade the production of industrial plants was also contradictory. Considerable fluctuations were characteristic for the sector.

Table 68

Characteristics of industrial plant production

Year	Industrial plants	Of which:		Harvested			
		Sunflower	Sugar beet	Sunflower	Sugar beet	Sunflower	Sugar beet
	Share in area, %			Area ¹ , thousand hectares		Production, thousand tonnes	
1990	12.8	7.5	2.8	347	131	684	4743
1991	14.1	8.4	3.5	389	161	813	5867
1992	14.0	9.8	2.5	428	108	765	2928
1993	13.2	9.1	2.2	389	95	682	2182
1994	13.4	9.3	2.4	416	105	667	3370
1995	16.1	10.9	2.7	491	124	789	4199
1996	15.8	10.6	2.7	473	118	868	4677
1997	14.5	9.8	2.2	440	98	540	3691
1998	12.9	9.8	1.8	427	80	718	3361
1999	18.8	12.6	1.6	521	66	793	2934
2000	13.2	8.0	1.5	299	57	484	1976
2001	11.5	7.3	1.5	320	66	632	2903
2002 ⁺	13.9	10.0	1.3	418	56	779	2249

+/ Preliminary data.

1/ crop land area, up to 1992.

Source: Hungarian Central Statistical Office (KSH).

Up to 1995 the production area of sunflower increased to more than 490 thousand hectares and then it started to decline gradually. Following the peak yield of 1999, sunflower was harvested only on 299 hectares in 2000. In 2002 the favourable market conditions encouraged farmers to increase production and thus sunflower production increased to more than 400 thousand hectares. Yields were about at the level of the second half of the seventies. In 1996 record yields were harvested, that is, 868 thousand hectares.

By the beginning of the 1990s the production area of rape dropped to 20-28 thousand hectares from the previous level of 50-60 thousand hectares of the 1980s. Since then it has been fluctuating considerably. In 1998 the area of rape was 52 thousand hectares, in 1999 181 hectares while in 2002 it was 127 thousand hectares.

Strong fluctuations characterise the area and harvested yields of sugar beet. Following the area increase at the end of the 1980s and at the beginning of the 90s - that is, 161 thousand hectares in 1991 and 5.9-million tonnes production - after a significant drop it increased again. By adjusting to the demand of the processing industry from 1997 on it decreased again. Between 2000-2002 the harvested area was 60 thousand hectares on average. In the second half of the 90s and also later the

yields were favourable, the average yields exceeded 40 tonnes/ha in several crop years.

As a result of decreasing livestock volumes - in particular of cattle and sheep based on fodder - the area and production of seeds hay and juicy fodder were also decreasing.

The proportion of arable land with seeds hay and juicy fodder decreased - with some fluctuations - by the second half of the nineties - from the 19.0 percent levels of 1990 to half of that value; and at the beginning of the next decade it was not more than its third. Meanwhile, the area of lucerne gradually decreased by almost 50% and that of green maize to 39 percent. In addition, the utilisation of grassland dropped too. The quantity of harvested fodder depended not only on the area but also on weather.

Table 69

Characteristics of hay and juicy fodder production

Year	Hay and juicy fodder	Of which:		Harvested				
		Silage maize and green maize	Lucerne	Silage maize and green maize	Lucerne	Silage maize and green maize	Seeds hay	Of which:
								Lucerne-hay
Share in production area, %				Area ¹ , thousand hectares		Production, thousand tonne		
1990	19.0	7.2	6.5	335	302	5690	2993	1468
1991	12.5	5.6	6.5	256	302	6167	3358	1812
1992	16.1	5.8	6.4	251	280	3549	2336	1230
1993	14.8	5.4	5.9	222	255	3712	1858	1020
1994	14.1	5.0	5.7	213	254	3898	2145	1167
1995	13.9	4.6	5.6	196	253	4220	2200	1145
1996	9.2	3.3	5.3	162	247	3918	1462	1772
1997	8.4	3.1	5.1	156	233	3883	1040	1171
1998	8.4	3.1	5.0	145	222	4232	1307	1145
1999	8.6	3.3	5.0	143	210	4000	..	1157
2000	6.9	2.5	4.1	147	159	2407	..	683
2001	6.2	3.2	3.6	129	155	3000	..	843
2002 ⁺	..	2.4	3.6	..	155	..	..	701

+/- Preliminary data.

1/ production area until 1992.

Source: Hungarian Central Statistical Office (KSH).

Summary: Although the production of cereals, leguminous plants and industrial plants fell during the first half of the 90s, in the second half of the decade it increased and exceeded the level of the 90s. However, in connection with the fodder requirement of the livestock in the cases of seeds hay and juicy fodder no similar improvements could be seen. In 2001 the volume index of cereal and leguminous plants was 108.4 percent compared to 1990, that of industrial plants 87.3 percent but of hay and fodder only 53.8 percent compared to the crop production index of 93.7 percent.

The above production volume decreased parallel to the restructuring of arable land. Hence, by the beginning of 2000 the share of cereals exceeded 70 percent - with intermittent significant fluctuations - wheat and maize accounted for a share of 30 percent each. The production of leguminous plants dropped. Sunflower remained determinant by increasing from 7.5 percent of 1980 to 10 percent by the second half of the nineties and then after a provisional drop it increased again to 10 percent by 2002. The area of the other industrial plants (without oilseeds and sugar beet) fluctuated considerably. The production area of sugar beet dropped below 2 percent. During the nineties the share of seed hay and fodder crops decreased by around 66%.

Table 70

Structure of sown area on arable land

Unit: %

Type of crop	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
years													
Cereals ¹	59.8	60.2	60.7	62.9	64.6	60.8	62.6	64.5	64.4	57.3	70.5	70.3	70.4
wheat, rye	28.3	27.0	20.9	24.5	25.6	26.2	27.9	28.8	28.2	18.7	27.2	27.3	27.5
maize	23.3	24.0	26.5	26.1	26.9	22.8	23.9	23.5	23.5	26.6	31.2	29.2	29.3
barley	6.4	7.8	10.9	10.0	9.4	8.7	7.3	8.1	8.4	8.0	8.2	8.4	8.9
Potato	1.0	1.0	1.2	1.3	1.3	1.3	1.3	1.4	1.2	1.3	1.2	0.8	0.8
Leguminous plants	3.1	2.5	2.7	2.3	1.4	1.5	1.2	1.2	1.8	2.0	0.7	1.1	0.6
Industrial plants ²	2.5	2.2	1.7	1.9	1.7	2.5	2.5	2.5	1.3	4.6	3.7	2.7	13.9
Sunflower	7.5	8.4	9.8	9.1	9.3	10.9	10.6	9.8	9.8	12.6	8.0	7.3	10.0
Sugar beet	2.8	3.5	2.5	2.2	2.4	2.7	2.7	2.2	1.8	1.6	1.5	1.5	1.3
Hay and juicy fodder	19.0	12.5	16.1	14.8	14.1	13.9	9.2	8.4	8.4	8.6	6.9	6.2	6.5
silage maize	7.2	5.6	5.8	5.4	5.0	4.6	3.3	3.1	3.1	3.3	2.5	3.2	3.8
lucerne	6.5	6.5	6.4	5.9	5.7	5.6	5.3	5.1	5.0	5.0	4.1	3.6	2.5
Vegetables ³	2.5	2.4	1.9	1.9	2.2	2.6	2.4	2.9	2.5	2.5	2.2	2.1	2.5
Other crops	1.8	7.3	3.4	3.6	3.0	3.8	7.5	7.1	8.8	9.5	5.3	8.0	4.0
Total area	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ not including millet, sorghum and buckwheat. 2/ not including sugar beet and oilseed.

3/ From 1996 not including red pepper.

Source: Hungarian Central Statistical Office (KSH).

During the last decade the sectors of horticulture maintained their role in agriculture and even increased their significance. Following the drop in the middle of the nineties, by 1998 the volume of vegetable production had exceeded the level of 1990. Fruit production was the lowest in 1995, that is, 54 percent of the annual volume of 1990; since then fruit production reached 80 percent. The crisis of wine-growing lasted until 1995 hand in hand with fruit production and since then - with the exception of some yield drops - it has continuously been increasing. In 2000

volume index of production was 76.4 percent of the value of 1990 and in 2001 it was 125.3 percent.

By calculating at current prices in 1990 the share of the three main sectors of horticulture in gross agricultural production was 14.5 percent; in 1997 they accounted for a share of 16.6 percent and in 2002 for 14.2 percent in gross agricultural production. During the period analysed the structure of horticulture changed. Based on current prices fruits maintained their relative importance, however, due to unfavourable weather conditions between 2001 and 2002 fruit output decreased considerably. In 1996, following the losses in wine-growing it started to regain its position but later it dropped again. The share of vegetable production increased from 6.3 percent of 1990 - with some fluctuations (i.e., 9.7 percent in 1999) - to 7.8 percent by 2002.

In the labour intensive horticultural sectors the role of small-size farms was significant before and after privatisation in the 1990s. This continued into the 1990s when agricultural enterprises limited their activities and the proportion of small-size holdings in vegetable production grew. In the first years after 2000 agricultural enterprises augmented their vegetable production in particular on arable land. The growth of sweetcorn production was outstanding: in 2002 agricultural enterprises produced more by 145 percent compared with 1999.

Concerning the vegetable production of private farms: commercial production dominates (70 percent share) while consumption from private production accounts for almost 30 percent of the total production. Up to 2000 the share of private production grew slightly while that of commercial production decreased.

Table 71

Vegetable production* by agricultural enterprises

Unit.: thousand tonnes

Year	Number of economic organisation	Private farmers	Of which:		Total
			Commercial farm	Consumption from own production	
1990	468	1568	1148	316	2036
1991	342	1651	1159	414	1993
1992	173	1228	767	400	1401
1993	186	1150	720	388	1336
1994	236	1183	780	395	1419
1995	261	1383	886	414	1644
1996	193	1404	982	348	1597
1997	217	1331	887	377	1548
1998	261	1535	1052	365	1796
1999	231	1741	1007	471	1972
2000	311	1189	798	356	1500
2001	407	1450	1037	332	1857
2002	481	1369	..	..	1850

*/ Up to 1995 green peas were registered in in-shell weight and since 1996 in grain weight.. Since 1996 not including red pepper.

Source: Hungarian Central Statistical Office (KSH).

Over the last 20 years fruit production decreased by 30-50 percent - with the exception of some significant intermittent volume fluctuation. The dominance of apple is characteristic (it provided two-thirds **and in 2002 three-quarters** of the total fruit production of the country.) During the period analysed the proportion of agricultural enterprises engaged in fruit production dropped from 40 percent to 12-17 percent. Small-size producers also decreased fruit production; the share of products for sale increased and the consumption from own production fell significantly.

Table 72

Fruit production* by agricultural enterprises

Unit.: thousand tonnes

Year	Number of economic organisation	Private farmers	Of which:		Total
			Commercial farm	Consumption from own production	
1990	575	930	433	461	1505
1991	471	926	467	432	1397
1992	261	940	470	411	1201
1993	250	1067	612	398	1317
1994	128	963	573	348	1091
1995	108	612	313	273	720
1996	162	856	463	338	1018
1997	136	790	406	283	926
1998	131	742	460	173	873
1999	136	731	449	176	867
2000	180	890	518	171	1070
2001	112	853	613	221	965
2002	117	582	..	..	689

*/ including table-grapes.

Source: Hungarian Central Statistical Office (KSH).

During the period analysed the level of wine-growing was maintained despite some fluctuation and the annual average of the last 13 years was about 671 thousand tonnes. In the last decade private wine-growers not only increased their share but also increased their production, therefore, the share and production of agricultural enterprises decreased. In 2002 92 percent of the grape harvest was produced by private wine-growers while in 1990 their share was 68 percent.

Table 73

Wine growing of agricultural enterprises

Unit.: thousand tonnes

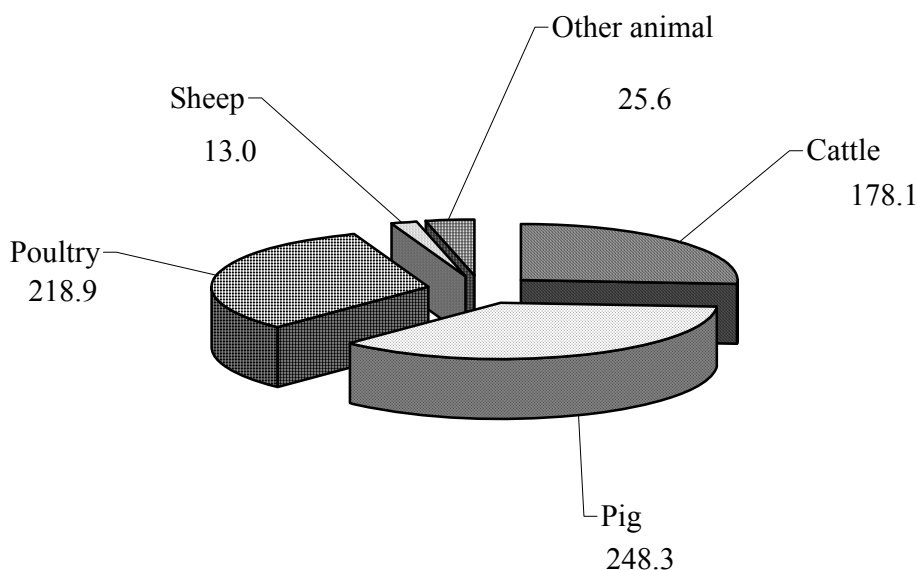
Year	Economic organisations	Private farmers	Total
1990	275	588	863
1991	200	559	759
1992	150	512	662
1993	117	490	607
1994	64	550	614
1995	56	488	544
1996	57	608	665
1997	49	668	717
1998	43	677	720
1999	33	537	570
2000	53	631	684
2001	62	749	811
2002	42	459	501

Source: Hungarian Central Statistical Office (KSH).

4.3.2. Animal husbandry

The sectors of Animal husbandry were the most important losers of the agricultural production regression of the nineties. Based on the production data from the last 10-12 years it can be seen that Animal husbandry could significantly recover but slower than crop production or horticulture. The gross production volume of the above crop production and horticulture sectors decreased by 19 percent on average while that of Animal husbandry dropped by 32 percent.

Figure 5
Structure of Animal husbandry in 2001 based on gross production value (at current prices, billion HUF)



Source: Hungarian Central Statistical Office (KSH).

In Animal husbandry, after the political-economic transition of 1989, cattle, pig and sheep production dropped during the second half of the 90s. In 1997 the volume index of gross production of cattle and pig breeding did not reach 64 percent and 52 percent of 1990 levels respectively. Then the output of the pig sector slightly increased but in 2002 it reached only 52 percent of the base year. Sheep breeding has been continuously decreasing since 1990 and it reached its lowest value in 1999 with 28.8 percent (at constant prices 1990=100 percent). From among the sectors of Animal husbandry first of all the poultry sector was the one which increased significantly (31 percent) compared to the lowest value of 1993. The drops in the other sectors of Animal husbandry started after 1994 and since then production has been falling continuously. The leading product of this sector is the rabbit.

Table 74

Gross production values of live animals and animal products by the main sectors

(at current prices,%)

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002+
	years												
Cattle	13.6	11.4	13.1	12.4	11.7	11.1	9.6	10.7	13.6	13.9	14.1	13.0	12.7
Pig	21.4	16.8	18.0	16.8	15.0	18.0	15.3	15.4	16.1	13.7	15.7	18.2	17.0
Poultry	12.4	11.8	13.2	13.7	14.8	12.9	12.5	14.9	15.8	13.9	16.0	16.0	15.7
Other animals and animal products	3.2	2.9	4.1	3.4	3.1	3.1	3.0	2.8	3.1	2.7	2.8	2.9	3.1
Total Animal husbandry	50.6	42.9	48.4	46.3	44.6	45.1	40.4	43.8	48.6	44.2	48.6	50.1	48.4
Total agricultural products	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

+ preliminary data

Source: Hungarian Central Statistical Office (KSH).

