

**Project no.**

513705

**Project Acronym**

CEEC AGRI POLICY

**Project title**

**Agro economic policy analysis of the new member states,  
the candidate states and the countries of the western balkan**

**Instrument**

Specific Support Action

**Thematic Priority**

Scientific Support to Policies

**Market integration of cereal food chains: Latvia**

**Start date of project:** 01.05.2005

**Duration:** 24 Months

**Organisation name of  
contractor for this deliverable**

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Economics

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Draft

**Last revision** [2006-05-06]

## **1. Section. Market integration of cereal food chains: Latvia**

### **1.1. General policy implications**

Changes in economic environment of agriculture are bringing following advantages and problems to the cereals sector in Latvia:

- at the time being there is observable and growing differentiation of farmers regarding income:
  - o large farms are forming into industrial type farms with income level close to EU average;
  - o considerable number of small farms remains at the same income level without substantial indications of increase;
- there is no evidence of essential increase in overall agricultural output and therefore social problems in rural areas remain unsolved;
- in some cases there is noticeable decrease of biological quality of products and the environment is ill-affected by intensive large scale production;
- there is anticipated increase in support for the sector in form of subsidies and price intervention but increase of areas under cereals supposedly will erode the rate of support;
- increase in minimum supply eligible for intervention probably will result in growth of cooperation.

### **1.2. Market development**

Prices for cereal products during last two years (2004 – 2006) have changed differently for certain products. For example, price of all kinds of bread increased by 17%, but at the same time, price of the other cereal product like buckwheat has been reduced by 9%. (Table 1.1) Main impact on changes in prices for cereal products was increase of production costs: mainly energy, other non-agricultural inputs and labor, but not changes of cereals` price.

Increase of price level does not impacted customers` behavior, because generally consumption level did stay stable with tendency slightly to rise. Producers` behavior does not changed with increase in prices. Cereal prices after entrance in EU did not change a lot, but income level has slightly increased - mainly because of launching single area payments and other support as well. Increase in level of income has affected amount of production – sown area (Table 1.9).

**1.1. table. Consumer price index for cereal products (2004=1)**

Products	2004*	2005	2006**
Rye-bread	1	1,10	1,17
Wheat-bread	1	1,04	1,18
Toast bread	1	1,09	1,17
Wheat meal	1	0,97	0,97
Pearl-barley	1	1,03	0,99
Buckwheat	1	0,93	0,91
Rice	1	1,20	1,18
Macaroni (spaghetti)	1	1,03	1,04

Source: CPAM (Center for Promotion of Agricultural Markets; Lauksaimniecības tirgus veicināšanas centrs, LTVC)

\* From 04.2004 to 12.2004.

\*\* From 01.2006 to 02.2006.

Trend of producer prices for cereals (in EUR) in a few last years demonstrates significant decrease for most important kinds of cereals. Mainly it's caused by changes in currency exchange rates. Therefore, more illustrative is to analyze producer price index for cereals (indexes are calculated for cereals' prices in LVL – Table 1.3. As it's reflected in table, producer price indexes during last five years were quite shaky, but in 2005 price indexes were almost the same like in 2000, except price index of rye. It was significantly lower then in 2000.

**1.2. table. Producer prices for cereals (EUR/tonne)**

	2000	2001	2002	2003	2004	2005
<b>Soft wheat</b>	109,27	105,04	102,20	97,83	101,19	87,59
<b>Barley</b>	101,48	92,40	91,08	87,91	91,65	82,01
<b>Rye</b>	102,09	94,48	99,69	91,71	90,61	75,33
<b>Oats</b>	92,55	87,44	88,56	79,91	79,88	72,92

Source: CSB (Central Statistical Bureau of Latvia)

**1.3. table. Producer price index for cereals (2000=1)**

	2000	2001	2002	2003	2004	2005
<b>Soft wheat</b>	1	0,97	0,97	1,03	1,11	1,01
<b>Barley</b>	1	0,92	0,93	1,00	1,08	1,01
<b>Rye</b>	1	0,93	1,02	1,03	1,06	0,93
<b>Oats</b>	1	0,95	1,00	0,99	1,03	0,99

Source: CSB (Central Statistical Bureau of Latvia)

The main indicator, used to characterize changes of productivity on cereal farms, is average cereals` yield (Table 1.9: Sown area, production and yield of cereals in Latvia). There is no data about changes in productivity, characterized by total output per one labor unit in cereal farms. Some notion of changes in productivity could be derived from data for aggregated agricultural and food production sector (Table 1.4.)

