

EU CAP Reform: Assessment of Impact on Agrarian Sectors and Rural Areas in the Baltic States

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JANUARY 2004

Drawn up by

EMoA: Ch.2, Ch.3.1, Ch.4.4.1.1

JTAC: Ch.4.4.2.1, Ch.4.4.2.4, Ch.4.4.3.1, Ch.5.1

LAEI: Ch.3.3, Ch.3.4, Ch.4.4.1.3, Ch.4.4.2.3, Ch.4.4.3.3, Ch.5.3

LSIAE: Ch.1, Ch.2, Ch.3.2, Ch.4.1, Ch.4.2, Ch.4.3, Ch.4.4.1.2, Ch.4.4.1.4,
Ch.4.4.2.2, Ch.4.4.3.2, Ch.4.4.3.4, Ch.5.2, Ch.5.4, Ch.6

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List of Acronyms

A – “Agenda 2000” simulation scenario
AWU – annual work unit
CAP – Common agricultural policy
CC – Candidate countries
CEEC-ASIM – Central and Eastern European Countries’ Agricultural Simulation Model
CMO – Common Market Organization
CSB – Central Statistical Bureau
DP – direct payments
FGP – Farm gate price
EAA – Economic Accounts for Agriculture
EAGGF – European Agricultural Guidance and Guarantee Fund
EC – European Commission
EE, EST - Estonia
EU- European Union
EUR - euro
FADN – Farm Accountancy Data Network
GVA – Gross Value Added
JTAC – Janeda Training and Advisory Centre
LAEI - Lithuanian Agricultural Economic Institute
LASIM – Latvian Agricultural Simulation Model
LFA – Less favorable area
LT, LIT - Lithuania
LV - Latvia
LVAEI, LSIAE – Latvian State Institute of Agrarian Economics (Latv.: Latvijas Valsts agrārās ekonomikas institūts)
LVL – Latvian national currency Lat, annual average exchange rate in 2000 – 0,606 LVL/USD
NVA – net value added
SAP – Single Area Payment Scheme
SAPS – Single Area Payment Scheme
SPS – Single payment scheme
R – CAP reform simulation scenario
RAO – Rest of agricultural output
ROSP – Rest of spending
RVI – Rest of variable input
UL – unit of labour

1. INTRODUCTION

On June 26, 2003 in Luxembourg the Council of Agriculture Ministers of the European Union reached an agreement on a fundamental reform of the common agricultural policy (CAP), based on the Commission proposals presented on January 23, 2003. In line with the overall objectives of Agenda 2000, this reform will be introduced from 2004, completing that reform process in some areas and establishing a more stable policy framework for European agriculture.

Since all three Baltic States gave positive votes in the EU referendum, Estonia, Latvia and Lithuania will become the new Member States of the European Union already in 2004, which means that the new CAP reform will be implemented in Baltic States right after the EU accession.

In order to analyse and evaluate possible effect of the implementation of CAP reform on Estonian, Latvian and Lithuanian agricultural sectors and rural areas, all three Baltic States began a cooperative work within the framework of the common Baltic project "EU CAP Reform: Assessment of Impact on Agrarian Sectors and rural areas in the Baltic States". The project was started on May 13, 2003 as a unique international networking project, initiated by the Ministers of Agriculture of all three Baltic States. The Baltic project became possible due to the close co-operation of representatives from the Ministries of Agriculture of three Baltic States, Latvian State Institute of Agrarian Economics, Lithuanian Agricultural Economic Institute and Janeda Training and Advisory Centre in Estonia.

The quantitative assessment of the implementation of the CAP reform in Baltic States was performed on sector level and also on farm level. Three different analytical tools were used: based on economic accounts for agriculture (EAA) approach, analysis based on FADN database and analysis based on application of the Latvian Agricultural Simulation model (LASIM). Combination of the above mentioned analytical tools provided the analysis of the main policy changes: enhancement of the competitiveness of agricultural sector, decoupling of direct payments and modulation.

The Baltic report consists of six chapters with annexes. The main general principles of accession and the results of negotiations concerning agriculture between the EU and Baltic States are reflected in chapter 2 of the report. The third chapter covers the current situation of each country, specifying the national agricultural policy including its harmonisation with the CAP and the EU legislation. Chapter 4 includes descriptions of the core of the CAP reform, scenarios elaborated, methods and analytical tools used in a project as well as analysis of the quantitative assessment of the CAP reform by each analytical approach in each particular country and Baltic on the whole. Chapter 5 gives assessment of the new policy measures and provides further common prospects for development of agriculture and rural areas in Baltic States within context of the CAP reform. A few key conclusions drawn from the project are presented in chapter 6 – the last one. The annexes include tables with input data, summary results for each analytical approach used and other tables related to quantitative assessment of the reform.

2. EU ACCESSION PROVISIONS FOR BALTIC STATES

2.1. The Common Agricultural Policy (CAP) of the European Union

Roots of the current reform of the European Common Agricultural Policy (CAP) can be found as early as in 1992, when McSherry's reform was introduced. Having the goal to make European agriculture more competitive in world markets, subsidies in the form of direct support payments were introduced along with the reduction of the EU internal market prices. With this reform the prices of cereals as well as prices of beef and mutton were considerably reduced. In order to compensate the price cuts, temporary compensatory payments to agricultural producers were introduced.

Although it was the first attempt to decouple state support from the production quantities, the levels of those payments were still linked to agricultural production – compensation payments for cereals were attached to sown area, the payments for cattle and sheep attached to the number of relevant livestock. The amount of the compensatory payments was per unit (e.g. head of cattle, ton of cereals) and the amount per unit was equal in all Member States. The volume of direct support for cereals was linked to the yield of the crop production which was subject to compensation, meaning that an agricultural producer in particular country could receive compensation according to the average (reference) yield in this country, although the amount of payment was not dependent on actual yield.

At the same time the European Union was engaged in the complex process of negotiating enlargement towards Eastern and Central Europe. Candidate countries had their own sets of agricultural policies, facing at least two policy dilemmas:

- first, they had to develop sustainable local agricultural policy to overcome decades of misguided collectivisation, reconcile the policies of returning property to prior owners, at the same time promoting efficient use of agricultural land and competitiveness of the sector;
- second, their local policies had to take into account the impact of European Agricultural Policy – as it was in the period of accession, and as it could be when reformed.

In 1999, the European Commission proposals for the reform and enlargement of the European Union – the *Agenda 2000* - were adopted. With the *Agenda 2000* it was decided to continue further reduction of internal market prices with partial compensation to the farmers in the form of compensatory payments, which had become a stable measure of the Common Agricultural Policy, although renamed into 'direct payments'.

However the objectives for common agriculture policies, defined in Europe by the Treaty of Rome of January 1, 1958, remained unchanged:

- to increase agricultural productivity;
- to ensure thereby a fair standard of living for the agricultural community;
- to stabilise markets;
- to assure availability of supplies;
- to ensure that supplies reach consumers at reasonable prices.

As the most radical change in the CAP, an announcement of Rural Development Policy as the second permanent pillar of the CAP should be recognised, although it was just a soft reflection of CARPE ideas declared in Cork. Some initiatives to reform EU milk sector's policy were also included in *Agenda 2000*, however those were extremely gradual reform measures.

At the same time several reform proposals were not adopted by the Council in *Agenda 2000* and were left for later consideration. Modulation of direct payments was among them.

Further consideration about the CAP development took place after adoption of *Agenda 2000*. Several internal (budgetary pressures, public attitudes and enlargement) and external (globalisation and liberalisation of the world economy, shift in consumption patterns) were the driving forces of the reform thinking, which has led to stating of the new role of agriculture in the European Union:

“Agricultural activity has been, is and will be of paramount importance for the Union’s identity. The Council recalls that farming in the EU is not only about producing food or fibre. A sustainable agricultural model requires a policy spread throughout the European territory, economically and socially sustainable and environmentally friendly, market-oriented and simpler despite the diversity of European countries and regions.”

2.2. Accession Negotiations and the Results

Accession negotiations between Estonia and the EU were opened two years earlier than with the other two Baltic countries.

As it had been also during the previous EU enlargements, agriculture was the largest negotiation chapter, where the emphasis in the preparation for accession was put on the candidate country's ability to implement and enforce the Community *acquis communautaire* and also on the application of the EU CAP support measures.

Along the general issues to be resolved during the negotiation process, several specific Baltic issues were presented. There was no other Central and East European country, except Baltics, which was obliged to make so **dramatic reforming of agricultural structures in such a short period of time**. Privatisation of agricultural land and state entities has followed the segregation from the common economic (related to the production, distribution and trade) and political system created in Former Soviet Union (FSU). It can be illustrated with just a few statements:

- Each Baltic country has transformed the farming structure from fully state-owned to fully private-owned farms;
- While the state support to agriculture, measured by NACs¹, was slightly fluctuating in Central Europe (including Baltics) (CEEC-8) during 1992 – 2001 keeping up to the average level of 20%, the agricultural producers in Baltic States were obliged to deal with agricultural production and increase of efficiency without any state support as far as the middle of 90-ies. **Until 1995 the Baltic agriculture was even taxed heavily instead of supporting**. Only since 1996, the state support level started to increase gradually in Baltic States as well.

These radical reforms had a direct impact on all three countries resulting in a substantial contraction of the agricultural sector, and the recovery started considerably later than in other CEEC. Therefore the reference levels to define DP rates and production levels were among the most sensitive negotiation issues for the Baltics.

Reference quantities (e.g. quotas, base areas) were agreed for all the applicable products on the basis of recent production and taking into account the specific circumstances of the country (e.g. drought). Due to deep recession, taken place in the early post-soviet period, and belated recovery, in several cases the reference levels, calculated as averages on the statistical basis, did not reach the actual production levels in pre-accession period, although in some cases adjustments in reference numbers were made. During the negotiations the amounts of eligibility rights and production quotas requested by the Baltic countries on the basis of their real production potential, were decreased considerably. The base area of Latvia was less than the actual area under the EU eligible agricultural crops (difference 2,3%). In addition, the number of slaughtered calves in 2001 was by 28% higher than the result negotiated by Latvia. In Estonia, the number of bulls in 2001 was by 46% higher than that eligible for support. Only

¹ weighted by total value of production (at farm gate)

Lithuania's negotiated level of production quotas and eligible land was higher, if compared to the level of 2001.

As a result of the negotiations, the new Member States will gradually phase in EU agricultural **direct payments** between 2004 and 2013. The direct payments will start with 25% from the DP rates applied in the EU in 2004, 30% in 2005 and 35% in 2006 and will increase by 10 percent steps to reach 100% of the applicable EU level in 2013. Within the carefully defined limits, the new member states will have the option to "**top-up**" these EU direct payments with national subsidies. In 2004-2006, a new member state has the possibility to top up EU direct payments to either 55% of the EU level in the year 2004, 60% in 2005 and 65% in 2006. From 2007 the new member state may top-up EU direct payments by 30 percentage points above the applicable phasing-in rate in the relevant year. Or to the total level of direct support the farmer would have been entitled to receive, on a product-by-product basis, in the new Member State prior to accession under a like national scheme increased by 10 percentage points. **Lithuania** was given the possibility to top-up to the total level of direct support the farmer would have been entitled to receive, on a product-by-product basis, in Lithuania prior to accession (2002).

In no case shall the payment be higher than 100% of the EU-15 level of direct payments.

Rather than applying the standard **direct payment scheme** applicable in the current EU, the new Member States have the option, during a limited period, to grant their farmers CAP direct payments in the form of a decoupled area payment (formerly called - simplified payment scheme). An annual financial envelope will be calculated for the New Member state according to agreed criteria and then distributed among the utilised agricultural land.

Baltic countries, like other new Member States, will have special additional financial aid **for rural development** for a limited period. This includes a higher proportion of EU co-financing in rural development programmes. Certain **rural development measures** have been adapted or created in order to reflect better the requirements of the new Member States in the first years of accession. This means that for a limited period, new Member States will be able to use rural development funds for schemes specifically designed to help restructuring of the rural sector. For example, there is support for semi-subsistence farms undergoing restructuring as well as specific measures to assist farmers in meeting the EU standards.

In a few specific instances, **transitional periods** were agreed for the adoption and implementation of certain parts of the EU legislation. These transitional periods are exceptional and limited in time and in scope.

Concerning state aid, **Latvia** was given the possibility in addition to the complementary national direct payments to grant transitional and digressive national aids in certain sectors until the end of 2010. **Estonia** has the possibility to grant a national dairy premium in 2004, on the condition that it is not higher than the pre-accession level.

All the Baltic states have transitional arrangements relating to organic farming. These include:

- use of untreated seeds, planting material and propagating material not produced by the organic production method (until 1 January 2006);
- certified organic apiaries to use non-organic sugar for bee-feeding (until 1 January 2006);
- use of potassium permanganate preparations and domestic peat in organic farming (18 months after the date of accession).