Table 75

Volume indices of agricultural production

(at constant prices, %, 1990=100%)

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002*
Crop production + Horticultural products	100.0	102.5	76.1	69.1	75.9	77.3	84.9	84.0	80.9	82.8	70.9	93.7	80.4
Animal husbandry	100.0	84.4	73.8	66.1	63.3	65.5	66.6	62.6	66.5	65.4	67.9	66.8	66.7
Cattle	100.0	87.3	82.1	69.0	64.3	65.0	64.0	63.6	66.6	66.7	67.3	68.6	67.5
Pig	100.0	84.4	64.7	58.0	51.2	55.2	61.3	51.2	54.5	56.7	55.5	51.7	51.1
sheep	100.0	90.0	73.2	50.1	41.2	47.5	38.5	34.8	38.2	28.8	35.2	37.6	34.2
Poultry	100.0	81.1	76.1	72.8	77.0	79.3	77.1	82.6	88.5	81.7	91.0	93.2	95.0

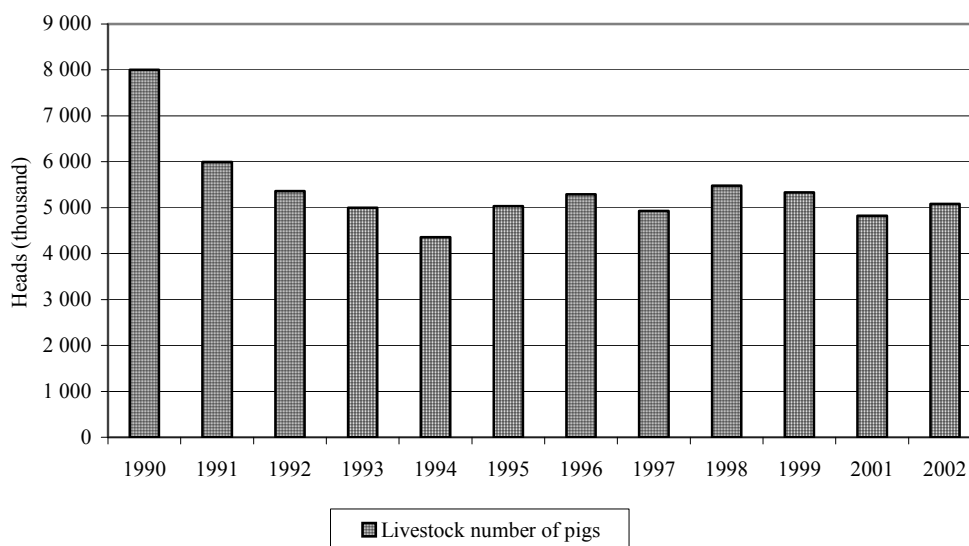
* Based on EAA Source: Hungarian Central Statistical Office (KSH).

In cattle breeding the changing proportion of dairy cows and cattle for slaughter are worth analysing. Cattle for slaughter production dropped over the 12 years from 250 thousand tonnes of 1990 to 95 thousand tonnes and the production became rather a "by-product" of milk production. During the period analysed milk production decreased by 24-25 percent.

Between 1990-2002 the livestock of pig fluctuated to a great extent. The stocks of pigs and sows were more or less continuously falling up to the middle of the nineties. By the end of 1994 the number of pigs dropped to its lowest point registered in 1990 (4.4 million head). Following a provisional growth the livestock started to fall again. On 1 December 2002 the livestock number of pigs was 5 million, that is 63 percent of 1990. Similar to the drop of the number of pigs the number of sows fell too. The number was lowest in 1994, that is, 335 sows and even the 381 sows registered in December 2002 was only 61 percent of 1990. At the millennium the pig for slaughter production was of 800 thousand tonnes, which is only 61 percent of the value 10 years earlier. Later the decrease continued and the pig for slaughter production reached its nadir in 2001.

Figure 6

Livestock numbers of pig (1990-2002)



Source: Hungarian Central Statistical Office (KSH).

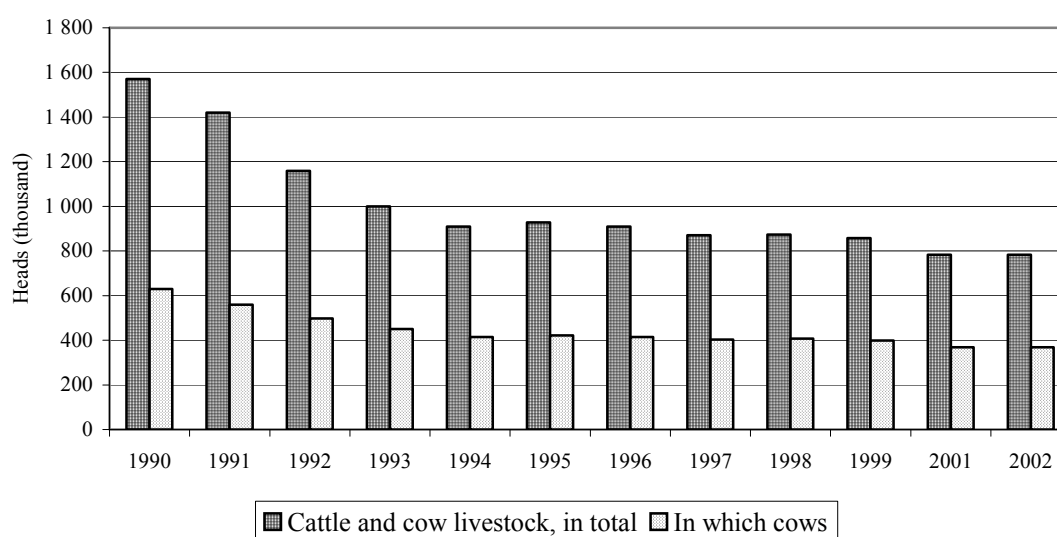
Vertical axis: head of livestock in thousands, Horizontal: statistics for pig stocks year on year.

The EU classification system was introduced in 1993 in the sector. Due to the preference of quality pig production - together with the supports provided for breeding stocks - the quality of pigs for slaughter output improved. However, at present there is a great uncertainty in the pig sector. Due to the difficulties of sales, low profitability as well as losses, a great number of private farmers had to give up

breeding during the last few years. In the past cattle for slaughter production was an important, export-oriented activity and it was a special kind of lifestyle in rural areas. However, the recent economic and market changes affected the sector unfavourably and consequently, following the initial spectacular upswing, production started to decrease due to difficulties concerning efficiency and income. Livestock volume is decreasing in Hungary. As a result of the decreasing purchasing power of the Hungarian population due to the unfavourable world market processes and to the decreasing standard of living the decrease accelerated. After the significant drop of livestock levels in 1997 it stagnated in 1998 and then it started to fall again. The smallest cattle stock level was registered in December 2002 (770 heads) 13 thousand less than in the previous year and lagging behind by 13 percent compared with the stock of 1990. The livestock of cows is also continuously decreasing. In 2002 there were only 362 thousand cows in Hungary. The stock of cows (630 thousand head) is slightly more (57 percent) than half of the stock registered 12 years before. By passing the lowest level in December 1997 the stock started to grow slightly but since the end of 1999 it has continuously been falling. Milk production dropped from 2763 litres of 1990 to 1878 litres by 1994. From the middle of the decade as a result of several new measures milk production stagnated and in 1998 it started to grow slightly. By 2002 the quantity of milk produced reached 2.1 billion litres. A significant proportion of the cow stock are special species of dairy cows or cows for both milk and beef production. The number of beef cattle is low. The stock of beef cows dropped from 85-90 thousand in the second part of the eighties to 22 thousand.

Figure 7

Livestock numbers of cattle and cow (1990-2002)

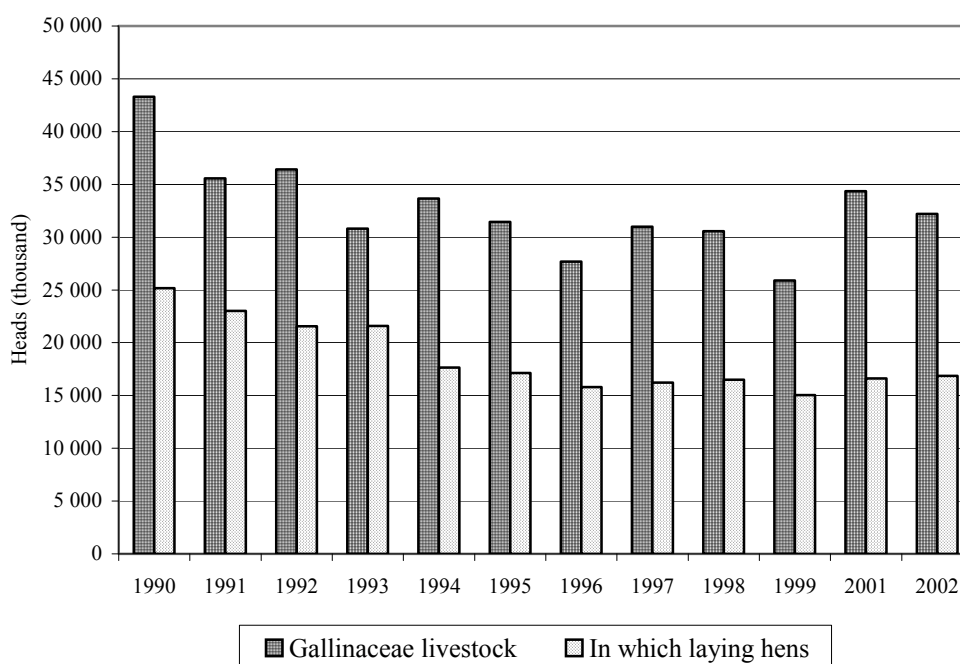


Source: Hungarian Central Statistical Office (KSH). Blue: Bovines, Crimson: of which cows, thousand head.

The economic importance of poultry breeding is shown by the fact that after pig breeding it is Hungary's second most important sector of Animal husbandry and in 2000 it used to be the first. In 1990 it accounted for 12.4 percent in gross agricultural production and in 2001 for 16 percent. While between 1990-1993 the poultry for slaughter production decreased by 29 percent and due both to the drop of the output of the other Animal husbandry sectors and to the increasing output prices the weight of the poultry sector within agriculture slightly grew. In poultry the stock decrease of gallinaceae (hens, cocks and chicken) was similar to the other sectors of Animal husbandry. In 2002 the number of gallinaceae in Hungary was 32.2 million (less by 11.1 million (26 percent) than in 1990). The drop of water-fowl was not so significant and moreover the stock of ducks increased significantly. The growing number of turkey is promising especially by taking into account that the export-oriented development of the sector is significant also in France. The number of turkey doubled during the last 10 to 12 years. The importance of broiler chicken decreased and it seems to have stabilised at a lower level. Water-fowl are slowly recovering and will reach the level of the eighties. In 2002 poultry for slaughter production was 690 thousand tonnes after a recovery and exceeded the quantity of 1990 (592 thousand tonnes). Its composition changed: the poultry for slaughter production decreased while the output of duck, goose and poultry - the recovery of which was outstanding - exceeded that.

Figure 8

Stock of gallinaceae and egg-layers (1990-2002)



Source: Hungarian Central Statistical Office (KSH). Blue: all poultry, Crimson: of which egg-layers, thousand head

Sheep breeding is the most contradictory sector of Hungarian Animal husbandry. It is characterised by both booms and drastic declines and even the present situation is critical. It is much below the optimal regarding both the number and quality. However, due to the large areas of grasslands and the upcoming EU accession a significant development seems desirable.

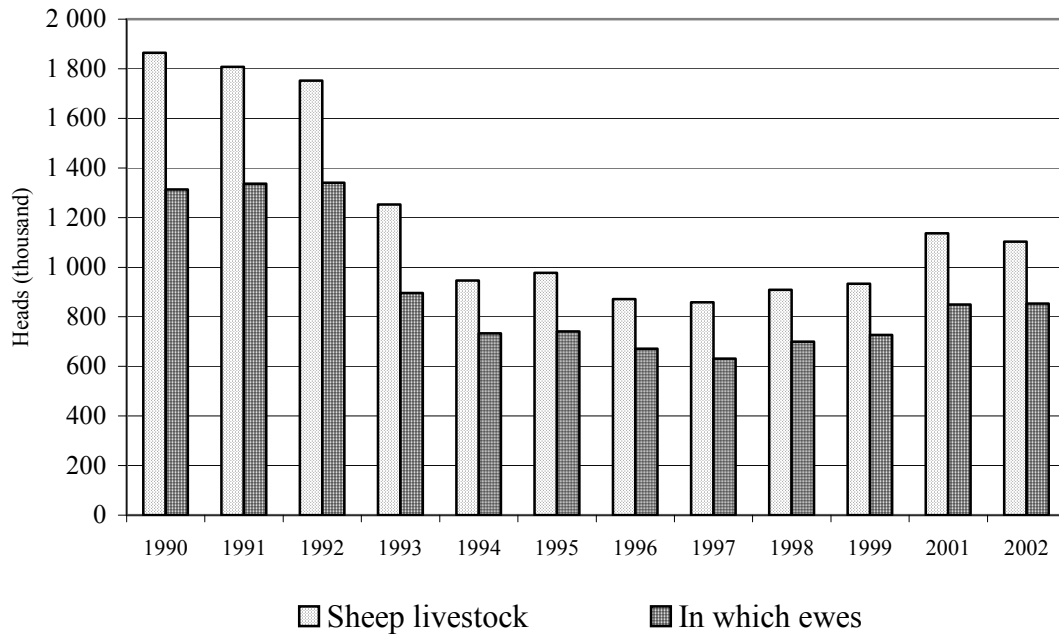
The output share of sheep breeding in the production value of Hungarian agriculture dropped from 2 percent to below 1 percent and then in 1998 to 1 percent. Its share in the values of live animals and animal products dropped by over 50%, that is, from 4.3 percent to 1.9 percent. From 1982 - up to the most recent years - the stock was decreasing continuously and this tendency in the middle of the nineties became critical for the whole agricultural economy and the sector itself. The measures taken since 1995 provisionally slowed down the rate of the decrease but could not stop it. Between 1996-1997 the decline continued. In 1998 due to the subsidies provided for stock increase and quality improvement the livestock slightly grew and between 2002-2002 the number of animals exceeded 1 million.

Summing up, the stock of ewe dropped from 1,313 in 1990 to 632 by 1997 and in 2000 it was 897. In 2002 the number of ewes was 854. It is characteristic that private farmers provide the majority (86 percent) of production. The sheep stock of agricultural enterprises decreased over two years - between 2000 and 2002 - by 56 thousand head (27 percent) while that of private farmers by 30 thousand head (3 percent). In 2001, 21 thousand private farmers were breeding sheep just as one year earlier. The number agricultural enterprises engaged in sheep breeding was 237, their number decreased by 21 percent compared to the data of the previous year.

The quantity of sheep for slaughter, wool and sheep milk for processing decreased between 1990-2002 to 52, 53 and 80 percent respectively, due to the declining stock seen over several years. As a consequence of the devaluation of wool the importance of meat production is increasing, however, the breeding and meat yield characteristics of merino sheep are lagging much behind the yields of foreign species. The average milk yield is low too. By considering the present situation of the sector in meat and milk production the quantity increase has to be coupled with quality improvement. Efforts have to be made in order to increase the stock and the number of animals per ewe. The decision has to be made whether to develop in the direction of extensive or intensive breeding.

Figure 9

Livestock numbers of sheep and ewes (1990-2002)



Source: Hungarian Central Statistical Office (KSH). Blue: All sheep breeds, Crimson: of which ewes, thousand head

Table 76

**Change of livestock volumes
(as of each December)**

Unit.: thousand animals

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	year												
Total cattle	1571	1420	1159	999	910	928	909	871	873	857	805	783	770
of which cows	630	559	497	450	415	421	414	403	407	399	380	368	362
Pigs	8000	5993	5364	5001	4356	5032	5289	4931	5479	5335	4834	4822	5082
of which sows	624	482	467	401	335	436	379	345	391	379	348	343	381
Sheep	1865	1808	1 52	1 52	947	977	872	858	909	934	1129	1136	1103
of which ewes	1313	1336	1340	896	734	741	672	632	700	727	897	849	854
Total poultry*	48372	38952	39542	33828	38141	35521	32300	35665	35995	31244	37016	43279	43411
of which gallinaceae	43309	35557	36419	30812	33665	31458	27692	30983	30557	25890	30716	34343	32206
- egg-layers	25171	23011	21566	21597	17650	17132	15810	16209	16498	15033	14261	16606	16849
goose	1858	1092	894	876	1385	1111	1089	1136	1074	1226	1470	2175	2009
duck	1685	1512	1329	1304	1806	1287	1533	1553	2378	2269	1480	2837	3443
turkey	1520	791	900	836	1285	1665	1986	1993	1986	1859	3350	3924	3251

*/ not including guinea-fowl.

Source: Hungarian Central Statistical Office (KSH).