**1.4. table. Index of manufacture of food products and beverages output per employee**

	2000*	2001*	2002*	2003*	2004*
<b>Index of manufacture of food products and beverages output per employee (2000=1)</b>	1	1,08	1,15	1,26	1,47

Source: CSB

\*Indexes are calculated on base of the production output in current prices, thereby it includes also changes of consumer prices.

### 1.3. Impact of production factors

As it's mentioned above, dominating cause of changes in prices for cereal products was increase of production costs (energy and other non-agricultural inputs). Main tendencies in changes in amount, price and value of the most significant inputs (for cereals' production) of agricultural sector are reflected in Table 1.5. It's evident from data, that input related costs increased significantly over period of last two years, and taking into account relative stability of prices for cereals the result could be remarkable decrease of sector's income. Next table (Table 1.6) explains crucial role of subsidies in stabilization of income for agricultural sector.

**1.5. table. Changes in amount, price and value for different types of inputs of agricultural sector**

Types of inputs	Value of inputs (mill. LVL)			Changes (+, - %) 2004 / 2003			Estimate for changes in price (+, - %) 2005 / 04
	2003	2004	2005 (e)	in volume	in price	in value	
Fuels and lubrication oils	35	44	58	5%	19%	25%	25%
Fertilizers	18	22	34	4%	18%	22%	44%
Plant protection chemicals	9	11	14	19%	7%	28%	3%

Source: CSB, calculations – LSIAE (Latvian State Institute of Agrarian Economics, Latvijas valsts agrārās ekonomikas institūts, LVAEI).

**1.6. table. Impact of income forming factors on agricultural income**

	Increase of income forming components for agricultural production (mill. LVL)	
	2004 / 2003	2005 / 2004
Prices	16,7	-7,9
Subsidies	70,0	25,0
Volume	0,5	17,2

Source: CSB, calculations – LSIAE

Particularly, analyzing impact of prices for primary energy resources, we have to look at average retail prices (in EUR) for fuels and natural gas, reflected in Table 1.7. These prices does not demonstrate real trend, because currency exchange rate has changed significantly in last 5-year period. Therefore, to characterize real trend, better is to analyze price indexes for retail prices in LVL (1.8.Table).

**1.7. table. Average retail price for fuels and natural gas (duties and taxes included)**

	2000	2001	2002	2003	2004	2005*
Gasoline - 95E; (EUR/l)	0,69	0,69	0,62	0,60	0,64	0,71
Diesel fuel; (EUR/l)	0,59	0,58	0,50	0,51	0,59	0,71
Natural gas; EUR/10m <sup>3</sup>	0,10	0,11	0,10	0,11	0,14	0,15

Source: CSB

\*Data about 2005 are regarding January to March

**1.8. table. Average retail price indexes of fuel and natural gas (prices in LVL, duties and taxes included)**

	2000	2001	2002	2003	2004	2005*
Gasoline (95E) (2000=1)	1	0,98	0,97	1,03	1,16	1,27
Diesel fuel (2000=1)	1	0,97	0,91	1,04	1,25	1,49
Natural gas (2000=1)	1	1,00	1,00	1,29	1,66	1,74

Source: CSB

\*Data regarding 2005 are for period from January to March, thereby these prices indexes aren't precise for fuel and gas in 2005.

## 1.4. Area sown

**1.9. table. Sown area, production and yield of cereals in Latvia**

	2000	2001	2002	2003	2004	2005	2006e
Total sown area of cereals (ha)	420041	443715	414970	428497	436648	468939	492385
Total production (1000 t)	923,6	928,0	1028,5	932,4	1059,5	1314,3	1487
Yield (center/ha)	22,0	20,9	24,8	21,8	24,3	28,0	30,2

Source: CSB

**1.10. table. Sown area and production of wheat and its utilization by consumption type**

	2000	2001	2002	2003	2004	2005	2006e
Sown area of <u>wheat</u> (1000 ha)	158,1	166,8	153,5	167,7	169,9	187,4	218
Production (1000 t)	427,4	451,7	519,5	468,4	499,9	676,5	872
Human consumption (1000 t)	158,8	171,0	173,0	177,2	176,1	172*	170
Animal feed (1000 t)	131,9	210,7	169,1	156,8	160,3	150*	158
Industrial use (1000 t)	4,2	2,2	2,1	4,3	7,9	4,3*	6,5

Source: CSB; agriculture in Latvia in 2003-2004

\*Estimates

**1.11. table. Sown area and production of barley and its utilization by consumption type**

	2000	2001	2002	2003	2004	2005	2006e
Sown area of <u>barley</u> (1000 ha)	134,9	130,3	136,9	132,6	127,3	148,7	n.a.
Production (1000 t)	261,1	231,1	262,4	246,6	283,5	365,8	n.a.
Human consumption (1000 t)	8,0	9,7	10,4	9,0	9,5	9*	n.a.
Animal feed (1000 t)	224,0	183,2	213,6	186,7	224,5	242*	n.a.
Industrial use (1000 t)	27,0	25,6	35,8	36,4	35,1	35*	n.a.