Latvia and **Lithuania** received a transitional arrangement of five years for the marketing of drinking milk, which does not comply with the EU fat content requirements. Such milk may be marketed only in the Member State in question or exported to a third country. Milk quotas for all new Member States have been set. The overall level is distributed between deliveries and direct sales. **Estonia**, **Latvia** and **Lithuania** received also a 3-year transitional arrangement relating to which additional breeds are entitled to receive the suckler cow premium.

A temporary income support for semi-subsistence farms which will serve to alleviate cash flow constraints and household income difficulties whilst further restructuring is undertaken to ensure the commercial future of the holding. The support takes the form of a flat rate annual aid with a maximum annual amount of 1,000 per farm (for Poland 1,250 per farm). **Estonia** may support afforestation of abandoned land during 2004-06. Under certain conditions, **Lithuania** may grant for the 2004-2006 period the early retirement scheme to dairy farmers at the age between 55 and 70 years, giving up milk production.

Table 1 showing the Baltic's initial request during the negotiations and the results of the negotiations according to the Accession Treaty, is added in annexes.

3. CURRENT STAGE AND PERSPECTIVES FOR DEVELOPMENT OF AGRICULTURE AND RURAL AREAS IN BALTIC STATES

3.1. Description of Agricultural Sector in Estonia

3.1.1. General Indicators about Estonian Agricultural Sector

Estonian GDP has grown annually. In 2001, the Estonian GDP was EUR 5 515,5 million (see Table 3.1). Estonian share of agriculture and hunting in total GDP has stayed at the same level during the last years, at 3,5% of the total GDP. In 2001, export of agricultural and food products grew by approximately EUR 100 million (45%) as compared to the year 2000. However, the share of agricultural and food products in total export decreased by 2% in 2001 as compared to the previous year. Import of agricultural and food products has also grown during the recent years. In 2001, the share of agricultural and food products in total import grew by approximately 1%, and the total import of agricultural and food products grew about EUR 50 million as compared to 2000.

Table 3.1. Gross domestic product in Estonia in 2000 and 2001, EUR million

Indicator	2000	2001
Gross domestic product at current prices	4 914,5	5 515,5
Agriculture and hunting sector	171,5	190,2
Share of agriculture in gross value added, %	3,5	3,5
Export of agricultural and food products	203,8	296,3
Share of agricultural and food products in total export	6,0	8,0
Import of agricultural and food products	394,7	451,3
Share of agricultural and food products in total import	8,6	9,4

Source: Estonian Statistical Office

Total population of Estonia of late years has been around 1,36 million (see Table 3.2). In closer look, the total population of Estonia has decreased a little since 2000. The tendency of the last three years has been the growth of rural population. By 2002, one third (32,6%) of Estonian total population lived in rural areas. Estonian total employed population and the number of people employed in agriculture and hunting sector has grown. But still the share of employees engaged in agriculture is very low, only 5% of the total engaged employees work in agriculture.

Table 3.2. Rural population and employees engaged in Estonian agriculture during the period from 2000 to 2001

Indicator	2000	2001	2002
Total population	1 369 515	1 364 101	1 358 644
Rural population	434 989	440 571	443 256
Share of rural population in total population, %	31,8	32,3	32,6
Total employed population	572,5	577,7	585,5
Employed in agriculture and hunting sector	28,9	29,0	30,1
Share of employees engaged in agriculture in total engaged employees number, %	5,0	5,0	5,1

Source: Estonian Statistical Office

3.1.2. Land as the Object of Agricultural and Rural Development Policies (Structure of Land Eligible for Agricultural and Rural Development Policy)

Out of the total area 45 227,6 km² land makes 4,52 million ha in Estonia. According to the data of the Estonian Land Board 2000, 1428,32 thousand ha or 31,6% of total land area is the land used for agriculture, 44,6% - the land of forestry, 6,3% - the land of inland waters and 17,5% - the land for other purposes. However, the area of utilised agricultural land is significantly less and permanently decreasing in recent years. In 2002 it reached 698,3 thousand ha or 49 %, out of which about 85% is arable land (see Table 3.3).

Table 3.3. Utilised agricultural land in Estonia during the period from 2000 to 2002, ha

	2000	2001	2002
UAA total	986 254	890 431	698 289
Arable land	843 368	677 803	613 713
Orchards	11 644	18 866	17 619
Permanent grassland	131 242	193 762	66 957

Source: Statistical office of Estonia

Eligible land area according to SAP scheme will account for 800 000 ha; according to LFA scheme, it will account for about 320 000 ha.

3.1.3. Structure of Agricultural Production

Agricultural output in basic prices was EUR 460 527 thousand in 2001, as compared to the year 2000, the agricultural output grew by almost EUR 60 000 thousand (see Table 3.4). Most of agricultural output comes from animal breeding, also the main part of development comes hereof. The animal output rose by approximately EUR 50 000 thousand in 2001, as compared to 2000. Crop production makes about 35% of agricultural output. Most of the animal output comes from milk production (ca 50%), about one quarter comes from pigs and almost 10% from cattle. Potatoes (ca 20%), other forage plants (ca 20%) and barley (ca 16%) comprise the biggest part of crop production.

Table 3.4. Estonian agricultural output in basic prices of the corresponding year during the period from 2000 to 2001, thousands EUR

Indicator	2000	2001
Output of the agricultural industry	401 886	460 527
Crop production	154 083	149 033
Wheat	13 408	12 732
soft wheat	13 408	12 732
Rye and meslin	5 355	3 886
Barley	27 917	22 057
Oats	7 450	6 247
Other cereals (buckwheat, triticale, mixed grain)	3 372	1 801
Legumes	891	1 021
Potatoes	31 306	28 502
Oil seeds	8 501	10 494
Rape	8 488	10 473
Linseeds	13	21
Flax	30	30
Vegetables	11 806	15 741
Fruits	7 899	8 305
Fodder roots	1 938	1 025
Other forage plants	28 417	31 186
Flowers	3 011	4 013
Nursery plants	286	268
Seeds (hayseeds)	444	668
Other crop products	2 051	1 057
Animal output	191 712	240 538
Cattle	16 209	23 257
Pigs	45 543	62 179
Poultry	6 278	11 059
Equine	247	70
Sheep and goats	666	556
Fur animals	1 463	3 317
Milk	101 138	117 802
Eggs	13 938	16 305
Raw wool	73	72
Honey	1 226	912
Other animal products	4 930	5 009
Agricultural services	18 408	16 380
Processing of agricultural products	32 753	41 829
Output of non-agricultural secondary activities (inseparable)	4 930	12 747

Source: Estonian Statistical Office

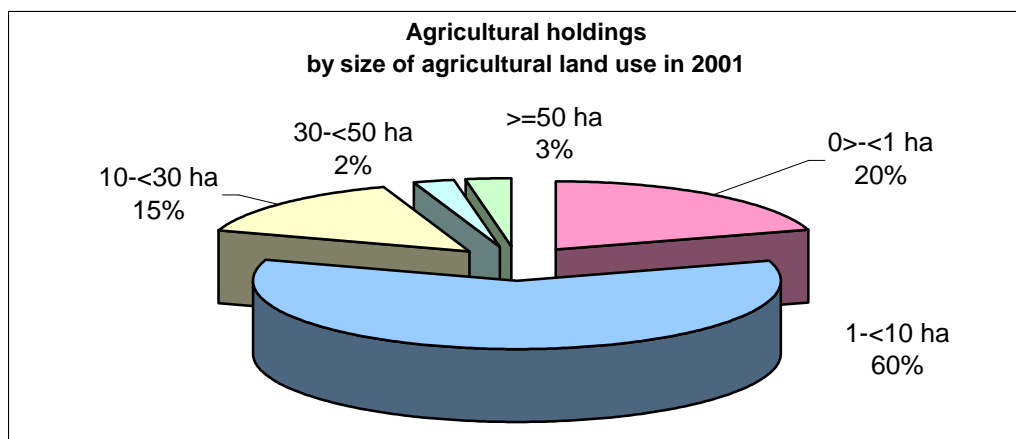
3.1.4. Farm Structure

For statistical purposes, in Estonia a farm is understood as a production unit using at least one hectare of land, regardless of the land ownership form or the sales of agricultural products.

According to the agricultural census data, there were 85300 agricultural holdings in rural areas possessing 877000 ha of agricultural land by the year 2001, however, only 69810 holdings were the owners of the land. The land titles of 41560 farmers (60% on average, ranging from 48% to 66% in different counties) were less than 10 ha (see Figure 3.1).

Only 3% of the total number of agricultural holdings were larger than 50 ha as of the year 2000-

Figure 3.1. Structure of Estonian agricultural holdings by land use in 2001, %



Source: Agricultural census 2001

There were 8 299 agricultural producers (see Table 3.5) in FADN survey selection. More than half of them (57,1%) belonged to the group of the smallest economic size class (2 to 4 ESUs). Only 2,2% of agricultural producers belonged to biggest economic size class (100-< ...). More than third of agricultural holdings are specialized in field crop production (37,8%), one fifth – in dairying, one other third (34,7%) of agricultural holdings have mixed production.

Table 3.5. Structure of population of Estonian agricultural holdings in 2001

Type of farming	Economic size class (ESU)								Total	%
	2-<4	4-<6	6-<8	8-<12	12-<16	16-<40	40-<100	100-<...		
Field crops	1 826	518	223	220	106	175	51	15	3 134	37,8%
Horticulture	66	30	14	12	6	8	4	3	143	1,7%
Permanent crops	53	29	17	15	5	7	4	2	132	1,6%
Dairying	659	311	154	150	81	122	105	90	1 672	20,1%
Grazing livestock	183	31	14	3	2	3	1	0	237	2,9%
Granivores	19	6	5	7	6	18	26	16	103	1,2%
Mixed	1 936	407	162	136	52	88	37	60	2 878	34,7%
Total	4 742	1 332	589	543	258	421	228	186	8 299	100,0%
%	57,1%	16,1%	7,1%	6,5%	3,1%	5,1%	2,7%	2,2%	100,0%	

Source: Jäeneda Training and Advisory Centre according to the FADN data

3.1.5. National Policy and its Harmonisation with the Current CAP and EU Legislation

In 2000, the new Act on Rural Life and Agricultural Market Regulation was passed in the Parliament, defining the principles of state aid in the agricultural sector, in accordance with the Strategy Document on Agricultural Sector Development, which was approved by the government in spring 2000. The support system includes direct income subsidies, support for ewes, organic farming and certified seed (see Table 3.6).

All these support measures have their influence on the structure of producers, facing the challenge of new economic environment, when Estonia will become the member of the EU.

In the new policy environment, the ability of Estonia's agriculture to meet the Common Agricultural Policy requirements and the future domestic food requirements will be largely dependent on a successful completion of the sector's restructuring, aimed at enhancing its efficiency and competitiveness, although the support amounts were insufficient for direct investments in fixed assets. Further developments in agricultural policy have focused on compensation for production costs.

Table 3.6. Refunds paid to Estonian agriculture and rural economy during the period from 2000 to 2002, millions EUR

Indicator	2000	2001	2002
Market price support	-	-	-
Direct aid	15,3	14,5	21,1
Support for dairy cow breeding	7,2	7,1	7,0
Support for cereal production	7,8	7,0	7,0
Support for sow breeding	-	-	-
Support for young and meat cattle breeding *	-	0,05	0,2
Support for ewe breeding	0,1	0,2	0,2
Support for certified seed production	0,1	0,1	0,2
Compensation for damages	-	-	6,5
Reduction of input prices	4,8	4,5	14,9
Interests	1,7	1,1	1,3
Investment aid	0,8	0,4	10,4
Insurance aid	0,04	0,03	0,04
Liming aid	0,9	1,0	1,0
Seeds	-	-	-
Excise, transport	-	-	-
Co-financing of land improvement works	1,3	1,4	0,4
Loan guarantee	-	-	-
Agri-environmental aid**	0,2	0,7	1,9
General support	2,7	2,1	2,0
Research, training and advisory aid	0,4	0,4	0,2
School milk	-	0,6	0,7
Animal breeding	0,8	0,8	1
Infectious animal disease control	0,1	0,2	0,1
Cooperative activities aid	1,3	0,3	0,01
Other support (taxes)	2,1	4,3	4,3
Total	22,8	21,2	38,0

Source: Ministry of Agriculture

* Since 2001, support for suckler cows was introduced in Estonia for meat cattle breeding; in 2002 the aid was re-named as suckler cow premium

** Since 2000, organic farming aid was paid as a direct aid according to the law; in 2002 it was included in environmental aid.

Estonian agricultural support schemes are directed to increase the income of agricultural producers, also to retain agricultural production and production volume. The aim of direct support is also to improve the competitiveness of agricultural products and to maintain certain level of development in agricultural sector (e.g. through interest, insurance, advisory, training, investment and animal breeding support schemes and so on), also to improve and maintain the environment, to motivate organic production (agri-environment scheme).

The state aid provided in recent years has had a positive impact on the agricultural sector, ending the recession, and it has led to some recovery of Estonian agricultural sector.

With the EU accession, Estonia transposes the CAP reform goals, which are similar to Estonian current agricultural policies. As a result of Estonian EU accession negotiations, Estonia plans to keep paying several subsidies as state aid from the state budget, e.g. interest rate support, agricultural animal breeding and cooperative activities aid, insurance aid and practice aid. Also Estonia uses the opportunity to pay additional aid to dairy cow breeding in 2004.