Up to 1995 as of 31 December

Since 1996 as of 1 December

Table 77

Production of animal products

Product	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002 ⁺
	years												
Milk production, million litres	2763	2418	2234	2020	1878	1920	1918	1931	2045	2045	2081	2080	2100
Production of slaughter animals, thousand tonnes													
Cattle for slaughter, in live weight	249.8	263.2	260.9	190.6	148.0	127.5	120.4	114.8	99.4	101.7	117.2	98.0	95.0
in bony meat weight	141.4	149.1	147.2	107.3	83.0	73.4	69.0	65.7	56.9	58.2	66.9	55.9	54.1
Pig for slaughter													
in live weight	1288.8	1182.5	946.4	833.1	748.7	711.1	837.5	722.2	709.9	789.6	793.4	689.0	700.0
in carcass weight *	1039.7	954.7	765.0	673.9	609.2	576.0	674.5	581.6	571.7	639.6	642.6	558.1	567.0
in bony meat weight	615.9	562.1	445.2	392.4	352.4	332.9	413.9	358.3	353.2	393.7	397.3	337.6	343.0
Production of poultry for slaughter													
in live weight	592.0	464.0	446.0	419.0	447.0	510.0	492.0	517.1	580.9	514.0	616.0	622.0	690.0
Gallinaceae	411.6	319.4	320.4	319.2	329.3	372.7	332.8	333.3	396.9	315.0	364.5	362.1	361.1
goose	76.1	55.8	48.9	44.3	45.8	49.7	59.1	54.4	51.2	57.6	63.2	50.1	87.4
duck	42.9	41.6	37.0	29.6	36.9	39.4	28.9	44.4	42.4	48.7	57.0	59.8	87.9
turkey	60.5	46.4	39.1	25.8	34.8	47.8	70.8	84.8	90.1	91.5	130.8	149.7	152.5
in carcass weight	453.3	355.0	341.3	320.5	342.3	387.9	378.6	397.9	447.0	379.5	458.0	485.2	538.2
Sheep for slaughter	35.0	26.0	28.0	28.0	23.0	19.1	19.6	17.2	15.8	15.9	15.7	16.0	18.2
Egg production, million	4679	4443	4164	4211	3877	3467	3273	3388	3388	3190	3171	3277	3400.0
Wool, thousand tonnes	7.3	4.2	4.5	4.1	3.9	3.3	3.2	3.0	3.0	3.4	3.4	3.3	3.9
Sheep milk ** million litres	4.0	3.0	3.0	3.0	2.0	2.0	1.0	1.2	4.0	3.0	3.2	4.0	3.2

*/ bony meat + white meat

**/ purchased quantity.

+ Preliminary data.

Source: Hungarian Central Statistical Office (KSH).

5. The main characteristics of the food industry, the structure of the sector

For more than a decade the production of the food industry decreased at a slower rate than agriculture as a whole. One reason of this is that due to the falls in agricultural output, Hungarian basic materials were lacking and the input of home agricultural origin was supplemented by imports. However, the tendency of food industrial production followed that of agricultural production.

Following the gradual decline of the food industry in the first third of the decade from the middle of the decade the sector started to grow again, however, by 1997 it dropped below the lowest level of 1993. After 1998, production grew again but even in 2002 it did not reach the level of 1989.

The production decrease affected the various sectors to different extent. However, due to the changes of TEÁOR (Hungarian Standard Industrial classification of all Economic Activities) categories and the fields of observation the survey of this can only be approximate. Based on approximate data the production of alcohol and alcoholic beverages declined the most. The drop was most significant in wine production but in 2002 the distilling industry reached only 77.7 percent of the level of 1989. In addition to soft beverages the production of brewery, tobacco products and sweets exceeded the levels of 1989. Meat production was continuously decreasing until 1996. After that production fluctuated and even in the best years (1999-2000) it approached only 74-75 percent of the level of 1989 but in 2002 it could not match the highest level of 1999. Poultry processing - as a result of the increase of Hungarian production - was not much affected by the transition; since 1995 its production volume reached more than 90 percent (in 1998: 105 percent) of the level of 1989. Milk production has been increasing since 1997, however, in 2002 it was lower than the production of 1989 by 22 percent.

Table 78

**Production volume of food, beverages and tobacco products
(production of 1989 = 100)**

Sector	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Food, beverages and tobacco products	99.1	92.4	88.7	84.9	89.6	91.0	90.7	84.2	84.8	87.2	92.6	93.1	94.9
of which:													
Meat and fish processing	96.7	92.6	72.8	64.8	64.5	63.5	66.6	66.7	61.3	75.2	74.4	66.4	70.9
Poultry processing	98.5	77.5	65.7	70.2	84.8	97.9	94.7	90.8	104.5	94.7	92.2	97.5	93.5
Fruit and vegetable production	97.3	87.5	65.0	63.3	76.8	81.4	81.1	80.2	82.7	74.2	82.5	87.5	99.5
Milk processing	93.7	80.7	78.3	75.9	73.3	71.3	67.9	69.8	74.2	75.1	80.1	78.5	78.0
Manufacture of sugar	99.3	117.8	82.4	86.6	83.3	96.8	111.4	98.3	73.0	73.4	57.5	67.5	57.8
Manufacture of cocoa, chocolate and sweets	97.4	87.7	74.7	71.8	72.0	79.6	85.1	82.8	83.1	86.9	84.6	111.1	117.5
Distilling industry and alcoholic beverages	95.5	92.2	79.8	85.5	87.2	49.3	46.5	34.1	42.2	52.7	58.1	80.9	77.7
Manufacture of wine	96.9	43.3	40.4	37.8	35.9	40.4	30.3	18.7	23.1	32.7	48.2	46.6	43.3
Manufacture of beer	105.6	107.2	112.4	106.7	113.9	113.9	101.8	97.1	95.3	106.9	113.8	108.3	114.0
Soft beverages	181.1	240.7	362.0	408.3	383.0	486.4	586.6	502.7	510.7	587.8	690.1	661.1	677.0
Tobacco products	112.5	104.0	86.6	89.3	98.8	86.8	97.9	94.3	99.3	108.8	100.6	118.0	113.3

Source: Research and Information Institute of Agricultural Economics (AKII).

In spite of the decrease in meat processing together with poultry (which is the most significant sector of food processing considering both volume and value) with a production value of HUF 400 billion in 2002 it accounted for not more than 21 percent⁸ of the production value of food, beverages and tobacco products. The products of milk processing, the milling industry and fodder mix production accounted for about one fourth of the production value. During the decade this proportion could be maintained with the exception of some fluctuation, however, and in the case of milk processing this was also due to the restructuring and price changes. Similar to the volume increase - from 1 percent to 4.8 percent - the share of soft drinks production increased too. The output share of tobacco products increased as well. With some fluctuations the output shares of bakery products and sugar in production decreased.

Table 79

**Production structure of the food industry
(at current prices)**

Unit: %

Sector	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Food, beverages and tobacco products	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
of which:													
Meat and fish processing	21.5	20.5	20.9	19.2	18.3	18.6	17.3	18.6	17.4	13.0	16.4	12.4	12.2
Poultry processing	7.8	6.9	6.7	7.2	8.6	9.7	9.3	10.2	11.2	9.7	9.0	9.9	8.9
Fruit and vegetable processing	10.1	11.9	8.0	7.7	8.7	9.3	9.4	10.2	10.5	8.1	8.3	8.3	9.3
Vegetable oil processing	5.0	4.7	..	..	..	..	3.3	..	..	..	..	..	..
Milk processing	13.0	11.5	12.4	12.5	11.6	10.6	9.8	11.2	12.1	12.5	12.3	11.8	11.8
Manufacture of grain mill products*	13.0	12.1	..	..	..	13.6	16.1	82.8	13.2	12.5	12.9	13.9	4.2**
Manufacture of bread, pastry goods and cakes	5.2	6.2	6.3	6.0	5.1	4.8	5.1	5.1	5.0	4.8	4.9	4.2	..
Manufacture of sugar	4.7	5.2	4.8	5.4	4.8	4.7	5.4	4.6	3.4	3.6	2.7	3.4	3.0
Manufacture of cocoa, chocolate and sweets	5.5	5.7	2.7	2.7	2.8	3.4	3.8	3.9	3.9	3.3	2.9	3.6	3.8
Distilling industry and alcoholic beverages	3.6	3.9	2.8	2.9	2.8	1.5	1.4	1.2	1.5	1.4	1.4	1.6	1.5
Manufacture of wine	2.6	1.7	1.7	1.7	1.6	1.9	1.5	0.9	1.1	1.9	2.7	2.5	..
Manufacture of beer	4.2	5.1	5.5	5.1	4.6	4.1	3.4	3.3	4.2	4.7	4.7	4.5	5.1
Soft beverages	1.0	1.3	2.5	2.9	3.7	4.4	4.9	4.4	4.2	4.7	4.8	4.5	4.8
Tobacco products	3.0	3.3	3.6	4.1	4.3	3.5	3.6	3.4	3.6	4.6	4.2	4.5	4.8

* including animal feed production

** not including animal feed production

Remark: Due to several changes in the category specifications may include some inaccuracies.

Source: Hungarian Central Statistical Office (KSH)

⁸ Meat and poultry processing together

Table 80

Production of food, beverages and tobacco products (at current prices)

Unit.: billion HUF

Sector	1990	1991	1992	1993 ¹	1994 ¹	1995 ¹	1996 ²	1997 ²	1998 ²	1999 ³	2000 ³	2001	2002
Meat, fish, poultry, vegetable and vegetable oil processing	..	..	..	..	..	322.8	385.6		541.0	..	..	..	..
Meat and fish processing	83.3	90.6	91.1	92.8	110.2	146.6	169.6	208.3	217.5	219.0	262.7	476.2	230.3
Poultry processing	30.1	30.4	29.3	34.8	51.7	76.3	91.6	114.4	140.6	128.2	144.4		169.0
Fruit and vegetable processing	39.1	52.8	35.0	37.3	52.7	73.6	92.4	113.8	131.8	108.3	133.9	152.6	175.8
Vegetable oil and processing	19.4	20.7	..	..	..	..	32.1	..	51.1	..	..	..	..
Milk processing	50.3	50.7	54.0	60.5	70.0	83.4	95.8	124.7	151.7	167.1	197.8	211.0	222.2
Products of milling industry, starch and feed production	50.3	53.5	..	..	..	107.4	157.4	..	165.9	..	..	253.8	78.9
Manufacture of grain mill products	..	..	9.4	11.6	25.0	36.5	55.3	58.0	51.1	65.4	93.0	96.2	..
Feed production	..	..	48.3	51.8	47.0	62.6	88.0	80.5	97.8	100.6	113.5	126.6	..
Manufacture of bread, fresh pastry goods and cakes	20.0	27.6	27.5	28.8	30.6	38.0	49.6	56.4	63.1	64.1	78.8	77.8	..
Manufacture of sugar	18.3	23.2	20.7	26.0	28.9	37.0	52.7	51.7	42.0	48.6	43.2	62.7	55.8
Manufacture of cocoa, chocolate and sweets	21.1	25.3	11.7	13.0	16.8	26.7	37.5	43.8	48.9	44.7	46.4	65.3	71.5
Pasta production	..	..	1.6	2.1	3.0	4.0	5.4	..	8.2	9.1	9.3	12.8	..
Production of other food products	..	..	11.1	23.1	37.2	49.8	52.7	43.7	51.2			17.6	..
Distilling industry and alcoholic beverages	13.9	17.4	12.0	13.8	17.1	11.8	13.8	13.3	18.3	18.5	22.9	29.9	27.5
Manufacture of wine	9.9	7.5	7.3	8.0	9.5	14.7	14.3	10.3	13.9	24.8	42.8	46.4	..
Manufacture of beer	16.2	22.6	23.9	24.7	27.5	32.6	33.0	37.2	52.0	63.5	75.9	83.4	97.0
Soft beverages	3.7	5.7	10.9	14.1	22.6	34.5	47.7	48.8	52.0	62.9	77.8	82.4	90.4
Tobacco products	11.5	14.5	15.5	20.0	25.9	27.7	35.4	37.8	45.3	62.0	68.2	83.2	90.5
Food, beverages and tobacco products	387.2	442.6	435.6	483.4	603.9	790.4	980.9	1116.8	1253.4	1337.6	1606.7	1832.3	1890.1

1/ Agricultural enterprises with a staff number over 20; 2/ agricultural enterprises with a staff number over 10; 3/ agricultural enterprises with a staff number over 4.

Remark: Due to several changes in the category specifications may include some inaccuracies.

Source: Hungarian Central Statistical Office (KSH).

At certain stages the structures of the various production sectors were also slightly modified. Their output depended on the changes of basic material production.

In meat processing after 1991 the production decrease of raw pork was the most significant but that of beef was also fluctuating considerably. Until 1995 the production of sausages slightly decreased but by the second half of the nineties it not only reached the level of the end of the eighties but also exceeded that volume. By the end of 2002 the position of salami production had declined by 14 percent.

In the area of milk products the drop was the most significant in the case of milk for consumption (from 831 million litres of 1990 to 642 million litres by 2002) and butter (from 39 thousand tonnes of 1990 to 10 thousand tonnes by 2002). The decrease of cheese production was smaller; from the 59 thousand tonnes of 1990 to 47 thousand tonnes in two years and this was the lowest level of production for the period. From 1997 the production started to grow continuously and by 2001 22 percent more cheese was produced than at the beginning of the decade.

The volume of flour production varied a lot. After the peak of 1992 it dropped to its lowest point in 1994 (wheat production in 1992 and 1993 was extremely low). In 1995 it approached the level of 1992 but in 2002 - also due to the low wheat production - there was a drastic drop. In 2002 the flour production was 783 thousand tonnes, which was even smaller than the low volumes of 1993-1994.

Bread production by organisations included in the statistical surveys decreased continuously (from 673 tonnes in 1990 to 336 thousand tonnes). Pasta manufacturing fluctuated from one year to the next but the tendency of the last years is relatively stable.

In the area of beverages (with the exception of the intermittent falls in production levels) the production of soft drinks and of mineral water grew most significantly.

Table 81

Production of the main food products

Unit.: thousand tonnes

Product	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Bony raw meat	595	574	407	359	309	304	306	330	304	349	..	..	..
beef	97	95	88	59	45	41	37	38	33	35	35	26	..
pork	497	470	301	287	255	253	269	292	271	335	321	275	283
Slaughtered poultry	232	153	164	136	155	188	86	105	123	136	160	155	158
Sausages	40	34	40	35	38	33	49	47	47	44	45	44	44
Salami	14	16	14	13	13	14	13	13	14	13	12	12	12
Products prepared from meat pulp (red meat)	50	52	58	56	58	55	56	60	68	55	62	47	..
Lard for consumption	77	71	44	39	33	29	35	27	24	30	24	16	17
Milk for consumption, million l	831	732	685	620	622	583	557	541	581	593	591	583	642
Butter	39	29	22	18	15	15	14	13	16	17	12	14	10
Cheese	59	52	47	50	50	51	49	51	55	59	68	72	..
Preserved fruit	364	336	349	319	427	403	..	..	..	..	..	..	..
Preserved vegetable	310	238	127	142	203	259	193	252	287	172	268	340	340
Preserved tomato	74	43	13	17	35	46	37	44	49	25	31	20	..
Pickles	127	107	57	36	99	107	82	126	118	77	74	106	116
Flour	1249	1192	1312	957	923	1234	1051	1108	972	1015	1039	995	783
Feed mix	2167	1789	1997	2035	1718	1780	2296	1782	2267	2206	2059	2043	..
sugar	512	605	399	939	440	480	556	487	439	439	280	443	312
Bread	673	587	485	348	336	293	284	284	285	379	329	336	..
Bakery products, million loaves/ cakes etc.	2489	2221	1995	1438	1324	1306	60	61	65				..
Pasta	65	46	43	38	50	73	68	56	31	44	44	46	..
Sweets	23	22	16	16	13	12	11	10	12	12	12	10	..
Chocolate	34	31	25	28	36	20	23	24	25	22	27	48	..
Beer, million litres	992	957	916	788	808	770	727	697	716	700	719	714	727
Mineral water, million litres	32	33	45	53	90	116	136	176	219	263	344	413	..
Soft beverages, free of alcohol, million litres	310	324	472	604	489	513	578	824	906	911	1018	986	993
Cigarettes, million.	28.2	26.1	26.8	28.7	29.5	25.7	27.6	26.1	26.8	23.0	22.0	21.0	19.5

Since 1996 data are based on the Hungarian Product Categories (BTO), since 1996 the data of the organisations with a staff number over 20 are included.

Source: Hungarian Central Statistical Office (KSH), Agricultural Statistical Pocket Book, AKII, Budapest 2003.