Source: CSB; agriculture in Latvia in 2003-2004

\* Estimates

## 1.5. Structural Changes within Agriculture:

Average cereals` area per farm is increasing. Mainly it is caused by significant reduction of number (by consolidation) of farms and also related to overall increase of total sown area under cereals.

**1.12. table. Number of cereal farms and average sown area per farm**

	2001	2002	2003	2004	2005*
<b>Number of cereal farms</b>	64083	56433	51735	47110	42000
<b>Average sown area of cereals per farm (ha)</b>	6,92	7,35	8,27	9,26	11,17

Source: CSB; Agricultural farms of Latvia in 2001 – 2004.

\* Estimates

As it is reflected in table below, share of total cereals production, produced in large farms (in this case in farms with more than 50 ha of cereals), is increasing year by year, but share of production from smaller farms (less than 50 ha) is reducing. It's related to reduction of total number of cereal farms in Latvia and thereby average cereal area per farm is increasing, but at the same time number of large farms is relatively stable.

**1.13. table. Production and sown areas in farms by sown area of cereals**

		2001		2002		2003		2004	
			%		%		%		%
0,1-5 ha	Production; 1000 t	130,5	14%	128,1	12%	97,4	10%	124,3	10%
	Sown area; 1000 ha	74,5	17%	68,9	17%	61,9	14%	55,7	13%
5-50 ha	Production; 1000 t	311,4	34%	298,7	29%	231,7	25%	296,6	24%
	Sown area; 1000 ha	158,8	36%	140,5	34%	128,9	30%	125,9	29%
50 and more ha	Production; 1000 t	487,8	53%	600,6	58%	602,9	65%	831,4	66%
	Sown area; 1000 ha	209,8	47%	205,3	50%	237,4	55%	254,8	58%

Source: CSB

## 1.6. Use of Inputs:

There is no statistical data on number of machinery units (or equivalent) used in cereal sector, but accordingly to opinion of experts and merchants of agricultural machinery, the market of agricultural machinery in recent years have been more active then before. One of the factors, which encouraged such a trend, is availability of different EU structural funds as well as other new possibilities to obtain different kind of support.

In Latvia there is no common seed-breeding program, but still there are companies and institutions, working on creation of new varieties of seeds and improvement of already existing. Common practice is importation of seed material from other countries.

Although there is no statistical information about seed material and it's origin, but generally – opinion of experts is that in Latvia year by year seed material is becoming more qualitative.

**1.14. table. Seed use of total cereal production**

	Used for seed in own farms		Sold for seed purpose		Used for seed total	
	ton	% of total production	ton	% of total production	ton	% of total production
2000	63606	6,89%	14628	1,58%	78234	8,47%
2001	91397	9,85%	17659	1,90%	109056	11,75%
2002	95952	9,33%	13866	1,35%	109818	10,68%
2003	96637	10,36%	12781	1,37%	109418	11,74%
2004	91177	8,61%	7862	0,74%	99039	9,35%
2005	100276	7,63%	8688	0,66%	108964	8,29%

Source: CSB

There is no statistical information on pesticide usage in cereal sector, but quite good notion about situation could be gained from information about fertilizer and pesticide usage in whole field crop sector.

**1.15. table. Fertilizer and pesticide usage in whole field crop sector**

	2000	2001	2002	2003	2004
Used mineral fertilizer; 1000 t	37	51,1	48,6	60,9	61,1
Used mineral fertilizer per 1 ha; kg	42	59	55	72	68
Used organic fertilizer, 1000 t	4198,7	4994,7	4054,8	5856,2	4327,6
Used organic fertilizer per 1 ha, t	4,8	5,7	4,6	6,9	4,7
Used pesticides, t	598,1	1089	1048,1	971,1	n.a.
Used pesticides per 1 ha; kg	0,7	1,2	1,2	1,1	n.a.
Used lime; 1000 t	10,2	0,7	32,9	53,8	2,2
Used lime per 1 limed ha of area; t	3,3	6,1	10,2	13,9	2,9

Source: CSB

**1.16. table. Fertilizer usage in cereal sector**

	2004	2005
Sown area of cereals (ha)	436648	468939
Fertilized area of cereals (organic fertilizers; % of total cereal area)	4,4%	6,2%
Fertilized area of cereals (mineral fertilizers; % of total cereal area)	70,5%	74,1%
In average used fertilizers (organic + mineral, converted to pure nutrients - N, P, K); kg/ha.		
-- Nitrogen (N); kg/ha	58,36	61,44
-- Phosphorus (P); kg/ha	17,00	21,44
-- Potassium (K); kg/ha	21,93	26,49