Estonia is preparing the “Implementation Act for Common Agricultural Policy of the European Union” which gives the basis for implementing market regulation measures under the EU Common Agricultural Policy, single area payment scheme provided as a state aid, as well as the implementing institutions and the scope and functions of the supervisory institutions.

Based on the “Implementation Act for Common Agricultural Policy of the European Union” a secondary legislation for providing single area payments scheme and national complementary direct payment is being prepared.

3.2. Description of Agricultural Sector in Latvia

3.2.1. General Indicators about Latvian Agricultural Sector

Traditionally agriculture has played an important role in Latvian economy. However, since the beginning of transition, the share of agriculture, hunting and related service activities gradually started to decrease. In 2002 this share amounted to 2,9 % of total GDP.

In the structure of Latvian foreign trade, the import and export of agricultural products comprised respectively 13 % and 10 % in 2002.

During the recent years the number of employed persons has stabilized at the rate of about 14 % of all economically active population. At the same time rural population builds 31,8% of the total population in the country [20].

3.2.2. Land as the Object of Agricultural and Rural Development Policies (Structure of Land Eligible for Agricultural and Rural Development Policy)

Out of the total area 64,59 thousand km² land makes 6,21 million ha in Latvia. According to the most recent data of the State Land Service on the Land balance on the 1st of January of 2003, 38,3 % of total areas is agricultural land, and 44,5% are forests.

At the same time the results of Agricultural Census in Latvia show that total area of agricultural land was 2228,7 thousand ha, but only 82 % of that (or 1834,0 thousand ha) were used for agricultural purposes by economically active farms in 2001.

The total agricultural land reported by agricultural census can serve as a base in decision-making process referring to the prospects of application of single area payment scheme as well as to determination of areas maintained in good agricultural condition in Latvia after accession (see last column of Table 3.7).

The structure of agricultural land in all farms and in economically active farms is reflected in Table 3.7.

As is shown in the table below, the structure of agricultural land use does not differentiate much among the economically active farms and all farms in the sector. Even amount of land in average economically active farm is the same as in an average Latvian farm (19,9 ha). Differentiation in the average size of agricultural land is only 0,6 ha - 12,4 ha in economically active farms versus 13,0 in all farms. Such small difference between economically active and all farms exists because of selection criteria for economically active farms in agricultural census, when a farm is defined as “economically active” if it has at least one animal or one hectare of planted land. Furthermore the economically active agricultural farms refer to farms producing agricultural products not dependent on the output produced and on the kind of its utilisation [21, p.389].

Table 3.7. Structure of use of agricultural land in economically active and all farms in Latvia in 2001, %

	Economically active farms	All farms	Eligible area for single area payments (thou ha)
TOTAL AGRICULTURAL LAND USE, thou ha	1834,0	2228,7	
Arable land, of which	64,2	55,6	
sown area	46,7	38,4	856,2
Land laying waste	12,3	12,7	0
Fellows	4,8	4,2	92,4
Permanent crops	1,1	1,0	21,4
Meadows	11,9	10,6	236,5
Pastures	13,4	11,9	264,9
Unutilised agricultural land	9,4	20,9	
Total	100%	100%	1471,4
Farms which owned or used under 2 ha of agricultural land			32,4
Provisional agricultural land not corresponding to good agricultural conditions in 2003 compared to 2001 (source: State land Service)			36,785
Amount of agricultural land eligible for SAP			1402,215*

Source: CSB. Results of the Agricultural Census 2001 in Latvia, p.84 –85; [35]

*This is a provisional version, considered by the Latvian Ministry of Agriculture for introduction of SAP in Latvia. According to the mentioned version the amount of land eligible for SAP payments in Latvia could include the sown area, fallows, land under permanent crops, meadows and pastures not including the area under the farms, which owned (or used) 2 ha of agricultural land as well as the land not corresponding to good agricultural conditions.

While during the pre-accession period all Latvian legislation and principles of Agricultural policy should be harmonized with the EU requirements on the base of *aquis communautaire*, the significant changes in Latvian agricultural policy are expected after accession. These changes mostly refer to the application of concrete administrative mechanisms for implementation of policy measures within the Common Market Organisations as well as application of rural development measures.

After regaining the independence the major part of state support was directed towards market regulation and encouraging the agricultural production in national agricultural policy. At the same time national measures related to rural development issues occupied rather small share of support. For instance in 2002 the set of such measures did not exceed 13 % of state support funds [29].

Adjustments of national policy after the accession will obviously transform the structure of agricultural land eligible for diverse set of CAP measures. The preliminary distribution of agricultural land among different policy measures before and after accession (for the year 2006) is reflected in Table 3.8.

The national direct support measures are attributed to 286 thousand ha of agricultural land in 2002. However, after Latvian accession the area eligible for CMO direct support will be

increased either to 443 thousand ha, if the Standard scheme of the support administration will be applied, or to 1402,2 ha, if the Single Area payment scheme will be introduced, which is one of the different options currently considered by the Latvian Ministry of Agriculture. In the case of introduction of SAP, the direct payments might be attributed to the agricultural land, which include the area sown, permanent crops, fallows, meadows and pastures in Latvian farms. At the same time the agricultural land, not corresponding to good agricultural conditions, as well as farms with land under 2 ha should be excluded from the land under the direct support (see Table 3.7).

Table 3.8. Land eligible for different agricultural and rural policy measures applicable for Latvia in 2006, thousands of ha

	National direct support in 2002*	CAP policy measures							
		CMO Direct payments according to different ways of administration		Rural development measures					LFA**
				Agri-environment					
		Single area payments (SAP)	Standard scheme	Organic farming	Biodiversity	Environment-friendly management of AL	Preservation of genetic resources		
Eligible area under the different policy measures, thou ha	286	1402,2	443,58	56,0	20,0	n.a.	0.1	405,0 (I) 143,0(II) 391,0 (III)	
% of total agricultural land	12,8	63,0	20,0	2,5	0,9	n.a.	0,00	42,0	

Source: Rural Developments plan (RDP); [29]; LSIAE calculations based on the data from Ministry of Agriculture and CSB.

*LSIAE calculations based on the State support program "Application of State Support to the Agricultural Development in 2003".

** Less favoured areas according to the different categories (I, II, III).

Several rural development measures will refer to the agricultural land as well.

The eligible area under the different rural development measures is calculated on the basis of anticipated applications for rural support within the framework of Rural Development Plan for Latvia 2004-2006. The measures related to the development of Less-favoured Areas (LFA) will cover the largest part of the area under rural development policy - about 939, thousand ha or 42 % of the total agricultural area of Latvia. However, it is important to emphasise that there is quite essential differentiation in application conditions among the rural development measures expected to be introduced after accession. For instance LFA measures will be applicable for farms with 3 and more ha of usable land. At the same time such measures as "meeting of the EU standards" or "Support to semi-subsistent farms" will be directed to the particular farm and will not be dependent on the agricultural areas used [31].

3.2.3. Structure of Agricultural Production

Table 3.9 presents the changes in the structure of agricultural products produced in Latvia after 1996². These changes give a comprehensive view on the structure of sub-sectors of

² only since that year the detailed data about structure of agricultural output are available.

Latvian agriculture. It is obvious, that the milk and grain sectors occupy a significant share in agricultural production. These are the agricultural branches with the best development prospects and with relatively high export potential in the future [32].

Also the segment of products coming from animal sector gradually increases during the last seven years achieving an especially high level in 2001.

While the rapeseed output is still quite tiny in physical volumes, this is the most rapidly developing agricultural sector in Latvia with a stable tendency to increase in the future as well. Only during the period from 1996 to 2002 the rape and turnip production has increased more than 32 times.

The sugar beet production is also characterized by rapid development since the beginning of transition mostly because of essential state support and technological modernization. However, due to sugar production quota introduced in 2000 (at the level of 60 thousand tonnes of sugar for the basic – A quota) sugar beet production has stabilised in the latest years.

Table 3.9. Structure of Gross Agricultural output in Latvia from 1996 to 2002 (actual prices), %

	Type of products	1996	1997	1998	1999	2000	2001	2002
1	Total agricultural output, 1000 EUR*	257493,9	255955,5	220990,6	174802,4	182912	208425,1	215755,1
2	Cereal products (includ. seeds),%	17	17	15	16	19	16	17
	including							
	Wheat and spelt	8	7	7	8	9	8	9
	Rye and meslin	2	2	2	2	2	2	2
	Barley	6	5	5	4	5	4	4
	Oats and summer cereal mixtures	2	2	1	1	2	1	1
3	Industrial crops, %	2	3	4	4	4	4	5
	including							
	Rape and turnip rape seed	0,03	0,03	0,06	0,49	0,36	0,49	1,18
	Sugar beets	1	2	4	3	3	3	3
4	Forage plants, %	8	8	9	7	6	6	6
5	Potatoes, %	13	11	9	12	8	10	14
6	Animals	15	16	18	16	17	22	18
	including							
	Cattle	4	4	4	3	5	8	6
	Pigs	9	10	11	10	10	11	10
	Poultry	2	2	2	2	2	2	2
7	Milk products	21	22	24	23	24	23	21
8	Eggs	5	5	5	5	6	6	5

Source: LSIAE calculations on the base of data from EAA and Central Statistical Bureau

* The exchange rate was 0,637 LVL per 1 EUR in 2003

3.2.4. Farm Structure

According to the results of the Agricultural Census 2001 in Latvia, 180263 agricultural farms were recorded having 3586,2 thousand ha of land at their disposal, of which 2228,7 thousand ha was agricultural land.

On June 1, 2001, 99,8 % of the total number of farms belonged to the private sector and only 0,2 % of farms were owned by state, local governments and public organisations.

As shown in Table 3.10, peasant (private individual) farms together with household plots create a base for agricultural production in terms of number of holding (95%) as well as in terms of agricultural land use (89%). However, while the average farm had up to 12,4 ha of agricultural land, then the average size of household plots and peasant farms were respectively 7,4 and 20,1 ha.

It is important to emphasise the specificity of the Latvian agricultural sector, which is characterized by existence of quite considerable share of subsistent and semi-subsistent farms. For instance, the Latvian agricultural census reports that even among the economically active farms, selected on the ground of 1 ESU, 59,8 % of them did not produce the agricultural products for sale in 2001. In the same year only 11,8 % of farms sold more than 50 % of agricultural products [21, p.44]. Such facts allow concluding that at least 40% of farms defined as economically active during the census, might be purely subsistent farms.

Now it is obvious that selection criteria for economically active farms should be changed to much more appropriate indication.

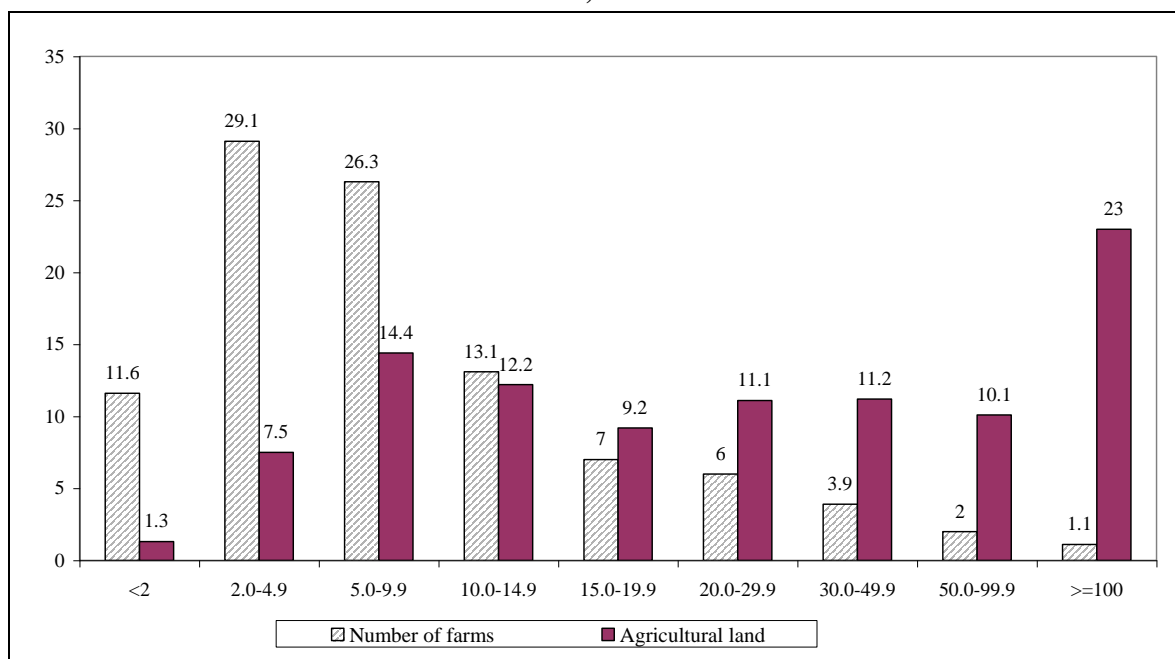
Table 3.10. Structure of agricultural holdings in Latvia in 2001

	Number of farms, units	Total area, thou ha	% of total area	Total area of agricultural land, thou ha	% of the total area of agricultural land	Average size of farms, ha	
						Total area	Total area of agricultural land
TOTAL	180263	3586,2	100,0	2228,7	100,0	19,9	12,4
Public sector farms, of which:	280	18,8	0,5	11,7	0,5	67,2	41,8
- farms owned by central and local government	94	12,2	0,3	8,2	0,4	130,3	87,7
- statutory companies	3	0,3	0,0	0,2	0,0	115,7	75,7
- other farms	183	6,2	0,2	3,2	0,1	34	17,6
Private farms, of which	179983	3567,4	99,5	2217	99,5	19,8	12,3
- peasant farms	56412	1871,1	52,2	1136,4	51,0	33,2	20,1
- household plots	114288	1389	38,7	843,6	37,9	12,2	7,4
- private subsidiary farms	7753	68,2	1,9	42,1	1,9	8,8	5,4
- statutory companies	938	216,6	6,1	185,3	8,3	230,9	197,6
- other farms	592	22,4	0,6	9,6	0,4	37,9	16,2

Source: CSB. Results of the Agricultural Census 2001 in Latvia, p.52

Since 2002, according to the analysis made on the ground of farm accountancy data network's data (FADN) in Latvia, there are attempts to increase the level of the economic size threshold from 1 to 2 ESU in order to assess the activity of commercially directed farms.