6. Characteristics of forestry, hunting and fishery

6.1. Forestry

In 2002 about 20 percent of the area of Hungary was forest. This proportion is 1.4 percent higher than 12 years before. The total area of silviculture is 1.9 million hectares, from which the area of forests is 1.8 million hectares. The forest area increased from 1695 thousand hectares of 1990 to 1821 thousand hectares by 2002, that is, by 7 percent.

Table 82

Forest area and the share of forest area

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Forest area, thousand hectares	1695	1701	1712	1764	1767	1763	1765	1767	1769	1775	1773	1787	1821
Proportion of forest area %	18.2	18.3	18.4	19.0	19.0	19.0	19.0	19.0	18.9	19.0	19.2	19.3	19.6

Source: Hungarian Central Statistical Office (KSH).

12 percent of the Great Plain, 23 percent of the Transdanubian Region and 28 percent of North Hungary is forest. Concerning the counties, the share of forests is the largest in Nógrád county (41.4 percent), while that of Békés is the smallest (2.3 percent). The six counties of the Great Plain account for 24 percent in the total area of forests; the share of forests in the Transdanubian Region is 46 percent and it is 30 percent in North Hungary.

66.2 percent of the forests have economic functionality, 18.9 percent are areas of nature protection and the rest are used for other purposes. The regional data might significantly deviate from the national averages.

In Hungary the ownership of forests has not been settled yet. Through privatisation and due to compensation issues 40 percent of the ownership of forests was passed into private hands and 60 percent remained in state ownership. At present there are about 300 thousand new owners.

The variety of tree species in Hungarian forests is larger than the European average. Native Hungarian species are: beech, turkey oak, oak, hornbeam, poplar, willow, alder, lime and other broadleaved species. However, locust acacia, silver birch and the majority of the pine species are not native species. The share of native species is approximately 58 percent, at present the area of black locust exceeds 22 percent.

Table 83

Distribution of forest area in Hungary by tree species

Name of the species	2002	
	Area (ha)	Share (%)
Oak	355 287	21.1
Turkey oak	196 946	11.4
Beech	104 241	6.2
Hornbeam	97 339	5.7
Locust acacia	383 628	21.7
Other hard/soft broadleaved	81 597	4.6
Poplar	174 169	9.8
Other soft broadleaved	96 575	5.6
Scotch pine	137 490	8.1
Austrian pine	68 590	4.0
Other conifers	27 943	1.7
Total:	1 723 805	100.0

Source: Hungarian Central Statistical Office (KSH). National Database of Forests 2003.

Based on the data of the last decade reforestation and afforestation were at the lowest level in 1994 due to the economic situation and restructuring of the country. In 1994 reforestation and afforestation were implemented only on 29.2 thousand hectares of land. This is only 1.65 percent of the total forest area although in 1990 investments were implemented on a further 2.8 percent of the area (47.6 thousand hectares). Between 1995 and 1998 the area of afforestation increased gradually. The structure of the increase changed too: the area of forest regenerations and plantations of first phase started to increase again while blank filling of regeneration areas, plantations and afforestation further decreased. In 2002 the area of first phase work reached 36 thousand hectares - and exceeded the level of 1990 - while by the end of the decade the area of blank filling dropped to 5-6 thousand hectares and in 2002 the figure was 9200 hectares (20 percent in total afforestation and plantation area.)

Even today the largest proportion of forest regeneration is even today artificial regeneration. However, in 1990 its share was only 71 percent and in 2001 53 percent. From 1995 the area of natural regeneration increased and from 1997 it regularly exceeded the regeneration levels seen at the end of the eighties.

Disturbances in rich forest habitats (e.g. activities of forest management, oversized game stock) have an unfavourable effect on the quality of these forest habitats. Therefore, in order to maintaining the natural environment the natural processes of forests have to feature the least possible human intervention. It is high time to improve forest management in order to maintain the landscape and to extend natural regeneration. More detailed and differentiated silvicultural regulations have to be prepared with special regard to nature protection of forests and to forests in private ownership. In forestry, policies have to be developed for maintaining diversity and protecting the fauna and flora.

Table 84

Reafforestation and forestation

Unit: thousand hectares

Denomina- tion	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002+
Forest reforestation	26.0	21.9	20.2	16.1	15.6	16.1	17.1	19.2	20.3	18.9	20.3	22.0	22.0
Natural	7.6	6.9	8.2	7.4	6.8	6.9	7.3	8.9	9.1	8.8	9.9	11.3	..
Artificial	18.4	15.0	12.0	8.7	8.8	9.2	9.8	10.3	11.2	10.0	10.4	11.7	..
Share in forest area, %	1.53	1.29	1.18	0.91	0.88	0.91	0.97	1.09	1.15	1.07	1.14	1.23	1.21
First planting of afforestation and plantation	6.9	6.7	7.2	3.2	2.9	4.2	6.6	8.3	8.2	8.7	9.8	13.2	14.8
Share in forest area, %	0.41	0.39	0.42	0.18	0.16	0.24	0.37	0.47	0.46	0.49	0.55	0.74	0.81
Total first planting	32.9	28.6	27.4	19.3	18.5	20.3	23.7	27.5	28.5	27.6	30.1	35.2	36.8
Blank filling of reforestation	10.7	12.1	9.8	8.6	8.7	7.8	6.5	5.7	5.0	4.2	4.7	6.8	6.8
Replacement of afforestation	4.0	3.9	2.7	2.5	2.0	1.3	1.2	1.4	1.6	1.2	1.1	2.4	2.4
Blank filling	14.7	16.0	12.5	11.1	10.7	9.1	7.7	7.1	6.6	5.4	5.8	9.2	9.2
Total afforestation and plantation	47.6	44.6	39.9	30.4	29.2	29.4	31.4	34.6	35.1	33.0	35.9	44.3	46.0
Share in forest area, %	2.81	2.62	2.33	1.72	1.65	1.67	1.78	1.96	1.98	1.87	2.02	2.48	2.53

Remark: The data of 1996-1998 are annual data.

+ preliminary data

Source: Hungarian Central Statistical Office (KSH).

Timber is one of the natural raw materials used in largest quantities. In the EU Member States 85-90 percent of the timber from logging on average is processed while in Hungary only 50-60 percent is used by the industry. This is due to the different species and different technological level of processing.

Following the political-economic transition logging dropped significantly; in 1994 the annual logging was of 5.7 million cubic metres in total while at the beginning of the decade it was of 7.4 million cubic metres. From 1996 logging increased and in 2001 it reached 7 million cubic metres, in which net volume above ground level was of 5.8 million cubic metres. Note that in the logging figures, regarding final use the capacities are not used. When it was at its lowest level the proportion of 'final use' timber was about 60 percent while earlier it used to be

about 69 percent. As a result of + sanitary cutting, 322 cubic metres of timber was produced (4.6 percent) from dry-fallen or decaying trees.

Table 85

Logging

Unit: thousand cubic metres

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Final cutting	5050	4961	4511	3724	3474	3830	4296	4404	4540	4862	5021	5007
Thinnings	1548	1573	1383	1235	1257	1362	1180	1252	1297	1299	1431	329
Clearings	397	376	313	291	286	305	306	338	334	332	346	353
Sanitary and other cuttings	420	345	382	474	700	552	822	718	408	408	489	322
Total	7415	7255	6589	5724	5717	6049	6604	6713	6579	6901	7287	7011

Source: Hungarian Central Statistical Office (KSH).

In net logging the share of industrial timber varied – ranging between 50-60 percent – and the difference was firewood. Based on the data of the Ministry of Agriculture and Regional Development 39-40 percent of firewood is unsquared timber. The raw material of the timber industry decreased considerably; the volume used by the paper-industry accounted for 76 percent. The timber used by the mining industry latterly accounted for 29 percent of the quantity produced at the end of the eighties. However, the share and volume of fibroid timber increased significantly.

Table 86

Total logging

Unit.: thousand cubic metres

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Fellings (gross), above ground level	7415	7255	6589	5724	5717	6049	6604	6713	6579	6901	7282	7010	7013
Removals (net), above ground level	5906	5776	5132	4473	4397	4334	5321	5438	5329	5724	5902	5811	5642
Industrial wood	3559	3227	2702	2272	2263	2386	3193	2947	2951	3148	3305	3492	3052
Firewood	2347	2549	2430	2201	2134	1948	2128	2491	2319	2576	2597	2319	2590

Source: AKII

Table 87

Felling and wood working in the forest management of the Ministry of Agriculture and Regional Development

Unit: thousand cubic metres

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total industrial timber	2263	2081	1912	1766	1843	1855	1834	1909	1902	1958	2137	2201	2153
- logs	925	856	771	748	807	836	836	809	838	891	892	897	831
- other timber													
industrial raw material	227	182	140	145	158	151	144	135	141	143	176	179	172
- timber for the mining industry	56	45	41	37	38	33	32	27	25	23	21	18	16
- timber for the paper industry	534	560	481	363	277	293	283	280	270	256	370	381	405
- fibrous timber	244	274	330	324	403	394	405	504	456	459	505	518	458
Thick firewood	1289	1417	1438	1470	1512	1369	1362	1392	1239	1302	1426	1387	1448
Total thick timber	3552	3498	3350	3236	3355	3224	3196	3301	3141	3260	3563	3588	3601
Thin firewood	172	210	230	229	237	211	210	218	183	182	205	176	192
Total timber	3727	3736	3587	3469	3597	3437	3417	3528	3341	3448	3774	3770	3797

Source: AKII Game farming

Forests are the habitat of a large number of plant and animal species and are the only shelter of numerous species. Therefore, it is an international effort to provide high level protection for forests. In Hungary 338 hectares of forest are protected forests or national parks. This is 18.9 percent of the total forest area. From the EU Member States only Austria (19,9 percent) supercedes Hungary. The high share of forests shows that forests in Hungary represent a special value for nature conservation. Not only the area but also the whole flora and fauna of forests are included in forest values. Both the growing stock and game stock of forests are of outstanding significance.

In among the additional functions of forests the quality development of game farming will in the next years and decades be an important task both economically and from the aspects of tourism.

The game livestock numbers changed slightly during the last decade. The stock of small game decreased and the stock of larger game increased considerably. Compared to the end of the eighties the stock of hares and pheasants declined. The hare stock decreased by 27 percent through the nineties and that of pheasants by 25 percent. The number of moufflons ranged between 9-10 thousand head with annual fluctuations; the stock of deer, fallow-deer, roe-deer grew and the number of wild-boar doubled. The boar stock has been increasing since 1997 and in 2002 it reached 91 thousand head. After the number of partridges increased in 1997 it then dropped to 63 thousand and in 2002 there were only 51 thousand head.

At the beginning of the nineties the shooting of hare increased and the number of captured animals dropped slightly; then from 1993 the hunting of hare decreased but since 2001 the number of shot and captured hare increased again. Regarding the number of captured hare there was not much fluctuation.

The hunting of pheasants was continuously decreasing up to 1999. Capturing of pheasants is practically finished, as is the snaring of most game.

Deer and roe-deer hunting used to be intensive but then shooting dropped but from 1999 hunting of deer started to increase again.

Table 88

Hunting: Game stock

Unit: thousand head

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Hare	795.7	581.3	589.1	570.2	597.5	602.3	602.3	475.1	515.8	463.3	514.1	521.8	582.5
Pheasant	1099.3	835.3	831.1	672.2	784.5	821.4	821.4	645.5	765.7	686.1	788.9	698.7	824.8
Partridge	50.5	50.4	55.8	60.0	73.2	103.4	103.4	62.7	73.2	63.6	65.5	52.0	51.4
Deer	55.1	53.8	54.3	51.7	50.1	54.4	54.4	71.7	74.1	74.0	77.5	82.6	82.6
Fallow deer	14.3	16.5	18.9	16.9	16.0	16.1	16.1	14.1	20.7	20.2	22.2	20.9	22.1
Roe-deer	236.2	241.0	277.3	235.9	233.4	245.6	245.6	237.6	269.3	273.4	291.9	307.3	319.6
Mouflon	10.6	9.2	9.4	8.5	8.5	9.4	9.4	10.7	10.0	9.5	10.6	9.9	9.6
Wild-boar	38.8	42.1	44.0	42.3	39.4	43.1	43.1	58.9	65.8	68.4	75.8	82.4	82.4

Source: AKII

Table 89

Number of shot and captured game

Unit: thousand heads

Denomination	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Shot game												
Hare	147.3	152.8	130.1	134.5	132.4	96.4	97.1	79.6	83.6	85.2	100.5	132.1
Pheasant	672.2	640.2	537.1	526.9	543.5	404.4	491.5	433.3	543.4	430.4	535.7	558.4
Partridge	4.5	3.5	2.3	2.3	3.1	2.2	1.8	1.4	1.8	1.2	1.4	2.0
Deer	36.7	32.8	30.0	23.9	21.8	20.4	19.7	20.1	24.1	28.9	34.0	41.7
Fallow deer	6.2	6.5	7.5	6.5	5.5	4.4	4.7	5.5	5.5	6.0	6.7	9.6
Roe-deer	44.0	42.5	37.6	38.8	37.9	35.4	34.5	37.9	44.2	52.8	61.8	72.1
Moufflon	2.8	2.4	2.6	1.8	2.3	2.1	1.5	2.0	2.5	2.3	2.7	3.7
Wild-boar	43.8	42.9	42.9	33.5	35.0	35.1	38.1	48.5	58.0	67.7	88.3	88.3
Captured game												
Hare	32.4	46.8	41.0	53.3	57.0	43.5	41.9	30.6	46.2	47.7	..	..
Pheasant	41.9	13.3	20.5	21.2	7.7	1.1	2.4	0.8	7.2	9.2	..	3.1
Partridge	–	–	–	–	–	–	0.0	..	..	..	..	..
Deer	0.1	0.0	0.2	0.1	0.0	–	0.0	0.1	..	..	..	..
Fallow deer	0.0	0.2	0.1	0.0	0.0	–	0.1	0.1	..	..	..	..
Roe-deer	0.1	0.0	0.0	0.0	–	–	0.0	0.04	..	..	..	..
Moufflon	0.0	–	–	0.0	0.0	–	0.0	0.1	..	..	..	..
Wild-boar											..	..

Source: AKII

6.2. Fishery

Statistical data (which seems to mirror the decreases in the agricultural sector) shows that the production of fishery dropped significantly too. While in 1990 25 thousand tonnes of fish was produced in 1993 the annual production was less than two third of that. In 1995 the production was 15.3 thousand tonnes. Between 1998 and 2002 a slight increase characterised the sector; the volume of 18 to 20 thousand tonne was the level of 1991-1992.

Table 90

Production of fishery stock

Unit thousand tonnes

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total fish production	25.0	19.9	20.3	17.0	17.9	16.3	15.3	16.4	18.0	19.1	19.9	19.3	19.5
of which:													
Agricultural enterprises	10.0	9.0	7.6	5.0	6.2	6.5	6.2	5.5	6.4	6.6	6.3	5.5	5.7
Co-operatives	7.0	5.0	2.4	2.0	1.9	1.8	2.3	1.6	2.0	2.0	2.4	1.8	1.6
Private farms	8.0	5.9	10.3	10.0	9.8	8.0	6.8	9.3	9.6	10.5	11.2	12.0	12.2

Source: AKII

7. Convergence of food trade and changes of the food market

7.1. The organisational restructuring of the food market

The Hungarian political-economic transition as well as privatisation led to fundamental changes in the food trade. The food trade was attractive for investors and even for foreign investors. A great number of international food chain stores started operation in Hungary, this involved restoring several stores and green field investments. Food chain stores of Hungarian ownership were also established of which some developed at an especially high rate and are also expanding abroad. However, the majority of the Hungarian food trading companies are SMEs, which are, financially, barely self-sustaining.

The period of spontaneous privatisation was 1989-1990 when the small stores were converted to private property and when a great number of small stores were established. Consequently, the number of food stores started to grow.

During privatisation (from 1991 to about 1995-96) the ownership of large food trading companies (for example, "Közért", a grocery store) were transferred. The majority of the stores in favourable locations were taken over by multinational chain stores. Some small stores developed further but others went bankrupt. In the first half of this period many new enterprises were launched despite the low chances of gaining sufficient income/returns. However, the majority were operational only for a short time. From around 1996 the signs of consolidation appeared more significantly and it continues even at present.

Table 91

Number of food and mixed food retail stores

Year	Total	Of which: operated by private farmers
1990	25066	12011
1991	37687	20579
1992	43342	26405
1993	49999	32333
1994	54901	35956
1995	58590	38265
1996	59743	38382
1997	47384	28692
1998	51051	29595
1999	52159	29643
2000	51725	28681
2001	51603	28058
2002	51330	28501

Source: Hungarian Central Statistical Office (KSH).