Source: CSB

Currently in Latvia three types of cereal sales (sell at harvest, store cereals themselves, entering pre-harvest contracts with the buyers) are equally popular, but tendency is that more and more important is becoming to store cereals in own warehouses or enter pre-harvest contracts. Main reason for such trend is - since availability of EU structural funds, more farmers have build own driers and warehouses. But pre-harvest contracts become more common as a result of increasing competition for good quality cereals, and in such a way processors ensure raw materials for following season.

### 1.7. Outlook for Cereals:

In following years there will continue structural change in agriculture of Latvia – year-by-year number of farms will reduce resulting in increase of average size of farm.

In the following two or three years productivity in cereal sector should increase as a result of improvements in technologies. Also sown areas should rise, but not as much as previous years. The reason is: Latvia's total production exceeds domestic consumption, but conditions (mainly climatic and soil) in a region aren't so favorable to successfully compete with producers in other member states. Potentially right now some costs to produce cereals in Latvia are lower compared with *old EU member states*, but together production costs are increasing to reach equal level.

There are some factors that raise doubts about future - not only of cereal sector, but whole agriculture. It is unequal support level for farmers – differences in single area payments between *old* and *new* EU countries. If in Latvia production costs were much lower compared with EU countries before Latvia entered in EU, then now this gap is not so remarkable anymore and in such a way competitiveness of Latvia production is decreasing.



Data for foreign trade for Latvia indicate significant increase in export as well as import volumes of cereals. Share of EU countries in exports and imports is leading and increasing. Deviations of this trend regarding trade volumes in 2003 and 2004 are related to wet summers resulting in low quality grain, not suitable for foodstuff. In those cases markets of other regions were involved to sell excess and buy shortage volumes.

**1.17. table. Foreign trade of cereals in Latvia**

	2002		2003		2004		2005	
	1000 ton	%	1000 ton	%	1000 ton	%	1000 ton	%
<b>EXPORT</b>	108,2	100%	155,5	100%	80,1	100%	457,7	100%
EU	84,7	78%	92,2	59%	38,1	48%	446,2	97%
Non EU	23,4	22%	63,3	41%	42,0	52%	11,5	3%
- Western Balkan states	0,0	0%	0,0	0%	0,0	0%	0,0	0%
- EU candidate states	0,0	0%	9,8	6%	0,0	0%	0,0	0%
<b>IMPORT</b>	27,2	100%	23,3	100%	74,8	100%	135,4	100%
EU	13,4	49%	4,5	19%	62,5	84%	127,6	94%
Non EU	13,8	51%	18,8	81%	12,3	16%	7,7	6%
- Western Balkan states	0,0	0%	0,0	0%	0,0	0%	0,0	0%
- EU candidate states	0,0	0%	0,0	0%	0,0	0%	0,0	0%

Source: CSB

As it is reflected in 1.18.table, stocks of cereals are going down year-by-year. If to look at prices in EUR, then trend is downward, but mainly because of changes of currency exchange rate. Thereby more relevant indicator is price index (indexes are based on the cereals' prices in LVL, base year - 2002). For this indicator situation is opposite –trend for price index is upward.

**1.18. table. Stocks, prices and price indexes of cereals in Latvia**

	2002	2003	2004
Stocks of cereals*; (1000t)	<b>180,2</b>	<b>147,2</b>	<b>139,5</b>
-Stocks of wheat*; (1000t)	<b>110,3</b>	<b>63,3</b>	<b>82,8</b>
--Wheat price (EUR/t)	102,20	97,83	101,19
--Price index of wheat (2002=1)	1	1,06	1,14
-Stocks of rye*; (1000t)	<b>27,5</b>	<b>28,2</b>	<b>16,2</b>
--Rye price (EUR/t)	99,69	91,71	90,61
--Price index of rye (2002=1)	1	1,02	1,05
-Stocks of barley*; (1000t)	<b>26,9</b>	<b>35,8</b>	<b>25,1</b>
--Barley price (EUR/t)	91,08	87,91	91,65
--Price index of barley (2002=1)	1	1,07	1,16
-Stocks of oats and mixed grains*; (1000t)	<b>10,2</b>	<b>11,7</b>	<b>8,5</b>
--Oats price (EUR/t)	88,56	79,91	79,88
--Price index of oats (2002=1)	1	1,00	1,04

\* Stocks are at the end of crop year (end of June)

Source: CSB