Figure 3.2. Number of Latvian farms and agricultural land in farms of different size in 2001, %



Source: CSB. Results of the 2001 Agricultural Census in Latvia, p.44

Another specificity of Latvian farms relates to the small size of farms in terms of agricultural land use. So the agricultural census data make out that 57376 economically active farms or 40,7% of the total number of farms managed less than 5 ha of agricultural land each (see Figure 3.2).

Moreover, 4268 farms or 3,1 % of the total number had 50 and more ha of agricultural land at their disposal each, of which 166 (0,1%) farms managed 500 ha and more.

3.2.5. National Policy and its Harmonization with the Current CAP and EU Legislation

According to the Law on Agriculture (adopted in 1996 and being still in force), the strategic goal of the Latvian agricultural policy is to develop agriculture into a competitive sector in terms of product quality and cost efficiency, capable of manufacturing goods complying with the world market requirements. This Law provides the state support in the form of state subsidies, which amounted to 3% of the annual basic budget expenditures. The state support to agricultural producers and the development of competitive agricultural sector is provided mainly in the following three ways:

- as direct support (through the direct payments, state investments and market price support),
- as indirect support (through the tax reductions and improvements of the legal matters) and
- as general support programs (for instance, educational programmes, co-financing of foreign projects etc.).

In 2002, the total amount spent by subsidy programs reached the level up to EUR 50 million.

Insomuch as all candidate countries have declared their readiness to obtain the *acquis communautaire* fully and to fulfil all obligations related to the EU CAP policy jurisdiction, Latvia has already harmonised the majority of national legal acts according to the EU requirements. The present Law “On agriculture” has already stipulated a substantial part of

CMO mechanisms. However, only the new Law “On agriculture and rural development”, currently debated in the Parliament provides the legal base not only for CMO, but also for structural changes in the rural sector - on principles, defined in the EU legislation as well as application of rural development policy and implementation of new mechanisms for financial discipline.

During the first three years after accession, Latvia as other new Member States will have the option to grant direct payments in the following forms: 1) payments coupled with production (acreage or headage payments administrated according to the classical scheme of IACS); 2) Single Area payments (SAP) applied to agricultural area; or 3) decoupled farm payments or single payment scheme (SPS), which can be introduced from 2005, but not later than in 2009.

According to the official view of the Ministry of Agriculture of the Republic of Latvia the direct support will be administrated in the form of Single Area payments. Thereto there will be separate procedures of administration applicable for annual financial envelope coming from the EU budget (25% in 2004) and for complementary fund of national direct payments (30% in 2004).

The EU part of the direct support will be paid in the form of single area payment calculated as dividing the annual financial envelope amounted for Latvia in 2004 by the agricultural area under single area payment (see Table 3.7).

National complementary part of the direct support (financed by national budget and rural development fund) will be administrated on the ground of specific financial envelopes calculated for arable crops, forage, starch potato, fibre flax, milk and animal sectors. In this case the separate rates of DP per hectare or head (in the case of milk – per tonne of milk produced) will be defined independently for each sub-sector mentioned.

After the year 2005, but not later than in year 2009, the single area payment scheme will be substituted by single payment scheme according to the present legislative acts about CAP reform (see references) as well as other acts, which will come in force in the future.

3.3. Description of Agricultural Sector in Lithuania

3.3.1. General Indicators about Lithuanian Agricultural Sector

During the restructuring processes and after the survived economic crises, today Lithuanian agriculture faces a set of new problems. The processes of the EU integration induce reconsideration of the role of agriculture in Lithuanian economy. Thus, only 5,7 % of total GDP was created in agriculture sector in 2002. This rate represents the decline in the share of GDP contributed by Lithuanian agricultural sector during the period of economic transition. In 2001 gross agricultural production dropped by 5,4 % compared to previous year and by 7,8 % compared to gross production in 1995. However, even with the declining share of gross value-added created in agriculture, 12 % of total Lithuanian exports revenues in 2001 is due to the export of agricultural and food products. At the same time state support to agricultural sector does not exceed 1,3 % of GDP.

According to the data of Statistics Department under the Government of the Republic of Lithuania, about 18 % of all active population (17,8 % in 2002) are engaged in agriculture. This indicator was decreasing year by year (from 23,1 % in 1996 to the actual rate mentioned above). At the same time about 30-35 % of total population are employed in activities closely related to agriculture.

In spite of the survived economic crises and decreasing state support to the agricultural sector, the share of active population engaged in agriculture is comparatively high. Thus, agriculture is an important part of Lithuanian economy and social life.

3.3.2. Land as the Object of Agricultural and Rural Development Policies (Structure of Land Eligible for Agricultural and Rural Development Policy)

Land is an important issue in agricultural and rural development policy, as it comprises the basis for calculating the support to the agriculture sector. Moreover, the amount of EU support to Lithuanian agricultural sector is based on eligible land. Thus, it is important to specify the eligible land out of the total land.

Table 3.11. Structure of land in Lithuania in 2003, thousands of ha

Type of land area	Land area
Utilized agricultural area (UAA)	2495,2
Abandoned agricultural land	47
Total agricultural land	2542,2
Forests	296,9
Inland water	8,8
Other land	91,1
Total land area	2939
Drained agricultural land	1936,6
Of which renovated agricultural land	95,5
Irrigated agricultural land	0,74
Of which renovated agricultural land	0,02

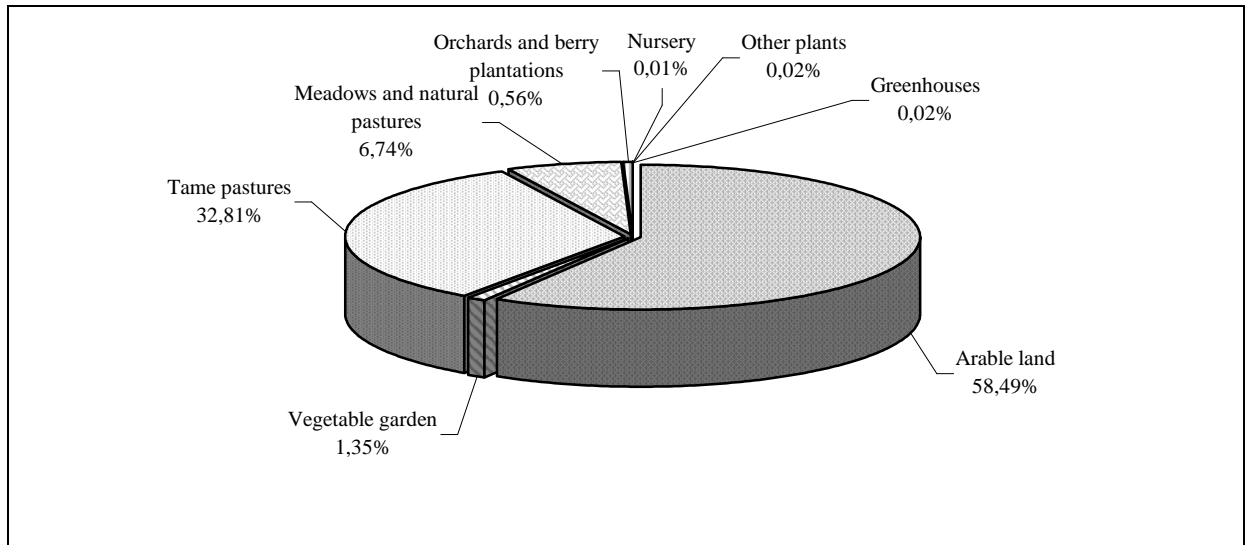
Source: Preliminary data of Agriculture Census 2003.

Total Lithuanian land area **comes to 6530 thousand hectares**. According to the data of the Statistics Department, 60,6 % of total land area is the land used for agricultural purposes, 30,1 % - the land of forestry, and 9,3 % - the land for other purposes.

There are 2542,2 thousand hectares of agricultural land (see Figure 3.3). However, almost 47 thousand ha or almost 2 % of agricultural land was not utilized at all in 2003.

The structure of utilized agricultural area in economically active farms belonging to both – public and private sectors is presented in Figure 3.3. Arable land covers 57,4 % of all agricultural land.

Figure 3.3. Structure of utilized agricultural area in Lithuania in 2003,%



Source: Preliminary data of Agriculture Census 2003.

The private sector plays the dominant role in Lithuanian agriculture. In terms of the use of land, the private sector occupies up to 57 % of agricultural land. However, 75 % of agricultural land is leased and the rest is under the property of land users. It means that private landowners lease their land to other agricultural producers. Moreover, since the share of agricultural products within the total production volume is rather different, respectively 79 % is created by private agricultural producers versus only 21 % - by public ones, it gives the opportunity to conclude that the activity of private sector is more effective and market-orientated comparing to that of public sector.

The significant changes in Lithuanian agricultural policy are expected after accession into the EU, e.i. after harmonization of Lithuanian legislation and principles of Agricultural policy with the EU requirements on the base of *ACQUIS Communautaire*. Adjustments of national policy after the accession will transform the structure of utilized agricultural area eligible for diverse set of CAP measures. The total agricultural land used by economically active farms (based on agricultural census data) will serve as a basis in decision-making process referring to the prospects of application of single area payment scheme (SAPS), as well as to determination of areas maintained in good agricultural condition in Lithuania after accession into the EU.

At first, if the national direct support measures were attributed only to 1000 thousand ha of agricultural land in 2002, after Lithuania's accession the area eligible for CAP direct support will be increased to the 2288 thousand ha under the SAPS (see Table 3.12). In this case the direct payments might be attributed to the eligible land of utilized agricultural area (UAA), which includes the area sown, permanent crops, fallows, cultivated meadows and pastures in all farms meeting the EU requirements. 41,3 % of eligible land conforms to the land used in livestock sector and 50,7%- to the land used for crops supported by the EU production.

Table 3.12. Structure of land eligible for European and national support by sectors in Lithuania in 2003, thousands of ha

Sectors	Type of land	Eligible land
Livestock	Grasslands, pastures, and meadows	945,4
Crops area supported by the EU	Cereals, rapeseed, legumes, potatoes for manufacturing of starch, and flax area (for which complementary payment of 100% of the EU level will be paid)	1160,2
Crops area not supported by the EU	Sugar beets, potatoes (not used for manufacturing of starch), vegetables, feed roots, etc.	182,4
All sectors	Total eligible land	2288

Source: Preliminary data of Statistics Department under the Government of the Republic of Lithuania, 2003.

Second, after regaining of independence, the major part of Lithuania's state support was towards market regulation, farmers' income support, and modernization of farms according to the restructuring programmes. At the same time, national support measures occupied rather small share of support. The changes related to the EU accession refer to the application of rural development measures, and several rural development measures would refer to the agricultural land as well. The eligible land area under the different rural development measures is calculated on the basis of anticipated applications for rural support within the framework of Rural Development Plan for Lithuania 2004-2006. The measures related to the development of Less-Favoured Areas (LFA) will help to abolish the differences of income among farmers with different farming conditions.

3.3.3. Structure of Agricultural Production

Even if crop production is still dominating over livestock production in Lithuanian agriculture, its share in the total agricultural production is decreasing since 1996. The crop production made 55 % of gross agricultural production in 2002, when it used to reach up to 60 % during the period 1996-2000.

Total agricultural output is declining during the last 6 years, even if some positive changes in total output occurred in 1997, 2000, and 2001 (see Table 3.13). About 62 % of total agricultural output is due to cereals, livestock, and milk products. These three sectors possess favourable characteristics for future development and operate efficiently upon their high export potential. Rapeseed output was almost five times as large in 2002 as it was in 1996.