Regarding the number of food retail stores the "breaking-point" of 1997 was due to a new system which was introduced in the national business survey. In the first half of the nineties the registration of new stores was obligatory but no information was available on the closing down of stores. In 1996 the Hungarian Central Statistical Office (KSH) carried out a census on retail stores. From 1997 on it is the task of local governments to keep a continuous register of the shops located in their area.

At the beginning of the nineties the number of stores increased rapidly. In this the number of stores operated by private farmers increased significantly too. Their share was the largest in the middle of the decade. The later decrease was due to the appearance of large food trade chains, i.e. strengthening competition.

Since the political-economic transition, new types of stores and enterprises were established.

In Hungary in 1997 the total area of retail stores was 1.7 million m² which by 2001 had grown to 12 million m²; that is a 25 percent increase of retail surface area. The total sales surface area of stores over 400 m² is 740 thousand m² which is double of that in 1997. The sale surface area of stores over 400 m² is 35 percent more than that of total retail stores while in 2000 it accounted for 41 percent in total retail sales.

The relationship between producers and food retailers changed dramatically. In the relationship between food trade stores and food producers the partners are not of equal rights. Retailers have the dominant power position and dictate and the producers have to adapt. However, it is true that in spite of the unfavourable conditions they offer an opportunity for them to supply products in large volumes. For the SMEs the food chain stores offer opportunity only at regional level and in the cases of special and niche products⁹. In recent years more and more sales organisations were established by the co-ordination of food chain stores; this increases further the strong market position of traders and the concentration of trade.

In spite of all this, we can say that in Hungary the food retail system established in the nineties is of two poles which means that in addition to the further expansion of the chain stores there are a large number of small independent retail stores the majority of which operate in the grey economy and are often farmers who lack other income generating opportunities. In rural food trading a split can be seen. First of all in villages where only Hungarian-owned Co-op stores can be found and where other stores do not meet the requirements of the population - regarding choice and price – since local people may be much less mobile.

⁹ Niche market is a definite group of potential customers who due to common characteristics are especially sensitive to a certain type of product or service. The niche market is a special market meeting special requirements (for example, ecological tourism, special food products or drinks in a certain market). During the expansion of the market the niche market can develop to a global market. (for example, organic production).

In addition to the hypermarkets (49) the rapid expansion of chain stores (in 2002 there were 45) is also outstanding in comparison to other countries of the world. In Hungary the chain store surface by inhabitants is 14 m² (in Germany 9.7, in Austria and Great Britain 21). Experts think that even at present there is an oversupply in chain stores and their distribution is not evenly balanced.

7.2. Convergence of food trade

In the nineties the volume of food retail increased by 7 to 8 percent. The change of volume was not seen as even since at the beginning of the decade it dropped considerably and during the last four years the sales of food and mixed food retailers increased by 15 percent.

Table 92

Sales of food and mixed food retail stores

Year*	Million HUF	Volume index Previous year = 100
1990	292153	85.9
1991	409261	113.5
1992	460303	92.2
1993	551329	91.5
1994	611410	91.2
1995	682362	93.9
1996	876520	106.5
1997	1015450	98.1
1998	1286640	107.4
1999	1450863	107.0
2000	1515366	96.4
2001	1762404	103.9
2002	2041605	110.8

*between 1990-1993 data is from food stores, Since 1994 both mixed food retail and food retail stores
Source: KSH and AKII calculations

The calculation is difficult now as in the nineties because the methods of data collection and estimations changed several times. Up to 1994 sales indicated the sales of food stores but since 1994 the survey was carried out with two categories (mixed food retail and food retail). From 1998 these two categories were merged. From January 2003 the data was again broken down by KSH.

Based on the data of GFK Hungarian Market Research Institute in 2002 hyper-markets accounted for 19 percent in total sales of food and domestic-use chemicals (this indicated a growth compared to previous year). The share of small stores increased too and reached 36 percent. The market share of supermarkets stagnated (14 percent), that of large chain stores decreased by 1 percent and

accounted for 15 percent. The share of retailers in markets and street-traders stabilised to between 4 to 5 percent. The share of other outlets dropped by 2 to 7 percent.

Table 93

**New types of stores (hyper- and supermarkets, large food chain stores) for purchasing daily consumer products based on housewives' opinion in 2001
(% of respondents would buy there)**

Product category	2001
Preserved and packed food	55
Washing power	55
Toilet articles	48
Soft beverages free of alcohol	47
Milk and milk products	44
Deep frozen products	43
Cosmetics	41
Meat products	37
Bread and fresh pastry goods and cakes	35
Beer	34
Sweets	33

Source: GfK Market Research Institute, Shopping Monitor

8. The economic conditions

8.1. Prices of agricultural products

Prices of agricultural products have been unstable in recent years. Prices were fluctuating from one year to the other and this had a significant effect on production. The correlation of prices of the various products was modified and not always in accordance with expectations, yields and plans. The reason for this was that from the second half of the eighties the rate of inflation increased and the increase of sales prices varied by product. Planning became indispensable for agricultural producers; the earlier relative sales security and stability of prices and incomes disappeared.

In the nineties the role of prices in the transformation of agricultural production strengthened regarding the volume and structure. First of all competition as well as Hungarian and external markets determined the prices. The procurement prices of the most important raw materials produced by the industry and the prices of equipment could freely be determined. In the frame of the new regulation of the agricultural price system determination of the freedom in prices was increased and the range of flexible prices were extended.

At the beginning of the decade in order to facilitate producers' decision making and to make any expected income calculable official procurement prices were maintained in the cases of the main agricultural products. In accordance with this the prices officially set were as follows:

- Fixed prices were applied for cows milk,
- Guaranteed prices for pig for slaughter (based on market conditions declines upwards were allowed),
- Reference prices were applied for cattle for slaughter, maize, feeding barley and fodder mixes. From reference prices, varying declines both upwards and downwards were allowed.),
- The prices of other agricultural products could be fixed freely.

Since 1991 the prices of cows milk, cattle for slaughter and pig for slaughter were still determined officially together with that of common wheat and feeding maize. For milk "the highest price" was fixed, in such a way - by taking into account both taxes and subsidies - that it should cover the operational costs and profit. For the other products the lowest prices were fixed in order to cover at least the input costs of farmers operating efficiently.

Act No. VI of 1993 on the Agricultural Market Regime brought about a new change in price regulation. In accordance with it, in the case of a directly regulated agricultural market (for the following commodities regulated within the markets: cows milk, common wheat, feeding maize and from 1 January 1994 for cattle for slaughter and pig for slaughter) guaranteed prices were fixed. The guaranteed price provided an income only for those producers who were producing more efficiently than the average and it provided a compensation payment for part of the losses in the

case of market disturbances. In general, up to 1998, it met about 90 percent of the average production costs of the given year. In accordance with the amended act the "guarantee price: is a minimum price determined by law being less than 70 percent of the the cost price of producers producing at average level which is in accordance with quotas allocated by the Minister and for the quantity determined intervention is regulated..."

Act No. XVI (1993) concerning the Agricultural Market Regime set down guiding prices and from the second part of the decade also to publish lower and upper intervention price limits in relation to the guiding price. Based on the Act the guiding price is a price indicating the price which - depending on market conditions - is the midpoint of price fluctuations. In accordance with the regulations the intervention price is calculated based on the guiding price and it can be the lowest or highest price. If the market price reaches or exceeds it then the measures of the agricultural market regime are applied.

The upcoming EU accession means that new amendments of the Agricultural Market Regime Act are required. Therefore, Act No. XVI (1993) defined the base price, guiding price, minimum price and intervention price in accordance with the market regulations of the various commodities. This will modify prices accordingly but this effect can only latterly be seen.

During the period analysed producer prices were increasing continuously due to the high rate of inflation and price increase compared to international levels. The annual average price increase reached the highest level in 1996 (33.7%). Then the price increase of crop products approached 60 percent while that of animal products was only about 20 percent. This high rate of price increase stopped in 1997. In that year the average price increase of agricultural products dropped to less than 10 percent. This was caused by the price increase of animal products, vegetables and fruits as well as by the drop in crop prices. This tendency continued also in 1998. In 1998-1999, as a result of world market tendencies it increased by 2.8 and 2.6 percent respectively over the two years. A significant difference between the price levels of the two years is that the decreasing price level of crop production in 1998 was followed by an increased in 1999, while in Animal husbandry the price increase declined in 1999 by 4.7 percent on average; this decrease affected all the sectors of animal breeding.

In 2000 the price level of agricultural products changed significantly and exceeded the level of the previous year by 22.5 percent. As part of this, the producer prices of crop products increased by 30.8 percent and that of live animals and animal products by 12.3 percent. The increase compared to the low level of 1999 was also due to the extraordinary weather conditions (frost, flood, inland water problems and drought) as the relative shortage of products induced a price rise.

In 2001 the average price increase was only 4.9 percent. The price increase was much lower than in the previous year and was mainly due to the decrease (19 percent) of the average procurement price of cereals. The prices of vegetables were

lagging behind by 5.1 percent of fruits by 14.8 percent and of wine and wine products (primarily 'must') by 10.3 percent compared to the previous year. In the area of animals for slaughter the average producer price of pig for slaughter increased by the largest margin in spite of the fact that from August 2001 the average procurement prices dropped. The price of sheep for slaughter increased by 22.5 percent and that of poultry for slaughter by 18.4 percent. The average producer price of cows milk rose by 10.0 percent.

In 2002 across the entire agricultural market, the processes influencing the development of prices moved in the opposite direction compared with the previous year. In general, producer prices did not reach the levels of 2001. Concerning annual levels, the producer prices of crop products and horticultural products grew by 2.5 percent, while that of live animals and animal products dropped by 5.0 percent compared to 2001. The increase of crop products in 2002 was first of all due to the cereal and vegetable supply, which was smaller than the previous year and to the low fruit availability due to the frost and drought. First of all the price decrease of Animal husbandry was caused by the significant drop of producer prices of pig for slaughter although the prices of poultry for slaughter and eggs decreased too. The price increase due to the increased demand in the beef cattle market resulted in the producer price increase of cows milk.

Table 94

Average producer prices for the main commodities

Denomination	Unit	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Wheat	HUF/tonne	6 079	5 503	6 817	9 396	9 329	10 925	24 271	20 722	15 536	19 851	27 778	22 828	22 700
Barley	HUF/tonne	6 138	5 601	6 294	8 130	8 480	9 234	23 084	20 077	13 652	17 469	27 882	25 746	25 300
Maize	HUF/tonne	8 628	6 741	7 101	10 166	9 944	12 910	19 877	15 529	14 718	15 734	25 355	19 611	20 700
Sugar beet	HUF/Tonne	1 856	1 825	1 984	2 202	2 885	3 736	4 452	5 713	4 786	5 364	6 879	7 780	..
Sunflower seed	HUF/tonne	15 133	15 067	13 667	14 301	24 471	31 331	37 095	41 956	52 955	49 906	48 500	60 136	66 100
Potato	HUF/tonne	11 825	12 803	12 472	15 360	19 108	33 736	20 389	17 172	29 523	28 240	33 953	34 134	..
Onion	HUF/kg	8.90	9.60	10.60	16.20	19.90	19.40	15.50	28.40	28.90	27.20	36.20	24.50	31.80
Tomato	HUF/kg	4.90	5.30	6.30	8.10	9.30	10.30	14.10	20.80	18.00	16.50	18.00	18.10	18.50
Green pepper	HUF/kg	29.80	26.10	29.80	36.40	36.70	42.40	58.50	86.40	59.00	77.70	88.00	114.40	99.50
Apple	HUF/kg	10.40	13.80	10.90	8.80	10.60	24.90	18.60	18.90	16.70	28.80	18.40	14.10	11.50
Wine-grape	HUF/kg	13.80	13.70	13.80	15.30	18.20	28.40	35.00	33.70	34.90	44.40	58.50	51.10	50.90
Wine*	HUF/litre	53.50	55.80	26.30	26.20	32.90	43.30	61.90	66.20	76.50	99.90	118.30	120.00	
Pig for slaughter**	HUF/kg	70.00	64.50	79.90	89.30	117.20	168.20	169.50	219.50	227.00	192.70	237.00	333.00	275.00
Cattle for slaughter ***	HUF/kg	75.20	64.10	69.80	87.70	111.30	151.30	156.00	165.80	211.10	199.70	206.90	210.30	216.40
Poultry for slaughter	HUF/kg	60.70	70.30	73.60	86.30	110.10	124.00	158.60	191.90	195.10	188.80	201.50	238.10	222.50
Cows milk	HUF/litre	14.20	14.40	15.70	19.20	24.40	29.60	34.50	44.00	55.50	59.40	63.00	68.50	72.30
Hen eggs	HUF/egg	3.00	3.70	4.60	5.30	6.10	7.00	9.60	12.40	12.30	10.40	12.50	14.30	

*/ barrelled.

**/ not including piglets and sucklers.

***/ not including calves for slaughter

Source: Hungarian Central Statistical Office (KSH).

Table 95

Producer price index
(1990 = 100,0)

Denomination	1991*	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Horticultural and crop products	104.1	105.9	134.4	152.3	200.5	290.7	290.2	280.0	306.2	400.5	378.6	388.1
Products of crop production **	93.7	97.5	126.7	142.4	179.9	283.4	267.6	249.6	280.2	372.1	355.2	361.9
Vegetables ***	128.9	143.8	180.4	198.1	256.0	337.2	408.3	412.0	413.2	536.6	509.1	526.9
Fruits	176.6	134.4	149.6	198.8	348.4	283.0	343.9	399.5	394.5	461.6	393.5	442.3
Wine-grapes, must, wine	100.7	100.0	103.6	123.3	199.1	235.4	237.1	258.1	313.9	378.3	339.2	329.0
Live animals, animal products	107.4	122.2	135.9	176.4	213.7	255.9	315.5	348.8	332.5	373.8	447.5	425.1
Cattle ****	..	143.9	108.6	148.0	200.5	207.4	220.5	280.7	265.5	275.2	279.6	287.7
Cows milk	..	114.2	142.8	179.1	205.8	254.5	322.0	399.6	429.3	461.9	465.1	492.1
Pig	..	113.7	127.3	167.2	238.2	242.2	313.0	327.0	275.6	337.1	473.6	395.0
Poultry	..	122.5	143.5	181.9	202.7	268.2	320.9	329.5	311.9	334.3	395.1	371.0
Hen eggs for consumption	..	167.3	186.6	258.1	198.1	356.3	441.1	426.8	398.2	517.2	591.7	569.2
Index of agricultural producer prices	104.2	113.2	135.1	163.1	206.4	276.0	301.4	309.8	317.9	389.4	408.7	404.2

*/ Data calculated by the index of procurement prices between 1991 and 1992.

**/ Cereals, leguminous and industrial plants, potato, hay seeds, seeds.

***/ Since 1996 not including red pepper.

****/ not including slaughter calves.

Source: Hungarian Central Statistical Office (KSH).

Agricultural Statistical Pocketbook 2001. AKII – KSH

8.2. Terms of trade

The view that in conflicts of interests in agricultural markets the losers were generally the producers can best be justified by the terms of trade.

Table 96

Price indices and terms of trade

1990=100%

Year	Price index of industrial products used in production	Price index of agricultural production	Terms of trade
1990	100.0	100.0	100.0
1991*	132.6	105.0	126.3
1992*	143.2	114.0	125.6
1993	171.8	135.1	127.2
1994	202.9	163.1	124.4
1995	250.9	206.4	121.6
1996	351.7	276.0	127.4
1997	404.8	301.4	134.3
1998	425.9	309.9	135.4
1999	443.9	317.9	139.6
2000	491.6	389.4	126.2
2001	565.7	408.7	138.4

Source : Agricultural Statistical Pocket Book, 2001. KSH, Budapest, 2002.

Agricultural production , 2002. KSH, Budapest, 2003.

*Producer price index calculated by the producer procurement price index.

As a result of the drastic 35 to 40 percent increase of the terms of trade over the last 11-12 years the agricultural income has decreased by more than HUF 400 billion calculated at constant prices.

As a consequence of the unfavourable processes between 1991-92 and 1996-97 some sectors of agriculture were sacrificed. The unfavourable process also continued between 1998-99 but to a lesser extent.

During the decade up to 1997 the price indices of industrial goods used for production were of two digits (in double figures); prices increased by 15-40 percent annually. In 1998 and 1999 the increase slowed down. However, even during this period the terms of trade increased since the producer price index of agricultural products was lower than the price index of industrial goods. In contrast to the large increase of the agricultural price index (22.5 percent) of 2000 the price index of industrial goods was low (10.9 percent). Therefore, prices were favourable for agriculture. However, this situation changed in 2001 and the terms of trade increased again by 9.7 percent.

In 2002 the Hungarian Statistical Office (KSH) adopted the methodology of EUROSTAT for calculating the terms of trade. Based on this methodology the agricultural producer price index is divided by the price index of inputs. In the calculation of the price index of inputs not only the price changes of industrial input but also that of agricultural input are taken into account. The index of inputs includes the price indices of products and services used in intermediate production and the same for agricultural investments. As in 2002, both the producer prices and the prices of industrial goods used for agricultural production decreased by 1.1 percent, therefore, the terms of trade did not change in 2002.

The terms of trade index increases from time to time in other countries too, however, the increase in Hungary has been extremely high. This was caused by the coincidence of several factors. Considering "permissive" conditions: the limited purchasing power of the population and the different price flexibility of the various products competing for consumers are the most important issues.

8.3. Subsidies, PSE figures and credits

In 1994 the schemes controlling agricultural subsidies were significantly changed. The system of subsidies was introduced to reduce the cost of production. Up to then the share of financial resources provided by the central budget for market access accounted for more than 80 percent of the total of subsidies.

The amount of agricultural subsidies was continuously increasing. Between 1998 and 2002 agricultural subsidies from the central budget were at current prices, higher by 88 percent on average than the averages of 1994-1997. In 1998 subsidies were increased by 26.9 percent compared to the previous year and in 1999 by 19 percent. In 2000 it did not change but in 2001 it increased significantly again (41.7 percent). In 2002 these resources (if we consider as a separate issue the HUF 60 billion spent on the debt consolidation programmes of agricultural producers in that year only and on compensation payed as damages to cover unfavourable weather conditions) were hardly increased.

By analysing the changes of subsidies since 1997 at real prices (with accumulated inflation rates) we can see that resources from the central budget aiming to support the agricultural economy were decreasing until 2000. The amount of 1998 is 87.5 percent, in 1999 94.7 percent and in 2000 only 88 percent of the averages of 1994-97. In the two last years of the period analysed the subsidies from the central budget exceeded (at real prices) the average of 1994-1997 by HUF 8.3-8.4 billion.

By analysing the internal structure of the agricultural subsidies - by target groups - we can see that in the three main types of subsidies - market access, subsidies for reducing the production costs and investment subsidies - the share of subsidies provided for sales was the largest until 2000. However, this share is still some way behind the 54 percent average of 1994-1997. A significant part of the

market access support was provided both to non-agricultural enterprises. Subsidies provided for reducing production costs and for agricultural investments increased fourfold in the last four years of the period compared to the average of 1994-1997.

Based on the Farm Accountancy Data Network established in the third quarter of the nineties it is possible to present the distribution of subsidies by sectors, that is, the shares of subsidised private farmers and corporations. The position of private farms improved during the last years: in the cases of corporations subsidy-per-hectare in 1999 was HUF 15,680 in 2000; HUF 17,930 in 2001; HUF 22,030 and HUF 34,570 in 2002, while the same subsidy-per-hectare in the cases of private farms was HUF 11,560; HUF 13,140; HUF 16,860 and HUF 22,470 in the same years (in the above amounts the investment subsidies are not included).

Table 97

Agricultural subsidies

million HUF

Denomination	Average of 1994-1997	1998	1999	2000	2001	2002	Average of 1998-2002
Total agricultural subsidies	81891	110879	131923	134728	190861	200654	153809
Support to reduce costs of agricultural production	14067	29963	407764	47285	86512	67645	54436
Market access support	44477	38964	56875	49140	32291	43209	44096
Agricultural and food industrial export subsidies	38838	18799	21905	24456	13211	4201	16514
Farm and agricultural market subsidies, state purchase	4015	6018	13581	12736	11157	18603	12419
Market access support	1624	14147	21389	11948	7924	20406	15162
Subsidies for agricultural investments	11339	30360	26275	27728	55645	66061	47360
Total subsidies for agricultural enterprises	69883	99287	123926	124153	174449	176915	139746
Other subsidies	12009	11593	7997	10575	16412	23739	14063
Rate of inflation (consumer price index)	122,2	114,3	110,0	109,8	109,2	105,3	109,7
Total deflated budgetary subsidies I. (deflated by the rate of inflation of the given year)	67125	97007	119930	122703	174781	190555	140995
Support to reduce costs of agricultural production	11544	26214	37069	43065	79224	64240	49962
Market access support	36371	34084	51704	44754	29571	41034	40231
Agricultural and food industrial export subsidies	31669	16447	19913	22274	12098	3984	14944
Farm and agricultural market subsidies, state purchase	3329	5265	12346	11600	10217	17667	11419
Market access support	1373	12377	19445	10881	7256	19379	13867
Subsidies for agricultural investments	9387	26562	23886	25253	50957	62736	37879
Total subsidies for agricultural enterprises	57302	86865	112660	113072	159752	168011	128072
Other subsidies	9823	10142	7270	9631	15029	22544	12923
Rate of inflation (consumer price index 1994=100 %)		214,3	235,7	258,8	282,6	297,6	257,8
Total deflated budgetary subsidies I. (deflated by the accumulated rate of inflation)	58134	51750	55974	52063	67540	67432	58952
Subsidies decreasing the costs of agricultural production	9776	13984	17301	18272	30614	22733	20581
Subsidies for market access	33207	18186	24132	18984	11427	14521	17481
Export subsidies for agricultural and food industry	29215	8774	9294	9451	46751	1412	6721
Agricultural market subsidies, government purchase	3126	2809	5762	4922	3948	6252	4739
Subsidies promoting market access	866	6603	9075	4617	2804	6858	5991
Subsidies for agricultural investments	7439	14170	11148	10715	19691	22201	15585
Total subsidies for agricultural enterprises	5022	46340	52581	47976	61732	59454	53617
Other subsidies	8712	5411	3393	4036	5808	7978	5335

Source: Ministry of Finance.

By analysing the absolute values of subsidies it is also reasonable to take into account the Producer Subsidy Equivalent (PSE). If we compare the Hungarian indicator - i.e., estimated subsidy - with international data we can draw the following conclusions:

The PSE of all Hungarian producers increased by 21 percent between 1998-99 and then between 1999-2000 it dropped again by 42 percent. The value of PSE was 21 percent on average in Hungary between 1998-2000 and also much below the average value of the OECD Member States (34 percent). However, the value of PSE is very varied in OECD countries: in New Zealand 1, in Australia 6, in Norway, Iceland and Korea 66 while in Switzerland 71 percent. In 2001 the Hungarian PSE decreased continuously, and in 2002 the producer subsidy equivalent rose by about 10 percent.

In connection with the Hungarian agricultural subsidies we have to mention that the rate obtained by comparing them to agricultural GDP is not low in comparison primarily with the developed countries. In Hungary during the period analysed this rate was of 2.6 percent while in the OECD Member States it was only 1.3 percent on average.

Most agricultural credits are coupled to subsidies. In 2001 the total amount of agricultural credits was 2.9 times more than the average of 1995-97. In 1999 the rate of credit increase was equal to the rate of inflation but in 2000 it exceeded that. Credits with interest subsidies repayable within a year accounted for about 50 percent of all credits. In 2002 this share (in spite of the fact that the amount of credits-with-interest subsidies provided to family farms and small and medium size enterprises increased more than the rate of inflation) decreased by 7 percent. The average of 1995-1997 was about 72.3 percent. The role of credits repayable over a year diminished too. The share of this latter subsidised credit was 12.9 percent of the average of 1995-1997 and in 2001 it hardly exceeded 10 percent while in 2002 it increased to 11.6 percent. The capital supplementing credit - or rather its balance - increased by 2001 to 23.2 percent compared to the 14.8 percent of the base period and then it dropped to 17.8 percent. It should be mentioned that the various holdings use capital supplementing credits for financial loss-coverage.

By analysing the sector characteristics of subsidies provided around 2000 we can see that the majority of subsidies were provided to corporations - co-operatives and economic organisations. This share accounted for approximately 50 percent until 2001 and in 2002 for 75 percent. This situation was a consequence of the system of subsidised interest rates coupled to credits.

Table 98

Agricultural credits provided with subsidies

Denomination	Unit	Average of 1995-1997	1998	1999	2000	2001	2002
Credits with interest subsidies repayable within a year	million HUF	73497	93404	110936	136975	143523	155113
	%	72.3	41.6	44.5	48.9	49.2	42.1
Credits with interest subsidies repayable after the first year	million HUF	13127	33200	37485	31603	30369	42609
	%	12.9	14.7	15.1	11.3	10.4	11.6
Balance of capital supplementing credit	million HUF	15000	98356	100726	93065	67617	65440
	%	14.8	43.7	40.4	33.2	23.2	17.8
Credits repayable after the first year provided in accordance with Government Decree No. 30/2000.(III.10.)*	million HUF				18450	49989	36059
	%				6.6	17.2	9.8
Total credit	million HUF	101624	224960	249147	280093	291498	368460**
	%	100.0	100.0	100.0	100.0	100.0	

* Credits repayable after the first year provided in accordance with Government Decree No. 30/2000.(III.10.): subsidies for young farmers, the farmer credit programme, subsidies for organisations of new types, co-operatives, credit construction for development, additional credits.

Source: MARD, Department of Sectorial Budgetary Relations

* Credits repayable after the first year provided in accordance with the Agricultural Ministerial Decree No. 57/2001.(IX. 21.) (for technological improvement, for producer organisations to purchase ownership, for infrastructure development) HUF 301 million, in accordance with the Agricultural Ministerial Decree No. 14/2001. (II. 22.) HUF 1829 million provided for food preservation, HUF 67,109 million for family farms, preferential credits provided to SMEs accounting for a share of 18.8 %.

Table 99

Agricultural credits by legal operational status of the enterprise

Unit.: million HUF and %

Denomination	Total	Primary producer	Private farmer	Co-operative	Agricultural enterprise
as of 31 December 2000					
Current assets credits repayable within a year	136975 100.0	3040 2.2	6770 4.9	25350 18.5	101815 74.4
Current assets credits repayable after the first year	93065 100.0	2738 2.9	5227 5.6	24925 26.8	60175 64.7
Investment credits repayable after the first year	31603 100.0	1493 4.7	7225 22.9	5969 18.9	16916 53.5
Credits in accordance with Gov. Decree No.30/2000 repayable after the first year	18450 100.0	683 3.7	2841 15.4	3690 20.0	11236 60.9
Total	280093 100.0	7954 2.8	22063 7.9	59934 21.4	190142 67.9
as of 31 December 2001					
Current assets credits repayable within a year	143523 100.0	2251 1.6	3995 2.8	17537 11.6	120583 84.0
Current assets credits repayable after the first year	67617 100.0	2708 4.0	4984 7.4	13512 20.0	46413 68.6
Investment credits repayable after the first year	30369 100.0	2581 8.5	7859 25.9	3666 12.0	16263 53.6
Credits in accordance with Gov. Decree No.30/2000 repayable after the first year*	49989 100.0	2496 5.0	7390 14.8	11617 23.2	28486 57.0
Total	291498 100.0	10036 3.4	24228 8.3	45489 15.6	211745 72.6
as of 31 December 2002					
Current assets credits repayable within a year	155114 100.0	2684 1.7	4398 2.8	17512 11.3	130520 84.2
Current assets credits repayable after the first year	42607 100.0	4416 12.2	12684 27.5	2861 8.4	22646 51.9
Investment credits repayable after the first year	65441 100.0	2536 3.9	4918 7.5	9743 14.9	48244 73.7
Credits in accordance with Gov. Decree No.30/2000 repayable after the first year*	36058 100.0	2122 5.9	6319 17.5	7978 22.1	19639 54.5
Credits of mid-term for food preservation based on Agr. Min. Decree No. 14/2001. (II.23.)	1829 100.0				1829 100.0
Credits after the first year based on Agr. Min. Decree No 57/2001. (IX. 21.)**	301 100.0	3 1.0	71 23.6	125 41.5	102 33.9
Preferential credits for family farms and SMEs	47985*** 71.5	67109 100.0	1953 2.9	2929 4.4	14242 21.2
Total	47985*** 13.0	368459 100.0	13714 3.7	31319 8.5	38219 10.4

* Credits repayable after the first year provided in accordance with Government Decree No. 30/2000.(III.10.): subsidies for young farmers, the farmer credit programme, subsidies for organisations of new types, co-operatives, credit construction for development, additional credit.

** Credits repayable after the first year provided in accordance with the Agricultural Ministerial Decree No. 57/2001.(IX. 21.) for technological improvement, for producer organisations to purchase ownership, for infrastructure development

***Data on family farms

Source: MARD, Department of Sectorial Budgetary Relations

8.4. Taxes and obligatory payments

As for the taxation of enterprises and entrepreneurs engaged in the agricultural and food sector no database covering the whole period analysed was available. Therefore we had to confine ourselves to the data of three years - i.e., 1994, 1998 and 2002 - and attempt to present the main tendencies of this period. Concerning 2002, there is a difficulty, namely that a part of the data processing duties (regarding products with excise tax) was taken over from the Tax and Financial Control Authority (APEH) to the Hungarian Office of Customs and Finance Control (VPOP), where, due to the variety of products, no data at sector level are available.

The payments in relation to agriculture registered at the Tax and Financial Control Authority (APEH) are very special. In Hungary between 1994-1998 the total payments made to the Tax and Financial Control Authority (APEH) doubled while that of agriculture decreased. The main reason was the VAT refund (in 1998 the VAT refund was 13.6 times more in agriculture than in 1994; however, in 2000 and 2001 VAT refund decreased. However, in 2001 the amount claimed for was 7 times more than the amount claimed in 1994). The tendency prevailing up to 1998 did not change and in 2002 the VAT refund in agriculture had doubled compared to 1998.

VAT refunding was also rising year by year in the areas of food, beverage and tobacco production; in 2000 it almost reached HUF 25 billion while in 2002 it had already exceeded HUF 35 billion (which is almost triple the value of 1998).

VAT refunding - and the extent of the increase - only apparently improved the financial situation of the sector. On the one hand, VAT is an item which increased the costs of the sector automatically and only this additional amount can be claimed for. On the other hand, it has to be taken into account that the larger the VAT refund is the larger the corresponding financial resources must have been. Therefore, in agriculture it led to increased production costs and the liquidity problems caused might still have serious consequences in some cases.

By analysing the internal structure of the payments without VAT (taxes) it can be seen that in 1994 corporate tax accounted for 18.4 percent while in 1998 for 26.9 percent of all taxes. Unfortunately, in 2002 the data broken down by sectors were not available. However, based on the above it is probable that the share increased further. The two reasons are that the amount of corporate tax did not grow significantly while the amounts of the denominator were decreasing, in particular due to the increasing refund of excise tax. In 1994 the payments of customs and levies were not significant: they accounted for only 0.85 percent of all obligatory payments; in 1998 this share reached 6.3 percent. For 2002 in spite of the effects of the above processes it is difficult to estimate its share since its absolute amount is only 30.3 percent of the value of 1998. The share of the other non-negative obligatory payments is not considerable.

In addition to VAT the other refundable payments (which do not increase but decrease the total of the taxes) the refund of excise tax on fuel and on other products are to be emphasised just as was shown for 1998. The amount of the former decreased to half of the 1997 level but since then it continuously increased, in 2001 it was HUF 17.1 billion and in 2002 HUF 18.3 billion.