**Table 3.13. Structure of Gross Agricultural output in Lithuania from 1996 to 2002
(actual prices), %**

	Type of products	1996	1997	1998	1999	2000	2001	2002*
1	Total agricultural output, 1000 EUR*	1236244,0	1316429,2	1237879,5	1102614,2	1121491,7	1122301,5	1166234,9
	Total intermediate consumption	741707,8	802539,4	739029,6	671782,2	742796,1	797949,9	811556,9
2	Cereal products (includ. seeds), %	24	24	17	17	21	19	21
	including							
	Wheat	9	10	7	9	11	9	11
	Rye	2	3	2	2	2	2	1
	Barley	10	9	6	5	7	6	7
	Oats and summer cereal mixtures	0,7	0,8	0,4	0,4	0,4	0,5	0,6
3	Industrial crops, %	4	5	6	6	6	6	7
	including							
	Rape and turnip rape seed	0,4	0,6	1,3	1,8	1,3	1,2	2,0
	Sugar beets	2	3	3	3	4	4	4
4	Forage plants, %	9	9	10	10	11	11	9
5	Potatoes, %	6	6	11	10	6	5	7
6	Livestock, %	19	21	20	19	19	23	20
	Including							
	Cattle	7	7	7	7	4	6	5
	Pigs	8	11	10	8	11	12	11
	Poultry	3	3	3	3	3	4	4
7	Milk, %	18	17	18	18	17	19	21
8	Eggs, %	3	3	2	2	3	3	3

Source: LAEI calculations on the base of data from EAA and Statistics Lithuania

*Provisional data

The structure of meat production is changing due to the changes in nutrition structure. Now people are looking for not so fat meet products and take care about what they consume. Thus, following the internal market needs, the share of poultry products in total agricultural output is increasing (came up to 4 % in 2002). Beef products' share in total agricultural output has decreased.

Milk output is increasing over the last three years and now it makes even 21 % of the total agricultural output. It is the maximum level attained during the last seven years period.

The structure of Lithuanian agricultural production is changing over the time. The market oriented policy measures and market economy rules induce dynamics in the balance between crop and livestock production so that the potential and effectiveness of animal sector is growing today.

3.3.4. Farm Structure

Farm structure is an important indicator, when the effectiveness of agricultural sector is under reconsideration and the agricultural policy measures are discussed. After the period of

reforms, the results of privatisation and restructuring are obvious: agricultural companies and farmer and households farms replaced state owned and collective farms. The transition to farmer farms took much longer than it was expected, because of the slow property rights reclamation process. According to the data of Lithuanian Land Area Cadastre Centre, ¼ of all Lithuanian population rights to land property weren't restored in 2002. Another problem is that farms are very small in their used land area in Lithuania. With these facts in mind and according to the preliminary results of Agriculture Census 2003, 278563 agricultural farms were recorded having 2542,2 thousand hectares of agricultural land (see Table 3.14).

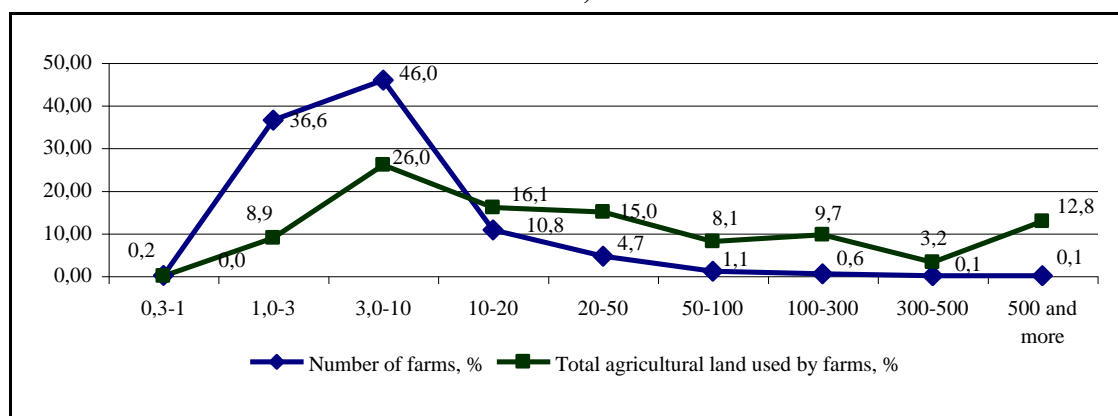
Table 3.14. Structure of agricultural holdings in Lithuania in 2003

Farm size by used area, ha	Number of farms, in thousands	Total agricultural land used by farms, in thousands hectares
Total	278,6	2542,2
0,3-1	0,5	0,1
1-3	101,9	228,6
3-10	128,1	665,1
10-20	30,1	411,4
20-50	13,0	382,7
50-100	3,04	207,7
100-300	1,6	249,1
300-500	0,2	85,8
500 and more	0,3	311,7

Source: Preliminary data from Agricultural Census 2003.

46 % of all farms, private and public ones, in Lithuania are small. The land used by these farms do not exceed 10 ha but is larger than 3 ha (26 % of all agricultural land used by economically active farms).

Figure 3.4. Number of Lithuanian farms and agricultural land in farms of different size in 2003, %.



Source: LAEI calculations on the base of data Agricultural Census 2003.

The largest farms (500 ha and more – 0,1 % of all farms) manage 13 % of all agricultural land (see Figure 3.4). Actually 93,5 % of farms, the size of which does not exceed 20 ha use 51,3 % of the total agricultural land. The average Lithuanian farm size is 9,1 ha.

Farmers' and households' farms, being quiet small in size and using the largest part of all agricultural land in Lithuania, create about ¾ of all agricultural production. These facts once again point out the importance of small farms in Lithuanian agricultural sector and explain the

necessity of specific agricultural policy measures oriented to support small agricultural producers as important actors of Lithuanian economic and social life.

3.3.5. National Policy and its Harmonization with Current CAP and EU Legislation

According to the Law of Agriculture and Rural Development (adopted in June 2002 and being in force since 2003), the goal of Lithuanian agricultural policy is to develop agriculture into an effective, cooperating, and competitive market-oriented sector making the supply of good quality products possible. Agriculture is the priority sector in consideration of Lithuanian economy, ecology, and social and ethnic development perspectives. This Law provides the State support transformed into different income support and structural measures. The Government of the Republic of Lithuania or other its designated institution regulate agriculture and food production by economic means, implement direct and compensatory payments, interventional purchases, promote export of agricultural products, use supply measures for cereals, flax, rape, and cows, and sets quotas. The state support is basically intended for agricultural producers: direct support (direct payments), indirect support (tax reductions), and general support programmes (education programmes, co-financing of foreign projects).

In 2002, the total amount spent by income support programs reached the level up to EUR 100 million. The detailed support structure by sectors, according to Lithuanian agricultural policy in 2002, is presented in Table 3.15.

Lithuania has already harmonized the majority of national legal acts according to the EU requirements and has declared its readiness to obtain the *ACQUIS Communautaire* and to meet all obligations related to the EU CAP policy jurisdiction. The present Law on agriculture has already stipulated substantial part of CAP mechanisms already. However, only a new plan of agriculture and rural development elaborated on the stage of draft provides the legal base not only to CAP, but also for sector's structural changes under the principles defined in the EU legislation as well as application of rural development policy and implementation of new mechanisms for financial discipline.

During the first three years after accession Lithuania, like new Member States, will have the option to grant direct payments in the following forms: 1) payments coupled with production (acreage or headage payments administrated on the base of IACS); 2) SAPS applied to agricultural area; or 3) decoupled farm payments, which can be introduced from 2005, but not later than in 2009.

Along with the official view of the Ministry of Agriculture of the Republic of Lithuania, the direct support will be administrated in the form of SAPS. To preserve Lithuania's interests, the distribution of complementary funds from National Budget should be dual: based on number of animals (EUR/unit) for the livestock sector and EUR/ha for the crop sector. This scheme a) enables to achieve the long-term priorities of the National Agricultural Policy, b) will increase the competitiveness of Lithuanian livestock sector and c) prevents from an artificial increase of the area of grasslands and pastures.

Table 3.15. Support measures by sectors in Lithuania in 2002

Sector	Income support measures
Crop	
Buckwheat, EUR/ha	101,4
Rye, EUR/ha	43,5
Legume, EUR/ha	8,7
Barley, EUR/ha	7,2
Interventional wheat purchases, EUR million	9,8
Private conservation, EUR/tonne	1,2-4,6
Total income support, EUR million	12,4
Livestock	
Suckler cow, EUR/unit	58-232
Slaughtered animal, EUR/unit	20-58
Slaughtered and sold to slaughterhouse animal, EUR/unit	49-87
Ewes, EUR/unit	14,5
Support for brood animal purchase, EUR million	1,0
Support for cattle Spongiform Encephalopathies prophylaxis, EUR million	1,6
Milk	
Controlled cow, EUR/unit	100
Non-controlled cow, EUR/unit	13
Support to milk producers, EUR million	16,2
Total income support, EUR million	32,5

Source: The Ministry of Agriculture of the Republic of Lithuania

There will be separate procedures of administration applicable for annual financial envelope coming from the EU budget (25% in 2004) and for complementary fund of national direct payments (up to 30% in 2004). The EU part of direct support will be paid in the form of SAPS calculated as dividing the annual financial envelope amounted for Lithuania in 2004 by the eligible agricultural land under single area payment. National complementary part of direct support (financed by national budget and rural development fund) will be administrated on the ground of specific financial envelopes calculated for arable crops, forage, starch potato, fibre flax, milk and animal sectors. In this case the separate rates of direct payments per hectare/per animal will be defined independently for each sub-sector mentioned above.

It should be noticed that after the year 2005, but not later than in the year 2009, the SAPS will be substituted by single farm payment scheme according to the CAP reform, which came into force on 26 June, 2003.

Harmonization of Lithuanian legislation with the EU CAP being accomplished, the single area payment scheme (SAPS) becomes the central principle of agricultural policy developing Lithuanian agriculture priorities and future perspectives.

3.4. Agricultural Sector in Three Baltic States

3.4.1. General Description of Agricultural Sector in Three Baltic States

The three post soviet states, Estonia, Latvia, and Lithuania, have overcome several crises during past fifteen years, which brought a set of structural, economic, and political changes in

these countries as well as to their agricultural sectors. Even after these fluctuations in the countries' economics, agriculture keeps its importance in economic and social life of the region, despite the share of GDP created in agricultural sector is decreasing over past years in all three countries. This share amounted to 3,5% (in 2001) of the total GDP in Estonia, 2,9% (in 2002) – in Latvia, and 5,7% (in 2002) – in Lithuania. The export of agricultural and food products in total export respectively reached 8% of the total export in Estonia, 10% – in Latvia, and 12% - in Lithuania.

In parallel with the decreasing agricultural production share in GDP, the dual population growth tendencies could be observed in Baltic countries. If the population engaged in agriculture in Estonia is quite small (5% of total engaged employees) and undergoes its increase period, the number of employed persons is stable (14%) in Latvia and decreases (from 23,1% in 1996 to 17,8% in 2002) in Lithuania. However, it should be noticed that one third of population in all three countries live in rural areas.

3.4.2. Land as the Object of Agricultural and Rural Development Policies

Land is an important issue in agricultural and rural development policies in all three countries. The role of land will be even more reinforced after the accession of the three Baltic States into the EU and adopting its CAP reform measures.

Lithuania's territory is the largest one and the land used for agriculture occupies even 60,6% of the total land area, whereas it reaches only 38,3% in Latvia and 31,6% (in 2000) in Estonia. The total area of agricultural land in Lithuania is 2542,2 thousand ha, in Latvia – 2228,7 thousand ha (in 2001), and in Estonia – 1433,1 thousand ha.

The EU CAP reform measures (their financing) are based on eligible land area, where the criteria being in good agricultural condition play the major role. The eligible land area becomes an important factor for the identification of agricultural sector support measures. Lithuania declared the largest area of land eligible (2288 thousand ha or 90 %) for diverse CAP measures, respectively: Latvia – 1402,2 thousand ha or 62,9 %, and Estonia – 800 thousand ha or only 55,8 %. It illustrates the high level of abandonment of the agricultural land in all three Baltic States, progressing in direction from south to north and from higher levels of state support for the sector, to lower levels. It has created real challenges for future rural development and environmental policies in the Baltic area.

3.4.3. Structure of Agricultural Production

The structure of agricultural output is changing over the countries. The crop output dominates in Lithuania, and its share within the total agricultural output is the biggest among the three Baltic States. The total agricultural output in Lithuania is the largest one, and 55% of its gross agricultural output belongs to the crop production. Even if crop production is dominant, the share of livestock production in total agricultural output is increasing over past years. Respectively, only 35% of gross agricultural output in Estonia and 46% - in Latvia is the crop production.

The structures of agricultural production in three countries are changing over the time. However, the main factor, influencing the differences in countries', is obvious – the price relation between crop and livestock production. Under this notice, it can be said that the agricultural production structure in Estonia and Latvia makes possible to create a higher value added than in Lithuania. So, Lithuania having the dominant share of crop production in gross agricultural output may seek for more livestock production development.

3.4.4. Farm Structure

The private sector plays the dominant role in Latvian and Lithuanian agricultures. The private sector in Latvia occupies close to 100% of agricultural land, in Lithuania - 57%, in Estonia – 100 %. However, 75% of the private land is leased in Lithuania. This situation is due to the slow land titling process. Moreover, about 80% of agricultural production comes from peasant farms and household plots in all three countries.

Farm structure is an important indicator representing structural efficiency of agricultural sector in the three Baltic countries. During the transition period farmers' and households' farms replaced state owned and collective farms in all three countries. However, this transition progressed in different levels in each country. Latvia has implemented an effective land property rights reclamation mechanism, so that today almost 100% of the total area managed by Latvian farms is private land. The slow land property reclamation process characterizes Lithuania. According to the data of Lithuanian Land Area Cadastre Centre, ¼ of all Lithuanian population rights to land property weren't restored in 2002.

Lithuania is the largest country in terms of agricultural land used by farms and number of agricultural farms. Farms (public and private) are very small in the managed land area in Lithuania. 82,7% of all farms (up to 10 ha) manage 35,0% of total agricultural land in Lithuania in 2003, when in Estonia 80% of all farms managed up to 10 ha each in 2001, and in Latvia 67% (up to 10 ha) of all farms managed 23,2% of all agricultural land in 2001. The large size farms are quite rare in all three countries. Only 3,0% of total agricultural holdings were larger than 50 ha in Estonia in 2000, 3,1% - in Latvia in 2001, and 1,8% in Lithuania in 2003. Thus, the average farm size in Estonia is 10,3 ha, in Latvia - 12,4 ha, and in Lithuania - 9,1 ha. However, the small farms managing the largest part of all agricultural land in all three countries produce the biggest part of the total agricultural output.

The facts presented above point out the importance of small farms in agricultural sector of the Baltic States. It means that agricultural policy measures in all three countries should be in straight line with both income support and structural strategies.

3.4.5. National Policy Harmonization with Current CAP and EU Legislation

The national legislation and national agricultural policies set priorities respected even under the full integration into the EU and the adaptation of *ACQUIS COMMUNAUTAIRE*. According to the national laws of Agriculture and rural development in three countries under consideration, the goals of agricultural policy are directed towards the quality of products and their competitiveness. Estonian agricultural policies point out also the importance of retaining agricultural production volumes and facilitation of organic production. Cost efficiency is a part of Latvian agricultural policy, and cooperation and market-orientation are the pillars of the Lithuanian one.

The state support in the three countries is based on income support and structural measures. In all countries the state support is basically intended for agricultural producers: direct support (direct payments), indirect support (tax reductions), and general support programs (education programs, co-financing of foreign projects). The total income support measures reached up to EUR 38,4 million (in 2002) in Estonia, EUR 24,4³ million in Latvia, and EUR 59,0 million (in 2002) in Lithuania.

The differences in national agricultural policies mentioned above are and will be further translated in terms of agriculture support measures and will serve as a basis of national interest being defended in the EU CAP transforming process. Actually, now all three countries have already harmonized the majority of national legal acts according to the EU requirements and have declared their readiness to obtain the *ACQUIS COMMUNAUTAIRE* and to meet all obligations related to the EU CAP policy jurisdiction.

During the first three years after accession, the three countries like other new Member States will have the option to grant direct payments in the following forms: 1) payments coupled with production (acreage or headage payments administrated on the base of IACS); 2) SAPS applied to agricultural area; or 3) decoupled or partially decoupled farm payments, which can be introduced since 2005, but not later than in 2009. According to the official view of Ministries of Agriculture of the three countries, the direct support under CAP will be administrated in the form of SAPS.

³ Total direct support in Latvia in 2002.

There will be separate procedures of administration applicable for annual financial envelope coming from the EU budget (25% in 2004) and for the complementary fund of national direct payments (up to 30% in 2004). The EU part of direct support will be paid in the form of SAPS calculated through dividing the annual financial envelope amounted for the Member Country in 2004 by the eligible agricultural land under single area payment. National complementary part of direct support (financed by national budget and rural development fund) will be administrated on the ground of specific financial envelopes calculated for arable crops, forage, starch potato, fibre flax, milk and livestock sectors. In this case the separate rates of direct payments per hectare/per animal will be defined independently for each sub-sector mentioned above.

It should be noticed that after the year 2005, but not later than in year 2009, the SAPS will be substituted by single farm payment scheme according to the CAP reform, which came in force on 26 June, 2003. The harmonization of legislation with the EU CAP being accomplished, the single area payment scheme (SAPS) becomes the central principle of agricultural policy developing three Baltic states agriculture priorities and future perspectives.

4. THE CORE OF CAP REFORM AND ITS QUANTITATIVE ASSESSMENT

4.1. The Core of CAP Reform

On 26 June 2003, the Council of Agricultural Ministers of the European Union (EU) adopted the fundamental reform of the Common Agricultural Policy (CAP), which makes “the beginning of new era” as Mr. Fischler said commenting the Council’s decision.

The core of CAP reform agreement comprises application of the following main policy measures [17]:

- Revisions to the market policy of the CAP;
- Decoupling via introduction of single payment scheme;
- Modulation;
- Compulsory cross-compliance.

Some of the measures proposed in the new CAP will not be absolutely new ones, such as the mechanism of reduction of intervention prices for certain products or modulation, which were already applicable within the framework of Agenda 2000 programme. However, other measures make the reform really fundamental, completely changing the way of the EU supports in agricultural sector by giving to EU farmers the freedom to produce what the market wants.

The essence of definite CAP policy measures mentioned is shortly described below.

Revisions to the market policy of the CAP

The market support parts of the CAP will be revised via:

- significant reforms in the intervention mechanism of sectors in order to avoid the structural imbalances. For instance asymmetric price cuts in the milk sector: the intervention price for butter will be reduced by 25% over four years, which is an additional price cut of 10% compared to Agenda 2000, for skimmed milk powder the 15% reduction over three years, as agreed in Agenda 2000, is retained. Additionally, rye is excluded from the intervention system.
- adjustments in support mechanisms in other sectors as durum wheat, drying aids, starch potatoes, dried fodder, nuts. In the dairy sector the compensation for intervention price cuts will be applied as fixed rates: EUR 8,15 per tonne in 2004, EUR 16,31 per tonne in 2005 and EUR 24,49 per tonne from 2006 onwards. In order to provide a stable perspective for dairy farmers, the Council resolved on prolongation of the reformed dairy quota system by the season 2014/15.
- a mechanism for financial discipline ensuring that the farm budget fixed until 2013 is not overshot.

All these measures will serve as a political tool for enhancing the competitiveness in agricultural sector, allowing the EU producers to respond to market signals and protecting them from extreme price fluctuations at the same time.

Decoupling via introduction of single payment scheme

In future the vast majority of subsidies will be paid independently from the volume of production. For this purpose the **single payment scheme** should be introduced in Member States from 2009 at the latest. At the same time in order to avoid abandonment of production, each country may choose to maintain a limited link between subsidy and production under well-defined conditions and within clear limits. However single payment scheme will replace most of the premia (direct aid payments to farmers) currently offered.

It is important to mention that the new support scheme should be definitely linked to application of environmental, food safety, animal and plant health and animal welfare

standards, as well as to the requirement to keep all farmland in good agricultural and environmental condition (“**cross-compliance**”).

Modulation

The distinguishing feature of the reform is that more funding will be available to farmers for environmental, quality or animal welfare programmes by implementation of modulation mechanism and reducing direct payments for larger farms by 3% in 2005, 4% in 2006 and 5% from 2007 onwards. Direct payments up to the amount of EUR 5000 per farm will remain free of reductions. However, every Member State will receive at least 80% of its modulation funds. It is also stressed that reduction of direct payments will not be applied in the accession countries until the direct payments reach the EU level.

Due to the tight budgetary ceiling for the EU-25 until 2013, ministers agreed to introduce a financial discipline mechanism, which will be carried out in order to keep CAP spending in line with strict budgetary ceilings. This means that direct aid will be adjusted when forecasts indicate that spending on the relevant areas of CAP will exceed the established ceilings, reduced by a safety margin of EUR 300 million.

Compulsory cross-compliance

The reformed CAP puts greater emphasis on cross-compliance. Hitherto cross-compliance was voluntary for Member States and applied to environmental standards only. **Cross-compliance is now compulsory.** All farmers receiving direct payments will be subject to cross-compliance. A ‘priority list’ of 18 statutory European standards in the fields of environment, food safety, and animal health and welfare has been established and farmers will be sanctioned for non-respect of these standards, in addition to the sanctions generally applied, through cuts in direct payments.

Beneficiaries of direct payments will also be obliged to maintain all agricultural land **in good agricultural and environmental condition**, in order to avoid land abandonment and subsequent environmental problems. Where a farmer fails to comply with such requirements, reductions in his payments will be applied as a sanction.

Control of cross-compliance requirements will be carried out on the basis of IACS (integrated administration and control system for certain EU aid schemes) with a high level of flexibility as regards the required control rates. This will ensure that control can rely on the existing mechanisms established in the fields concerned [17].

Describing the CAP reform it is important to stress that there are **some specific features in the application of new CAP policy measures in the case of accession countries, including Estonia, Latvia and Lithuania as well.**

The CAP reform in new Member States will be implemented in line with the financial framework of the Act of Accession. However the new CAP reform package made significant changes to the *acquis* on which the accession negotiations were based. Therefore in order to adapt both the Act of Accession and the CAP reform texts before the accession the Commission has prepared a legislative proposal for a Council Decision adapting the Act of Accession to the Treaties on which the European Union is founded, following the reform of the common agricultural policy.

According to the CAP reform decision, in the EU-15 a decoupled Single Payment Scheme (SPS) will be introduced from 2005 onwards. However, the proposal maintains the option for the new Member States to apply a hectare-based **Single Area Payment Scheme (SAPS)** and makes the technical adjustments necessary for it to apply in the form negotiated. The proposal foresees that new Member States applying the SAPS move directly from that to the new SPS, rather than backwards to the classical direct payment scheme. The new SPS will be implemented by granting uniform per-hectare entitlements to any region from regional financial envelopes (the level of the per-hectare payment would be calculated by dividing the regional envelope by the regional utilised agricultural area, minus areas of permanent crops and forests).

The regional envelopes would be calculated by dividing the national envelope among regions. A national reserve, out of which additional entitlements could be granted for specific issues of the sector, would be set at 3% of the national ceiling, as for the current Member States. Additional resources could also be channelled to farmers in specific sectors such as organic farming.

For the dairy sector the proposal includes additions and modifications to take account of the fact that the CAP reform replaces the regulation establishing a levy in the dairy sector with a new regulation and amends the regulation on the common market organisation for milk and milk products with the annex setting **higher amount of additional payments** for milk.

On **cross-compliance**, farmers in the new Member States will become subject to the CAP reform rules from 2005 onwards. However for those new Member States, which choose to apply the SAPS, the existing cross-compliance arrangements of the “old” CAP will remain as a baseline, but the new CAP reform rules are not compulsory. Instead, they are optional under the SAPS from 2005 onwards.

The mechanisms of **financial discipline** and **modulation** should not be applicable to the new Member States until the phasing in of direct payments in those countries has reached the EU level.

4.2. Simulation Scenarios for Analysis of CAP Reform

Scenarios elaborated in the present study describe several possibilities for further development of Baltic agriculture and rural areas in the context of the EU enlargement and CAP reform.

In a view of all legal EC documentation it would be relevant to assume two main scenarios for quantitative assessment of CAP reform on the sector and farm level:

- **A** (“*Agenda 2000*”). The scenario assumes that after year 2006 the negotiation results accepted in Copenhagen will be applied in all new Member States (including Estonia, Latvia and Lithuania) on the basis of unchanged CAP rules from “**Agenda 2000**” programme. Direct payment rates will increase gradually as phasing-in rates from 65% of EU support level in 2006 to 100% - in 2010 (see Table 4.2).
- **R** (*the outlines of CAP reform*). The scenario assumes that as early as in year 2004, according to the statements of the Council Regulation (EC) No 1782/2003 the CAP reform will be carried out in the EU, which will have the impact also on the new Member States (including Estonia, Latvia and Lithuania). The scenario implies more substantial drop of institutional prices for agricultural products (mostly for dairy products) and higher compensatory payments for milk and protein crops.

In 2013 direct payments in the new Member States (including Latvia, Estonia and Lithuania) will reach the EU level with 100% EU funding (see Table 4.2). According to the official EC documents only in case of equal direct support level the modulation measure could be applied in the new Member States. Modulation mechanism implies that all direct payments beyond certain amounts to be granted to a farmer should be reduced by a certain percentage each year. The savings made should be used to finance measures under the rural development and allocated between Member States according to objective criteria to be defined. This will help to achieve balance between policy tools designed to promote sustainable agriculture and those designed to promote rural development. As the support payments will be reduced only for concrete farms (not the whole sector) receiving more than EUR 5000 of direct payments, the modulation effect might be assessed in detail on the level of agricultural farms only. Therefore it would be much more relevant to evaluate the modulation mechanism on the base of FADN farm data by calculating the additional scenario **R 2013**, which is certain derivation of **R** scenario applicable for the farms after 2012.