In addition to all payments to the Tax and Financial Control Authority (APEH) the local taxes - estimated to reach HUF 8 to 10 billion - have to be taken into account too. The share of the food industry is about HUF 3 to 4 billion. Therefore, in 1994 the total payments of the agricultural sector was HUF 17.466 billion, in 1998 HUF 27.659 billion and in 2002 HUF 39.055 billion. (N.B: these billions: 1000 million/UK numerical value)

Table 100

Payments, 1994

Unit: Million HUF

Denomination	Agriculture, fishery and game farming			Forestry totals	Food, beverage and tobacco production			Total
	enterprises		Sub-total		Enterprises		Sub-total	
	corporate	private			corporate	private		
1. Corporate tax (without financial institutions)	2771	5	2776	76	5037	19	5056	7908
2. Payment of tariffs, levies, total	93	0	93	39	4327	0	4327	4459
Tariff	42	0	42	26	3414	0	3414	3482
Statistical and import licence levy	51	0	51	13	913	0	913	977
3. Gambling tax	0	0	0	0	0	0	0	0
4. Other payments, total	417	26	443	20	697	16	713	1176
Interest on overdue payments	164	3	167	6	200	9	209	382
Interest on overdue payments of tariffs, levies,	5	0	5	1	44	0	44	50
Other payments	248	23	271	13	453	7	460	744
I. PAYMENTS TOTAL (1+2+3+4)	3281	31	3312	135	10061	35	10096	13543
1. Value added tax total	557	-1371	-814	1201	16308	-93	16215	16602
Value added tax	321	-1371	-1050	1086	8483	-93	8390	8426
Value added tax on imported products	236	0	236	115	7825	0	7825	8176
2. Consumption and excise tax, total	1163	2	1165	0	63674	47	63721	64886
Consumption tax	1163	2	1165	0	63545	47	63592	64757
Consumption tax on imported products	0	0	0	0	129	0	129	129
II. TAXES CONNECTED TO CONSUMPTION TOTAL (1+2)	1720	-1369	351	1201	79982	-46	79936	81488
III. CORPORATE TAX TO BE PAYED BY FIN. INSTITUTIONS	0	0	0	0	5	0	5	5
IV. PERSONAL INCOME TAX	9862	20	9882	991	13547	133	13680	24553
TOTAL (I.+II.+III.+IV.)	14863	-1318	13545	2327	103595	122	103717	119589

Source: Own calculation based on the data of the Tax and Financial Control Authority (APEH) and the Ministry of Finance

Table 101

Payments, 1998

Unit: Million HUF

Denomination	Agriculture, fishery and game farming			Forestry totals	Food, beverage and tobacco production			Total
	enterprises		Sub-total		Enterprises		Sub-total	
	corporate	private			corporate	private		
1. Corporate tax (without financial institutions)	6991	-2	6989	367	8815	-1	8814	16170
2. Payment of tariffs, levies, total	1607	37	1644	86	9316	4	9320	11050
Tariff	1606	37	1643	85	9311	4	9315	11043
Statistical and import licence levy	1	0	1	1	5	0	5	7
3. Gambling tax	0	0	0	0	3	0	3	3
4. Other payments, total	791	94	885	48	631	32	663	1596
Interest on overdue payments	489	48	537	24	274	16	290	851
Interest on overdue payments of tariffs, levies,	5	0	5	0	27	0	27	32
Other payments	297	46	343	24	330	16	346	713
I. PAYMENTS TOTAL (1+2+3+4)	9389	129	9518	501	18765	35	18800	28819
1. Value added tax, total	-9315	-5010	-14325	1508	-3720	85	-3635	-16452
Value added tax	-9566	-5013	-14579	1372	-11978	77	-11901	-25108
Value added tax on imported products	251	3	254	136	8258	8	8266	8656
2. Consumption and excise tax, total	-2367	-647	-3014	-124	92726	57	92783	89645
Consumption tax on other products	115	0	115	-8	2621	11	2632	2739
Consumption tax on fuel	-2404	-648	-3052	-116	-52	-4	-56	-3224
Consumption tax on alcohol and alcoholic beverages	-97	2	-95	0	1219	2	1221	1126
Consumption tax on beer	0	0	0	0	824	1	825	825
Consumption tax on tobacco products	0	0	0	0	4341	0	4341	4341
Consumption tax on imported products	0	0	0	0	171	0	171	171
Excise tax on fuel	-24	-1	-25	0	8	0	8	-17
Excise tax on other products	43	0	43	0	83594	47	83641	83684
II. TAXES OF CONSUMPTION , TOTAL (1+2)	-11682	-5657	-17339	1384	89006	142	89148	73193
III. CORPORATE TAX OF FIN. INSTITUTIONS	7	1	8	0	38	0	38	46
IV. PERSONAL INCOME TAX	17304	843	18147	2323	26483	423	26906	47376
TOTAL (I.+II.+III.+IV.)	15018	-4684	10334	4208	134292	600	134892	149434

Source: Own calculations based on the data of the Tax and Financial Control Authority (APEH) and the Ministry of finance

Table 102

Payments, 2002*

Unit: Million HUF

Denomination	Agriculture, fishery and game farming			Forestry totals	Food, beverage and tobacco production			Total
	enterprises		Sub-total		Enterprises		Sub-total	
	corporate	private			corporate	private		
1. Corporate tax (without financial institutions)	7007	-4	7003	536	19236	0	19236	26775
2. Payment of tariffs, levies, total	500	22	522	2	5967	2	5969	6493
Tariff	500	22	522	2	5967	2	5969	6493
Statistical and import licence levy	0	0	0	0	0	0	0	0
3. Gambling tax	1	0	1	0	7	0	7	8
4. Other payments, total	652	-18	634	38	482	17	499	1171
Interest on overdue payments	654	-18	636	39	400	17	417	1092
Interest on overdue payments of tariffs, levies,	1	0	1	0	84	0	84	85
Other payments	-3	0	-3	-1	-2	0	-2	-6
I. PAYMENTS TOTAL (1+2+3+4)	8160	0	8160	576	25692	19	25711	34447
1. Value added tax total	-12352	-18533	-30885	1677	1455	-114	1341	-27867
Value added tax	-12743	-18540	-31283	1677	-35483	-114	-35597	-65203
Value added tax on imported products	391	7	398	0	36938	0	36938	37336
2. Consumption and excise tax, total								
Consumption tax on other products	17	-3	14	0	2323	0	2323	2337
Consumption tax on fuel								
Consumption tax on alcohol and alcoholic beverages								
Consumption tax on beer								
Consumption tax on tobacco products								
Consumption tax on imported products	269	0	269	0	0	0	0	269
Excise tax on fuel	2	0	2	0	0	0	0	2
Excise tax on other products	66	35	101	0	93101	99	93200	93301
II. TAXES CONNECTED TO CONSUMPTION, TOTAL (1+2)								
III. CORPORATE TAX TO BE PAID BY FIN. INSTITUTIONS	4	0	4	0	1	0	1	5
IV. PERSONAL INCOME TAX	20706	1332	22038	3560	42031	760	42791	68389
TOTAL (I.+II.+III.+IV.)								

* There is no sense in summarising the data due to the missing information, however, the data available are suitable to present certain tendencies and proportions.

Source: Own calculations based on the data of the Tax and Financial Control Authority (APEH) and the Ministry of Finance

By calculating the balance of subsidies and payments from among the items of agricultural subsidies the matter of repaying the vouchers has also to be taken into account. Based on these the balance of subsidies, payments and terms of trade in 1998 and 2002 is as follows:

Table 103

Balance of subsidies, payments and losses due to the terms of trade

Unit.: million HUF

Denomination	1994	1998	2002
+ Subsidies	20516	70675 *	112837
– Payments (not including VAT and other public charges)	17466 **	27659 **	39055 **
– Losses due to terms of trade	26635 ***	38935 ***	43335 ***
Balance	-23585	4081	30447

* in the calculation of subsidies in 1994 and 1998 HUF 2 billion preferential tax provided for small size farmers is included.

** In the calculation of the payments the local tax in 1994 was HUF 3 billion while in 1998 HUF 4 billion.

***As for losses due to the terms of trade: the effects of the increase of the previous years are also included .

Source: Own calculation on the basis of 1990 data.

Between 1994 and 2002 the joint effects of subsidies, payments and losses due to the terms of trade took a more positive direction. In 1998 the positive balance of HUF 4,081 billion subsidies exceeded the effects of payments and the losses due to the terms of trade. This is especially true for 2002. However, we have to emphasise that the change of the second four years almost equals that between 1994-1998. In addition, we have to remember that payments do not include social security and other public charges to be paid on wages, which is a considerable amount. Summarising, we can draw the conclusion that for decades subsidies have been of extraordinary importance in agriculture in order to compensate the income decrease due to terms of trade for decades.

8.5. Incomes

The agricultural incomes of enterprises and farmers can be presented based on studies of long term financial data of enterprises performing double entry bookkeeping. It can be seen that at the beginning of the nineties the uncertainties about the political transformation had an unfavourable effect on profitability and the loss before tax was significantly larger than the profit. In 1994 there was a turning point. The result before tax of the enterprises was at its highest in 2001, that is, HUF 37.1 billion against HUF 5.4 billion of 1994. In 1999 the loss was HUF 8 billion and in 2000 HUF 6.7 billion profit was generated. In 2002 as a result of the subsidies without repayment liability and provided in the frame of the debt consolidation programme as well as for compensating the damages caused by unfavourable weather conditions the

result before tax of the enterprises was HUF 47.2 billion. The amount of tax to be paid decreased from HUF 6 billion of 2001 to HUF 3.6 billion in 2002 despite improving profitability, which was partly due to tax-free subsidies.

The tax payment of profitable enterprises badly effected the summarised result. In profitable enterprises the assets growth was HUF 47 billion in 2001. While in the enterprises with losses the assets decrease was of HUF 21.2 billion. In 2000 assets growth was HUF 5.5 billion and the decrease of the assets was HUF 7.7 billion less than the year before. However, the balance sheet result indicated a loss of HUF 2.3 billion.

Between 1997 and 2000 profitability both proportional to revenue and to equity decreased and also the profitability in proportion to assets was about one fifth of the value of 1997. As a consequence of the losses in 1999 the profitability of labour dropped to the level of 1996 despite a smaller number of employees.

Based on the indicators - regulated by laws applicable in those years - profitability increased considerably both in 2001 and 2002.

Table 104

**The most important data on the management of agricultural enterprises
(enterprises performing double-entry bookkeeping)**

Unit: million HUF

Denomination	1992	1993	1994	1995	1996	1997	1997*	1998	1999	2000	2001**	2002**
Average working staff in total number of employees engaged in agriculture	248 639	195 006	170 038	154 441	149 782	141 496	142 175	138 498	129841	116229	109 531	104 972
Payment of wages	45 073	44 230	49 517	53 833	61 234	66 853	67 351	76 629	78338	79571	89 190	99 777
Other personal payments	14 136	11 160	11 108	11 404	13 359	13 287	13 411	13 985	13479	13549	13 514	13 639
Social security	20 245	19 739	22 338	24 280	26 502	29 319	29 546	33 764	31142	31563	37 804	39 843
<i>Personal inputs</i>	79 454	75 129	82 963	89 524	101 095	109 460	110 308	124 377	122959	124683	140 508	153 259
Gross production value	247 329	256 729	308 123	383 468	486 706	533 063	543 056	590 291	601099	664436	801 192	798
<i>Total assets</i>	463 909	480 091	476 704	533 155	614 878	697 261	711 430	825 382	874491	932083	1 084 224	1 204
Assets per HUF 100 production value	187.6	187.0	154.7	139.0	126.3	130.8	131.0	139.8	145.5	140.3	135.3	150.9
Results before tax	5 550	10 941	20 443	32 085	37 068	39 436	41 565	48 007	29382	36483	59 868	68 445
Loss before tax	43 494	25 846	15 060	12 009	15 357	19 034	18 657	24 158	37379	29763	-22 777	-21 952
Profit before tax	-37 944	-14 905	5 383	20 076	21 711	20 402	22 908	23 848	-7997	6720	37 091	46 493
Tax liability	1 034	1 443	2 849	4 008	4 877	4 710	5 005	6 409	3400	4189	5 953	3 643
Results after tax	4 521	9 211	17 730	28 089	32 208	34 746	36 576	41 632	26054	32336	53 937	64 811
Loss after tax	43 498	25 568	15 196	12 021	15 374	19 055	18 673	24 192	37451	29805	-22 799	-21 961
Profit after tax	-38 977	-16 357	2 534	16 068	16 834	15 691	17 903	17 440	-11397	2531	31 138	42 850
Balance sheet result	3 197	7 641	15 058	25 974	29 871	31 159	32 681	31 942	22037	27510	48 340	58 873
Balance sheet loss	43 498	25 631	15 210	12 021	15 369	19 055	18 671	24 181	37432	29775	-22 646	-21 934
Balance sheet profit	-40 301	-17 990	-152	13 953	14 502	12 105	14 010	7 762	-15394	-2264	25 694	36 939

*Based on the new categories of the sector

**Due to the amendment of the Act on Accounting the 2001 and 2002 data of the enterprises cannot be compared with earlier data.

Source: calculation based on the data base of the Tax and Financial Control Authority (APEH)

Table 105

**The most important data on the management of agricultural enterprises
(enterprises performing double-entry bookkeeping)**

Denomination	1992	1993	1994	1995	1996	1997	1997*	1998	1999	2000	2001**	2002**
Profitability of equity, %	-11.4	-4.5	1.6	5.6	5.7	5.1	5.6	5.4	-1.8	1.5	7.5**	8.0**
Profitability in proportion to revenue, %	-13.2	-5.1	1.5	4.3	3.8	3.2	3.5	3.2	-1.1	0.8	4.0**	4.8**
Profitability in proportion to assets, %	-8.2	-3.1	1.1	3.8	3.5	2.9	3.2	2.9	-0.9	0.7	3.8**	4.1**
Income per employee, HUF/employee/year	238132	284043	356538	422407	498010	566376	568041	654256	707150	801177	944722	1081651
Personal inputs per employee, HUF/employee	319556	385265	487909	579665	674948	773591	775857	898040	946997	1072736	1292274	1462363
Profitability of labour input, HUF/employee	85526	207609	388196	552399	642961	710564	729174	826512	645559	858994	1294172	1529216

*Based on the new categories of the sector

**Due to the amendment of the Act on Accounting, the data of 2001 and 2002 on enterprises cannot be compared with the earlier data.

9. Efficiency of agricultural production

9.1. Main tendencies in crop production

In order to investigate the efficiency of crop production first of all the value of the assets and the raw material input have to analysed.

In the following table on fertiliser use we can see that in 2002 the fertiliser use of active ingredient fertilizers decreased approximately by one third compared to 1990. The rate and direction of the change was not continuous. At the beginning of the decade the inputs drastically dropped and then the inputs started to increase gradually. In total inputs the quantity of phosphorous and potassic fertilisers dropped the most significantly. In 2002 the quantity of these fertilisers was one third that of 1990.

The manure used per manured area decreased by 37 percent between 1990 and 1999 but by 2002 the increase exceeded 35 percent. The total quantity of manure used decreased also during the nineties and then at the beginning of 2000 it increased again and in 2002 it exceeded the level of 1990 by 23 percent.

In spite of the increase in manured area and quantity the specific indicator of nutritive intake, that is, manure quantity per hectare decreased by 11 percent in 2002 since the manured area increased by a larger extent than the quantity used. At the beginning of the decade (and similarly to fertilizer use) the use of manure dropped abruptly and then it increased gradually. It can be seen that nutritive intake dropped and this is a sign of an extension of agriculture, in particular of crop production.

Table 106

Fertiliser supply

Year	Nitrogenous-	Phosphorous-	Potassic-	Total
	active ingredient fertilizers			
per hectare of fertilised area, kg				
1990	55	20	29	104
1991	22	3	5	30
1992	24	4	3	31
1993	26	4	4	34
1994	36	5	5	46
1995	31	5	4	40
1996	33	6	5	44
1997	33	7	6	46
1998	40	6	7	53
1999	43	6	7	56
2000	44	8	9	61
2001	47	10	11	67
2002	50	10	12	72
per hectare of arable land, garden, orchard and vineyard, kg				
1990	68	24	35	127
1991	27	4	6	37
1992	30	4	4	38
1993	32	5	4	41
1994	45	5	6	56
1995	38	6	5	49
1996	40	6	7	54
1997	41	8	8	57
1998	49	8	8	65
1999	52	8	9	69
2000	54	9	11	74
2001	57	12	13	82
2002	61	12	15	88

Source: Hungarian Central Statistical Office (KSH).

Table 107

Manure supply/use in agricultural enterprises

Year	Total	of which		
		arable land	orchard	vineyard
<i>Manured area, hectare</i>				
1990	68036	57461	1373	559
1991	54618	46476	1081	449
1992	53642	47361	267	126
1993	38401	36790	152	3
1994	47068	42082	303	67
1995	35539	33909	204	35
1996	40274	38132	506	92
1997	50917	44129	495	53
1998	43018	36962	670	302
1999	53096	46101	807	256
2000	59260	53861	1214	783
2001	72980	63126	1139	617
2002	92504	81065	2054	567
<i>Manure used, 1000 tonne</i>				
1990	2416	2257	49	21
1991	1877	1797	34	17
1992	1725	1678	13	3
1993	1406	1391	6	0
1994	1606	1575	8	2
1996	1333	1304	8	4
1997	1929	1888	15	1
1998	1382	1326	19	6
1999	1670	1611	28	8
2000	2106	2010	47	34
2001	2059	1947	37	14
2002	2964	2790	57	22
<i>Per hectare of manured area, tonne</i>				
1990	36	39	36	38
1991	34	39	32	37
1992	32	35	47	23
1993	37	38	42	30
1994	34	37	27	33
1995	41	42	33	22
1996	33	34	15	47
1997	38	43	30	27
1998	32	36	29	20
1999	31	35	34	30
2000	36	37	39	43
2001	28	31	32	23
2002	32	34	28	39

Source: Hungarian Central Statistical Office (KSH).