FADN database was also used for evaluation of the Single Area Payment Scheme (SAPS), which might be introduced in Baltic States since the accession (in 2004) as it was assumed for the calculations as well. That is why the specific hectare payment rates should be used instead

of direct support rates for the calculations on the farm level according to **R** scenario (see Table 4.1).

Table 4.1. Support rates relevant within the application of Single Area Payment scheme in Baltic States for different years, EUR/ha

Country	2006	2010 and 2013
Estonia	81,20	124,9
Latvia	62,61	96,89
Lithuania	103,03	159,13

Source: Calculations of EMoA, JTAC, LSIAE and LAEI

The above mentioned single area payment rates are calculated for each country separately dividing the total national envelope of direct support (including additional payments and national envelopes) by the amount of hectares of eligible agricultural land.

Table 4.2 DP rates applicable in calculations according to the scenarios assumed, %

DP level for CC	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013*
A and R scenario	55	60	65	70	80	90	100	100	100	100
Share of EU budget	25	30	35	40	50	60	70	80	90	100

Source: Accession treaty (<http://www.kum.hu/eu/angol/aa00012.en03.doc>)

* The calculations for the year 2013 could be done within the **R** scenario on the level of farms only in order to consider the effect of modulation measure

Dairy premium for milk in the case of **A** scenario will increase from EUR 5,75 per tonne in 2005, EUR 11,49 per tonne in 2006 to EUR 17,24 per tonne in 2007 and onwards. Farm gate price (FGP) levels (excluding milk price, which will be reduced according to the decrease of target price for milk⁴) and reference amounts will not be changed for the whole simulation period from 2006 to 2013.

In the case of **R** scenario the level of milk prices will decrease due to intervention price cuts for butter (EUR/100kg):

- 1 July 2000 to 30 June 2004: 328,20
- 1 July 2004 to 30 June 2005: 305,23
- 1 July 2005 to 30 June 2006: 282,44
- 1 July 2006 to 30 June 2007: 259,52
- from 1 July 2007: 246,39

and skimmed milk powder (EUR/100kg):

- 1 July 2000 to 30 June 2004: 205,52,
- 1 July 2004 to 30 June 2005: 195,24,
- 1 July 2005 to 30 June 2006: 184,97,
- from 1 July 2006: 174,69⁵.

. At the same time dairy premium will gradually increase from EUR 8,15 per tonne in 2004, EUR 16,31 per tonne in 2005 up to EUR 24,49 per tonne from 2006 and onwards as a compensation to the intervention price cuts.

⁴ Council Regulation 1999R1255 Article 3

⁵ Council Regulation (EC) No 1787/2003 amending Regulation (EC) No 1255/1999 on the common organisation of the market in milk and milk products

Crop production will be subject to changes of direct support level only due to the increase of support rate for protein crops (see Table 4.4).

According to the scenarios described above the simulations will be provided for the years 2006, 2010 and 2013. The year 2013 is analysed as the year, when modulation mechanism can be applied to the new Member States. The year 2001 will be the base year for the calculations, because more recent information through all countries and wide range of data taken from the Statistical census are available for 2001.

All scenarios mentioned are designed on the ground of the following assumptions:

1. Standard direct support scheme will be implemented in Baltic States after the EU enlargement for managing of the EU budgetary support (see Table 4.4).
2. After the EU accession, the new Member States (Estonia, Latvia, Lithuania) will supplement the EU support from national budget and partly from Rural Development fund, which means that direct support payments will be applied at the maximum allowed level (according to the Accession Treaty). Therefore the EU level of direct support in the new Member States will be achieved already in 2010.
3. Phasing-in rates should be applied not only to direct payments, but also to the additional payments (milk, beef) and national envelopes (sheep), stated by the Accession Treaty for each country (see Table 4.3).

Table 4.3. Additional payments and national envelopes in Estonia, Latvia and Lithuania for 2006 and 2010, thousands of EUR

Indicator	Estonia	Latvia	Lithuania
Additional payments for milk	6 876,00	7 656,00	18 133,00
Additional payments for beef	1 134,51	1 330,68	4 942,27
National envelope for sheep	51,00	19,00	18,00

Source: Accession Treaty; proposal for a Council Decision

4. The levels of farm gate prices are different for Latvia, Lithuania and Estonia in the base year (2001), however for the years 2006 and 2010 the alignment of price levels will be assumed on the base of country specific growth rates since 2001. It is assumed that price level in Baltic States will achieve the average EU level in 2006.
5. In both scenarios the levels of input prices for 2006 and 2010 will increase according to the input price change coefficients assumed:

– Seeds	1,20;
– Feedingstuffs	1,20;
– Electricity and energy for heating	1,35;
– Motor fuels and lubricants	1,10;
– Fertilisers and soil improvers	1,00;
– Plant protection products and pesticides	1,00;
– Veterinary expenses	1,50;
– Others	1,10.

Price change coefficients for seeds and feed from agricultural holdings were calculated individually for each country taking into account changes in the level of farm gate prices for products analysed in this study (see Table 4.5).

The above mentioned input price change coefficients will be applied to input prices for the base year 2001.

6. Among all rural development measures applied only implementation of LFA measures will be taken into consideration.

Table 4.4. Support levels according to scenarios A and R applicable in Baltic States for the years 2006 and 2010

Indicator	Measure	Support per unit 100% Agenda 2000		Support per unit 100% CAP reform	
		2006	2010	2006	2010
Field crops: wheat, rye, barley, oats, other cereals, rape, flax	EUR per tonne	63		63	
Protein crops	EUR per tonne	72,5		63	
Aid for protein crops	EUR per hectare	-		55,57	
Dairy premium	EUR per tonne	11,49	17,24	24,49	
Special beef premium	EUR per animal	210		210	
Suckler cow premium	EUR per animal	200		200	
Veal (1-7 months) slaughter premium	EUR per animal	50		50	
Beef slaughter premium	EUR per animal	80		80	
Extensification premium	EUR per animal	100		100	
Sheep and goat premium	EUR per animal	21		21	

Source: Council Regulation (EEC) No 1253/99, Council Regulation (EC) No 1784/2003, Council Regulation (EC) No 1255/1999, Council Regulation (EC) No 1255/1999, Council Regulation (EC) No 1787/2003, Council Regulation (EC) No 1254/1999, Council Regulation (EC) No 2529/2001.

Evaluation of the price effect according to scenarios described above is carried out by calculation of several price change coefficients, which are calculated on the base of institutional price shifts and which express the changes in price levels for Estonia, Latvia and Lithuania between years 2001, 2006, 2010 and 2013 (see Table 4.5).

Table 4.5. Actual farm gate prices and price change coefficients in Lithuania, Latvia and Estonia for the years 2001, 2006 and 2010

Products	Actual FGP in 2001, EUR/t			Price change coefficients for A scenario 2006/2001			Price change coefficients for R scenario 2006/2001			Price change coefficients for A scenario 2010/2006	Price change coefficients for R scenario 2010/2006
	Lithuania	Latvia	Estonia	Lithuania	Latvia	Estonia	Lithuania	Latvia	Estonia	Lithuania, Latvia, Estonia	
Wheat	113,2	91,9	104,96	0,986	1,215	1,064	0,986	1,215	1,064	1,000	
Rye	96,4	83,6	88,6	1,059	1,221	1,153	1,059	1,221	1,153		
Barley	110,9	85,3	93,9	0,896	1,165	1,059	0,896	1,165	1,059		
Oats	86,9	84,4	80,2	1,236	1,273	1,340	1,236	1,273	1,340		
Other cereals	96,4	96,6	88,5	0,941	1,190	1,061	0,941	1,190	1,061		
Rape	215,8	194,2	237,7	1,047	1,164	0,951	1,047	1,164	0,951		
Milk	132,4	149,2	196,24	2,068	1,834	1,395	1,723	1,528	1,162	0,936	0,978
Beef	1220,6	1295,4	1443,95	2,025	1,908	1,711	2,025	1,908	1,711	1,000	
Pork	1256,8	1663,5	1841,20	1,216	0,919	0,830	1,216	0,919	0,830		
Sheep	2324,6	1683,4	1491,58	1,099	1,518	1,713	1,099	1,518	1,713		
Poultry	1390,0	1434,9	1360,76	1,211	1,173	1,237	1,211	1,173	1,237		

Source: Calculations of EmoA, JTAC, LSIAE, LEAI

Calculations of institutional milk prices for year 2006 and 2010 were based on milk production technology from butter and skimmed milk powder and intervention prices for the above-mentioned products stated in Council Regulation (EC) No 1787/2003.

4.3. Methods and Analytical Approaches Applied: General Assumptions and Restrictions

The development perspectives of the agricultural sector in Baltic States were analyzed in accordance with the above-mentioned scenarios, applying:

1. **The analysis of changes in income structure of agricultural sectors using the results of the 2001 Economic Accounts for Agriculture (EAA)** for Estonia, Latvia and Lithuania with potential changes in input and output prices taken into account as well as the change of support policy measures on the condition that the agricultural production structure will not be changed in the future;
2. **The calculations of changes in farm income using information for the year 2001 from the FADN data base of Estonia, Latvia and Lithuania** to forecast the results of activities for farms of different specialization and taking into account the changes in the levels of producer prices and support policies. These calculations follow the precondition that the structure of farms and production level will not change in future;
3. **The static partial equilibrium econometric model for the agricultural sector (LASIM, which is a version of CEEC-ASIM⁶ model adapted for the needs of Baltic States)**, which projects changes in the structure of agricultural supply and demand as well as development of the sector on the basis of expecting a rational and gradual reaction of the producing entrepreneurs to changes in the economic environment, attempting to maximize their gains (profit) as well as shifts in producer and consumer surpluses and budgetary outlays.

Overall, the development of the agricultural sectors in Baltic States was evaluated for the years 2006 and 2010 as well as the year 2013 for measurement of the modulation effect on farm level, taking into account the analytical and forecast possibilities of each analytical tool. However it is important to emphasize that all methods applied are based on the static analytical approach, which gives possibility to simulate the policy effects with minor changes in production structures.

Besides, the base period for the calculations was the year 2001, which was characterized by:

- The situation in agriculture of Estonia, Latvia and Lithuania (output, input and expenditures),
- The consumption level and the volume of foreign trade;
- The current situation and forecasts for the development of the European and world markets;
- Applying of the agricultural support policy in Baltic States before and after implementation of CAP reform.

4.3.1. Implementation of EAA Methodological Approach.

Economic Accounts for Agriculture (EAA) data base tables are the quantitative reflection of the whole agricultural sector of a particular country, which gives the exact picture of the sector economic situation showing the production structure and sector incomes. Therefore it is highly relevant to use such tool in order to analyse the impact of the CAP reform implementation.

EAA approach implies that CAP reform impact analysis is carried out by applying the new policy quantitative regulations on the unchanged production structure and its yield indicators

Central and Eastern European Countries' Agricultural Simulation Model (CEEC-ASIM), developed by Prof. Klaus Froberg in IAMO Institute (Germany)

reflected in EAA tables for the base year 2001. Moreover quantitative assessment of the reform using EAA approach was carried out on the base of two main scenarios, which were described in chapter 4.2.

According to the assumptions mentioned in scenario description the following inputs were changed in EAA tables for 2001:

- *National Farm-gate prices* (producer prices). Producers prices were multiplied by price change coefficients calculated for different scenarios.
- *Intermediate consumption prices*. Input prices were changed by applying input price change coefficients.
- *Sown areas*. Actual sown areas for 2001 were slightly reduced according to reference levels stated in the official documents.
- *Direct support rates*. Actual direct payment rates in EAA tables for 2001 were replaced by EU rates according to official documents.

It is important to underline that specificity of EAA approach gives possibility to evaluate the introduction of SAP (decoupling) by assuming that the total amount of national envelope will be available for the country without taking into account the actual volumes of production. In order to compare the application of standard (**A** scenario, where direct support will be fully related to actual production amounts) and single area payment (**R** scenario, where total financial envelope will be granted for support of producers) schemes, the support payments for 2010 in **R** scenario were calculated on the basis of the reference amounts stated by Accession Treaty. In case of standard scheme (**A** scenario) financial envelope will be used only partly according to the actual amounts of agricultural production for the base year.

Policy changes in the respect of CAP reform were analyzed by evaluating outputs of EAA tables. According to the EAA methodology⁷ output items were calculated as follows:

- *OUTPUT OF THE AGRICULTURAL INDUSTRY =*
CROP OUTPUT AT BASIC PRICES
 + *ANIMAL OUTPUT AT BASIC PRICES*
 + *NON-AGRICULTURAL SECONDARY ACTIVITIES (INSEPARABLE)*

Non-agricultural secondary activities remained at the level of 2001 and were used as a constant in all calculations.