Table 108

**Use of plant protecting agents
(by corporations and co-operatives)**

Unit: hectare

Year	Herbicides	Insecticides	Fungicides	Other plant protective
1994	1840421	838356	761101	224022
1995	1855073	668438	708560	295926
1996	1780659	688042	712315	295858
1997	1709085	605339	704490	306254
1998	1723193	566446	742239	296504
1999	1546481	529541	656955	300799
2000	1480239	511609	581881	220922
2001	1502444	555109	685001	268688
2002	1450066	596948	655804	305561

Source: Hungarian Central Statistical Office (KSH).

In general the use of plant protectives also decreased between 1994 and 2002. The area treated by herbicides decreased by 21.2 percent, by insecticides by 28.8 percent and by fungicides 13.8 percent and the area treated by other plant protecting agents decreased by 36.3 percent.

In general the yields of the main crops decreased. This was caused by the synergy effect of various factors. On the one hand, fertiliser use dropped drastically due to the disastrous financial situation of the sector and the costs of plant protection fell too. On the other hand, it was obviously also due to the transformation of entrepreneurial production structure. In crop production the number of large size holdings - required for profitable production - decreased and the special expertise required for private farming was lacking. However, we have to take into account that in the period analysed there were several years when the weather conditions were unfavourable: often at the beginning of the year there was a drought while at the end the weather was too wet and then a drought came again.

In the first 4 years of the period analysed the yield of wheat was 4340 kg/hectare and this by the end of the year decreased to 3755 kg/hectare. The tendency was the same for other cereals too. As for maize the fluctuation of annual yields was considerable but the decrease of average yields is not so significant as in the case of cereals. Decreasing yields were more moderate for the other crops.

Table 109

Average yields, kg/hectare

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	years												
Wheat	5050	5190	4070	3050	4590	4160	3280	4210	4140	3590	3600	4310	3520
Rye	2500	2370	1920	1660	2160	2190	1650	2260	2080	2030	2000	2370	1960
Barley	4570	4360	3590	2640	3670	3560	2830	3590	3540	3120	2770	3530	2820
Oat	3310	2650	2810	1820	2310	2590	2340	2590	2560	2520	1670	2450	2160
Maize	3990	6710	3650	3500	3850	4430	5610	6410	5950	6350	4150	6220	5050
Sugar beet	36090	37160	27190	22950	31980	33950	39590	37680	41960	44080	34350	43780	41080
Sunflower	1950	2070	1780	1750	1600	1600	1820	1220	1680	1530	1620	1960	1860
Lucerne	4730	5810	4300	3830	4440	4350	5030	4960	5090	5410	4240	5420	4480
Potato	16920	15760	16850	13310	12770	15780	17790	16280	18850	18350	15290	21280	18280

Source: Hungarian Central Statistical Office (KSH).

9.2. Specific indicators of animal husbandry

Based on the most important specific indicators of Animal husbandry the main conclusions drawn are as follows: due to the unfavourable positions in cattle breeding the cattle for slaughter production per cow decreased. As for pig for slaughter production the indicator per sow is fluctuating but in general the situation is improving. In the cases of milk, eggs and wool the production per head is increasing.

However, the production indicators per inhabitants of the sectors analysed fell during the decade with the exception of poultry for slaughter and of wool production.

Regarding the natural indicators of Animal husbandry and by comparing them with the values of the EU and some developed countries the following conclusions can be drawn:

Pig meat production

The pig for slaughter output by sow is by 3 to 4 sows less than in EU countries.

From weaning to finishing the average rate of premature/undesirable perishing in pigs in Hungary is very high. (about 20 percent).

The specific feed consumption per slaughter pig kilogram is 3.7 kg/kg, that is, by one half more than in the EU benchmark¹⁰ countries and in addition to this the varied distribution of the specific feed consumption is also very large (3.41-7.92 kg/kg).

The daily weight increment is by 77 to 160 gram/day lower than in the developed pig breeding countries.

The average lean meat output of slaughter pig production is by 3 to 7 percent lower than in the EU Member States.

¹⁰ Benchmarking is a process by which the best ones in management are selected, ones which then define and set the unit of measurement.

Table 110

Profitability indicators of slaughter pig production in some EU Member States plus Canada (2000) and Hungary (1998)

Denomination	Denmark	The Netherlands	Germany	France	United Kingdom	Canada	Hungary
Number of weaners/sows/year	23.20	22.90	21.22	21.26	21.54	19.17	15.8
Weight increment, gram/day	804	768	732	789	657	748	520
Feed conversion rate, kg/kg	2.7	2.62	2.94	2.81	2.62	3.28	3.7
Slaughter weight (live weight), kg	101		116	113	88.9	113	103

Source: The National Committee for Pig Production Danish Bacon and Meat Council. 2002.

M. Baltay: The difference in breeding, production and meat quality indicators between the pig sectors of Hungary and the EU; the opportunities of development and its economic consequences. OMMI 1998.

Table 111

Main indicators of Animal husbandry

Denomination	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	in kg											
Cattle for slaughter												
per cow	418	467	384	329	307	286	277	246	250	294	265	258
per inhabitant	25.4	25.3	18.5	14.4	12.5	11.8	11.3	9.7	10.1	11.6	9.6	9.4
Pig for slaughter												
per sow	1735	1775	1630	1808	1896	1741	1679	1757	2022	2093	1872	1902
per inhabitant	114.3	91.7	80.9	73.0	69.6	82.2	71.1	69.9	78.4	79.0	67.6	69.0
Sheep for slaughter												
per inhabitant	2.5	2.7	2.8	2.2	1.9	1.9	1.7	1.6	1.6	1.3	1.8	1.9
Poultry for slaughter												
per inhabitant	44.8	43.2	40.7	43.6	49.8	48.3	50.9	57.2	51.0	61.2	61.0	68.0
Milk production, litre												
per cow	4663	4737	4613	4660	4893	4846	4985	5363	5310	5335	5516	5722
per inhabitant	234	216	196	183	188	188	190	201	203	207	204	207
Egg production, pc.												
per layer	188	189	188	191	191	199	207	207	202	217	213	211
per inhabitant	429	403	409	378	339	321	334	334	317	316	321	335
Wool productions												
per sheep	2.3	2.5	2.3	3.1	3.5	3.3	3.4	3.6	3.7	3.6	3.4	3.3
per inhabitant	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4

Source: Hungarian Central Statistical Office (KSH).

Poultry breeding

The broilers produced and sold in Hungary are as good as any in the world. However the producers can only partially use the genetic resources of the breeding stock because of the conditions (breeding, feeding, keeping etc.). Recently the situation improved but by comparing the Hungarian data with those of the USA significant differences can be seen mainly regarding the procurement weight, rate of perishing and of feed conversion.

The general conditions of broiler breeding in Hungary are lagging behind the developed EU countries. The position and income generating capacity of the sector is influenced by the fact that in Hungary the breeding period is longer and - even if the feed used for producing 1 kg chicken meat is cheaper and of low protein content - the rate of perishing is higher than in the countries with high-level production. In Hungary for broiler fattening 10 to 15 percent more feed is utilised than in the enterprises of the US and perishing is also higher by 2 to 4 percent. This increases the production costs and decreases competitiveness.

In fact the performance of breeding pairs in Hungary is also lagging behind the average of stocks in other countries.

Table 112

Performance by breeding pairs

Breeding pair	Production week	Total eggs, eggs/hen	Eggs layed, eggs/hen	Hatching %	Baby chick per breeding pair, pc	Utilisation, %
Other countries	60.0	169.6	160.4	85.2	136.6	100.0
In Hungary	59.5	147.7	134.1	74.6	100.0	73.2
Difference	- 0.5	- 21.9	- 26.3	- 10.6	- 36.6	- 26.8

Source: Hungarian Poultry, May 1996. p. 3.

In other countries there are more baby chicks per breeding pair than there are eggs layed per hen in Hungary. This increases the production costs and consequently the price too. This has an unfavourable effect on Hungary's market position.

Cattle breeding

In 1998 milk production per cow was 111 percent compared to the EU average; by 1993 it had dropped to 91 percent while the number of milking cows decreased by 25 percent. Parallel to this the specific production should also have increased but it did not. (In this regard, the determinant factor was that in the EU specific milk production increased in ten years from 4504 litres of 1988 to 5702 litres by 1998.)

Between 1997 and 2001 the situation improved somewhat but even today Hungary is still two years behind compared to the EU average.

The cattle for slaughter production and the number of calves per cow decreased (a change of just a few percent can indicate a significant tendency). In recent years the drop in the numbers of prematurely perishing calves and the bleeding of bull-calves (for serum production) improved the profitability of the sector and decreased the losses. The producers adjusted to this situation. During the 1990s the proportion of cattle for slaughter as part of the whole livestock produced decreased from 20 percent to about 12 percent.

Sheep breeding

There has been no significant change in the last 40 years concerning the genetic resources, the breeding technology, the feeding or the management of reproduction in sheep breeding. During the period of any increase farmers enjoyed extensive development. However, the stock decreased continuously and then in the nineties even after a drastic drop the genetic resources were not improved and the indicators of breeding did not improve either. In this field there was a further decline.

By considering the annual average - based on the data of the last decades - one lamb per ewe can be expected. Hungary's lag is indicated by the fact that in calculations the sale of one slaughter lamb per ewe is estimated. This means that the growth of stock is higher by the number of lambs used for replacing ewes (that is by 20 to 30 percent depending on the species)

9.3. Profitability per area

Profitability per area is expressed best by the value of gross annual production per hectare of agricultural land. During the last decade the area of agricultural land decreased slightly but continuously, and in this way, by 2002, the decrease reached 10 percent.

Table 113

Profitability by agricultural area

Denomination	1989	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Agricultural area (thousand hectares)	6484	6460	6136	6129	6122	6180	6184	6195	6193	6186	5854	5865	5867
Value of gross production at constant prices of 1991. (billion HUF)	493.2	449.1	359.2	324.4	334.4	343.0	364.5	362.9	360.3	362.5	336.8	390.0	362.7
Value of gross production per one hectare of agricultural land (HUF/ha)	76064	69521	58540	52896	54623	55502	58942	5579	58179	58593	57527	66499	61820

Source: Calculation based on the data of KSH

Based on the data of 1989 - at the constant prices of 1991 – across the range of Hungarian agriculture the value of gross production per hectare decreased almost by a quarter - that is, to 75.6 percent - by 2000. In 1993 it was at its lowest value. Then it started to increase with some fluctuations.

9.4. Profitability of the main products

A crucial point in the development of agriculture and agricultural production making use of market opportunities is the producers' behaviour. This is determined by the income position of the various sectors and the activities of those operating in the market and in particular by the producers' interests. It is important to analyse and discuss this question since in this way it is possible to focus on the income positions of the nineties.

We will show the development of income in proportion to costs in the cases of the main agricultural sectors by presenting the examples of two legal operational statuses, i.e., corporations and integrated commercial farms. Corporations are mainly joint stock companies established as a result of the transformation process of state holdings and of the remaining co-operatives.. A characteristic of the integrated commercial farms is that only part time producers can be included in the field of observation who participate concurrently in various producer organisations (integration).

The data clearly shows the income position or the decreasing market position of the sector. As for crop production the corporations were not able to reattain the results of the nineties, only 1996 might be an exception. (it should be mentioned, however, that the results are also lagging behind because in the base year agricultural production was outstanding). The income position of crop production deteriorated by the end of the period analysed to such an extent that in fact no income was generated by the sector and most crop production sectors had losses. The income possibilities decreased especially in 2002 seeing as at that time 10 sectors out of 14 had losses. Prices did not cover the costs. Besides the unfavourable external market conditions the frequent unfavourable weather conditions (flood, drought) also played an important role.

In Animal husbandry the unfavourable income indicators appeared earlier than in crop production. There was more economic risk in Animal husbandry which made the production unstable and large fluctuations were characteristic. The data illustrates well that in most sectors the sales prices themselves are not enough to ensure protection for the producers.

In the case of integrated commercial farms the range of products analysed differs from that of corporations. This is due to the fact that small size farms are engaged in different sectors than the larger ones and the database should reflect the real production structure. In addition to this there are also methodological

differences between the two types of holdings. For small size holdings it is difficult to calculate net incomes by correct and standard methods as the wages to be paid to private labour are difficult to estimate. In this case, therefore, the indicator (which can reflect any income loss) is the gross income in proportion to costs.

The data of the range of products observed in the small size holdings clearly shows that during the period analysed the income loss was significant in this category as well. Compared to 1999, gross income in proportion to costs dropped in most of the sectors in 2000 and in 2002, respectively. Overall income increased only slightly by forcing tomato and green pepper production as well as by managing greater egg production and cattle for slaughter production.

Table 114

Incomes in proportion to production costs of agricultural corporations

Unit: HUF

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	Year												
Wheat	44	13	24	32	37	18	50	26	-23	-9	16	11	-9
Winter barley	47	16	12	22	20	-5	38	39	-30	-13	39	5	-25
Spring barley	39	-	17	15	24	16	65	27	-13	-19	1	6	6
Rye	9	-	-39	-2	10	-36	23	9	-27	-35	0	-26	-50
Oat	32	-	2	-7	7	-5	45	3	-21	-26	-23	-24	-8
Maize	30	6	-12	9	3	10	43	15	-16	5	2	5	-8
Sugar beet	20	-6	-16	-19	23	-1	8	18	-14	13	-12	43	1
Sunflower	36	18	-5	3	14	16	14	-23	1	-20	-16	12	18
Rape	9	-	-26	-23	30	17	14	18	4	4	-33	4	-11
Peas	9	-	-14	-21	17	7	7	23	8	-	-	-	-
Soya-bean	-10	-	-22	-9	16	24	7	-6	-4	31	-44	-20	-1
Green peas	-12	-22	-53	0	33	54	-5	-15	5	-11	-	61	7
Apple	-4	15	-29	-8	-5	43	4	-2	-11	-15	-	-19	-6
Wine-grape	2	-27	-31	-31	-36	-22	-17	-1	-21	-22	102	38	-14
Milk	8	-4	-2	6	12	16	8	14	30	15	11	11	9
Eggs	6	9	17	14	25	20	18	27	3	-2	6	14	7
Cattle for slaughter	1	-27	-25	-16	-2	5	-9	-18	-13	-6	-21	-13	3
Pig for slaughter	33	10	21	16	34	44	20	28	16	-1	9	12	6
Chicken for slaughter	-1	-2	-6	-6	5	1	-6	0	-1	-1	-3	2	1

Source: Database of AKII

Table 115

Incomes in proportion to production costs* of the small size agriculturally integrated commercial farms

Unit: HUF

Denomination	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	year												
Potato	69	42	33	53	54	71	-3	25	59	43	52	60	50
Tomato on free ground	72	36	44	18	71	30	61	28	28	8	73	39	19
'Forced' tomato yield	93	61	30	59	35	44	48	46	72	90	122	120	151
Green pepper on free ground	70	89	100	79	90	79	96	71	50	49	39	42	56
'Forced' green pepper yield	106	120	99	116	104	63	78	99	109	126	131	141	156
Red pepper	184	93	96	68	43	24	89	151	129	52	124	38	31
Onion					-	9	26	68	55	22	71	27	63
Cucumber					-	38	52	82	51	33	40	45	54
Apple	54	93	56	34	45	76	51	39	49	109	48	0	39
Peach	123	101	80	42	111	156	96	105	87	54	52	60	78
Wine-grape	40	-9	0	-13	15	28	66	41	37	41	61	33	21
Milk	51	35	30	33	28	41	17	27	31	21	20	24	-
Eggs	11	22	35	56	11	18	2	22	6	5	19	26	-
Cattle for slaughter	12	16	7	6	18	23	1	2	13	-1	11	35	-
Pig for slaughter	16	4	8	7	46	19	4	9	4	0	14	14	-
Chicken for slaughter	2	2	1	4	9	4	2	0	2	-1	5	0	-
Rabbit for slaughter	19	26	25	16	6	8	1	6	6	-5	-3	-2	-

*Gross income; wages to be paid to a farmer's own/private labour input is not included.

Source: Database of AKII

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