- *GROSS VALUE ADDED AT BASIC PRICES =*
OUTPUT OF THE AGRICULTURAL INDUSTRY
 - *TOTAL INTERMEDIATE CONSUMPTION*

Correspondingly to EAA methodology total intermediate consumption was calculated by summing all its items.

- *FACTOR INCOME =*
GROSS VALUE ADDED AT BASIC PRICES
 - *FIXED CAPITAL CONSUMPTION*
 - *OTHER TAXES ON PRODUCTION*
 + *OTHER SUBSIDIES ON PRODUCTION*

Consumption of fixed capital was not changed and therefore remained stable in case of both scenarios for all years. Other subsidies on production were represented by LFA payments, which were unchanged during all years of simulation as well.

In order to evaluate changes in the sector income structure after the implementation of the CAP reform Factor income was divided into three components:

⁷ Manual on the economic accounts for Agriculture and Forestry EAA/EAF 97 (Rev. 1.1)

- *NET VALUE ADDED AT FACTOR COST WITHOUT SUBSIDIES* – represents income from sales of agricultural production or market revenues. This indicator is calculated by subtracting product related subsidies and other production related subsidies from Factor income.
- *DIRECT PAYMENTS* (including additional payments and national envelopes) – represent sector income from direct support on certain products.
- *OTHER PRODUCTION RELATED SUBSIDIES* – represent LFA payments.

Evaluation of Factor income and its components makes it possible to analyse which sector income parts (market income or direct payments) are the most affected by CAP reform implementation. LFA payments are analysed only in terms of its share in Factor income, as they remain unchanged in both scenarios for all simulation years.

4.3.2. Methodological Approach for Farm Income Analysis

FADN is only a harmonized source of micro-economic data, an instrument for evaluating the income of agricultural holdings and the impacts of the Common Agricultural Policy, carried out in the Member States and acceding countries: Estonia, Latvia and Lithuania. Therefore it is an important tool to be used for evaluation of CAP reform at farm level in Baltic countries.

Comparing the data availability among the Baltic countries for different farm groups in 2001 (see Table 2 in annexes), it was decided to carry out the evaluation of farms' income for the following groups of farms, which are varied by type of farming - field cropping, grazing livestock, mixed and average farms, as well as by their eligibility for LFA payments - farms located on less favoured areas and farms outside the LFA territories.

For the purpose of valuation it was assumed that:

- Structure of farms, technical parameters and production level would not change in the future (in the years 2006, 2010 and 2013);
- The standard scheme for the administration of direct support will be applied only in A scenario assuming unchanged CAP policy in accordance with “Agenda 2000” programme;
- Single area payment scheme (SAPS) will be introduced in Baltic countries from 2006. Country specific support rates will be applied to agricultural farms (see Table 4.1 in Chapter 4.2);
- After accession all farms would apply for the EU direct support, including support from National envelopes and LFA payments.

Farm output was calculated according to the definition of FADN standard results:

- $FARM\ OUTPUT =$
 $SALES$
 $+ FARM\ USE$
 $+ FARMHOUSE\ CONSUMPTION$
 $+ (CLOSING\ VALUATION - OPENING\ VALUATION)$

Price change coefficients were applied to the output value assuming that all output components would have the same price change impact.

The set of prices on agricultural outputs was adjusted by output price change coefficients reflected in Table 4.5 of Chapter 4.2 for simulation years 2006 and 2010.

Calculation was done for the following agricultural products:

- Products which were subjects of elaborated scenarios:
Crop production: wheat, rye, barley, oats, other cereals, pulses, rape, flax.
Livestock production: milk, beef, sheep meat.
- Products which were not a direct subject of elaborated scenarios, but possible impact of price changes were taken into account for them:

Crop production: sugar beet, potatoes.

Livestock production: pork, poultry, eggs, honey.

Input price changes were assumed for the following items:

- Agricultural origin: seed and feed.
- Industrial origin (outside agriculture): fertilizers, plant protection, veterinary and insemination, fuel and lubricants, electricity, heating, services

In order to evaluate the impact of agricultural policy reform on farm level the following indicators were taken into account:

- Output value (in crop, livestock and other production);
- Support measures for farms (product and product related - excise tax compensation, LFA payments);
- Inputs of agricultural production (origin in agriculture and other inputs)

Net value added (NVA) and net value added per annual work unit (NVA/AWU) were used as the most appropriate indicators to assess the impact of EU policy changes ensuring comparability of various farms (differentiated by size or labour input) in different countries.

It is important to underline that modulation effect was assessed on farm level only for the year 2013 for all Baltic States according to assumptions of **2013 R** scenario, reducing all amounts of direct payments by 5 % for each farm, which exceeds the annual amount of direct support over EUR 5000.

4.3.3. Implementation of Static Modelling Approach

LASIM model as a tool of CAP reform analysis is a partial equilibrium static simulation model of the agricultural sector. It gives possibility to measure the agricultural policy effects on producers (such as calculation of producer surpluses), consumers (consumer surplus) and budgetary expenditures for support to agriculture. The model is built on the equilibrium principle between agricultural product supply and food product demand as one of the important macro economic proportion in a country. Consequently if there is no balance among domestic supply and domestic demand, the certain amount of agricultural products should be imported or exported. At the same time the capacity of external markets is not restricted.

The static feature of *LASIM* model implies making forecasts by transformation of the static situation in starting year into the static situation for concrete simulation year on the ground of definite assumptions about development between starting and simulation years. The model does not simulate the time period between the starting and simulation year. However the mechanisms of price (income) elasticities imposed in the model gives possibility to modify the production structures (consumption patterns) as a response on price and support policy changes taking as a basis the structures of starting year.

The modelling of supply and demand on the basis of price responses requires determination of the levels of incentive prices for all list of products analysed in the study. The level of incentive price is calculated by adding the governmental support incentives to the level of farm gate price as is expressed in formula (4.1).

$$P_i^{inc} = FGP_i + (mult^D \cdot SUB_i^D) + (mult^I \cdot SUB_i^I) \quad (4.1)$$

Where

P_i^{inc} - incentive price for product i; i – type of product; FGP_i - farm gate price for product i; $mult^{D,I}$ - multipliers of value 0,9 and 0,5 assumed correspondently for direct and indirect subsidies; $SUB_i^{D,I}$ - direct or indirect subsidies paid per unit of product i.

Dividing the governmental support into two parts – direct and indirect, as well as calculation mechanism of incentive price becomes the basis for imposing the decoupling measure of CAP reform into the model.

The Single Payment Scheme (SPS) is going to be introduced in 2009 at latest in new Member States including the Baltic. In this case the direct support will become more decoupled from the production that could be formalised as transformation of direct support into indirect in the LASIM model, implying that indirect support measures will have less impact on production or producers' incentives to produce a definite product.

For that reason in the case of “A” scenario the governmental support will be imposed in the model through the calculation of incentive prices including direct and indirect support rates for each product in both simulation years (2006 and 2010).

In the case of “R” scenario, when decoupling measure will be applied from the year 2009, all direct support will be transformed into indirect for calculation of incentive price level for the year 2010.

Thus certain theoretical features (principles) of the LASIM model's construction define specific limitations for agricultural sector analysis:

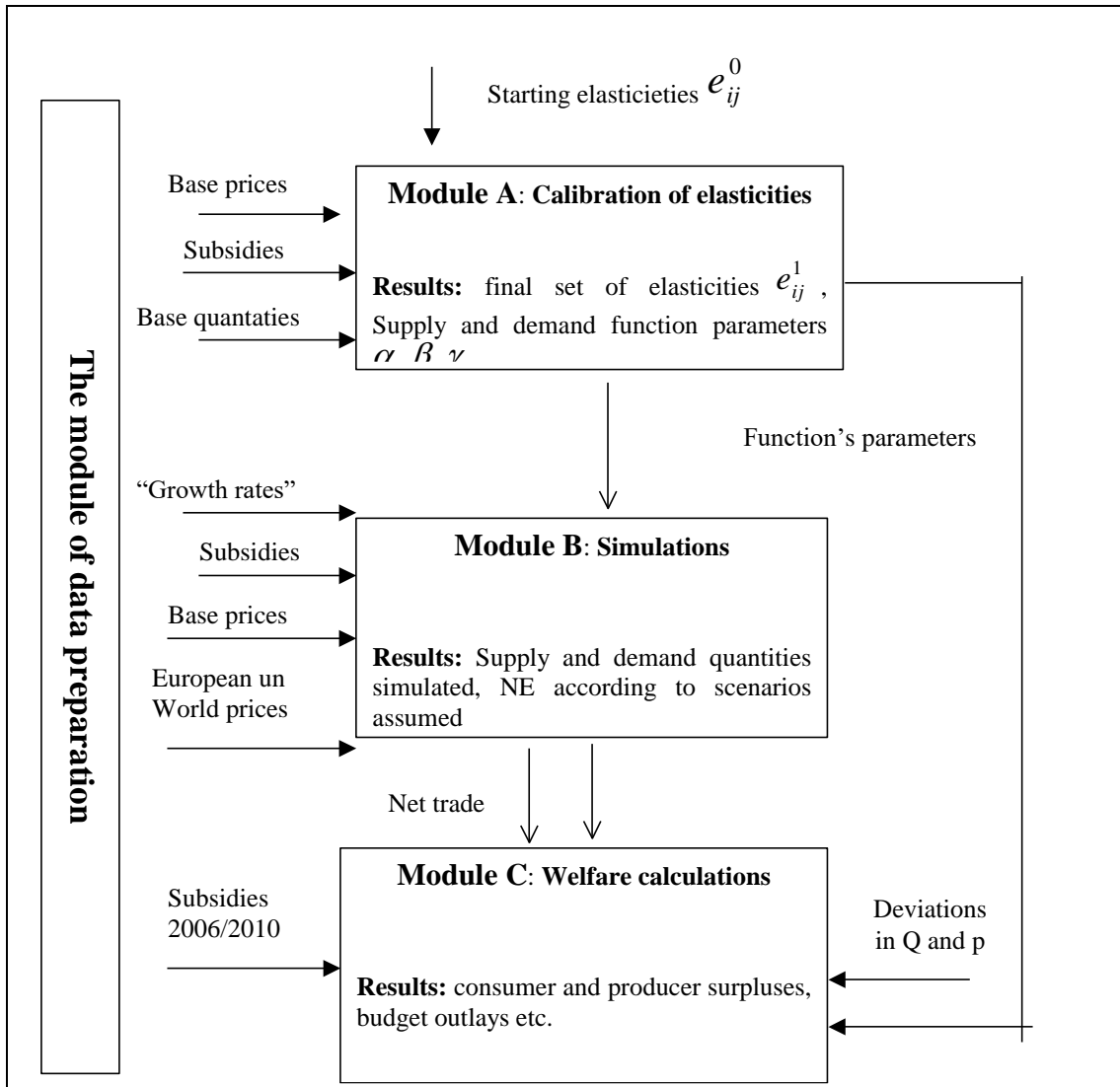
1. the balance between supply and demand is simulated only within a single separate agricultural sector;
2. The supply levels and production structure are determined by responses on incentive price level taking into account price elasticities for supply side of the model;
3. The demand of food products and consumption structure are determined by responses on retail price level taking into account price and income elasticities for demand side of the model;
4. The product quality issues are not taken into consideration;
5. The potential export or import quantities are not limited.

The structure of LASIM model is based on three main modules: Calibration of elasticities (Module A), Scenario simulation module (Module B) and Welfare calculations (module C) reflected in Figure 4.1.

In Module A the impact of price and income changes on agricultural product supply and agricultural and food product demand is formalized through the calculation of price and income elasticities for supply and demand parts of the model. The final (calculated) set of elasticities is assessed on the base of initial set of elasticities taking into account three theoretical conditions: symmetry, homogeneity and curvature.

In Module B all simulations for the years 2006 and 2010 are carried out according to scenarios assumed (see scenario description in chapter 4.2). As simulation results, the supply, demand and net export quantities are assessed for products analysed in the present study on the basis of assumptions about price changes according to each scenario (“A” and “R”).

Figure 4.1. Structure of LASIM model



The module C gives possibility to calculate the level of economic welfare through three main indicators, such as producer and consumer surpluses as well as budget expenditures including the amount of export subsidies and support (direct and indirect) to agricultural producers.

Application of mathematical model in the economic analysis and forecasting sets up rather strict requirements to the input data used. That is why the data collection module plays a quite important role in the modelling process.

The following input data flows were collected and prepared for modelling about agricultural sector in each Baltic State:

1. The level of national producer and consumer prices on agricultural and food products and resources, as well as the level of volume of domestic production and consumption for the base (2001) year. These data mostly came from national statistic bureaus and national EAA (see Table 3 in annexes);
2. Data about governmental support measures (EU and national) for starting (2001) and simulations (2006 and 2010) years were evaluated as direct and indirect subsidies by

each national institution engaged in the present project⁸ (see Table 4 and Table 5 in annexes);

3. The annual growth rates for European producer prices and world market price levels from the year 2001 to the years 2006 and 2010 were assumed on the base of official documents issued by European Commission, EuroStat data and FAPRI world market price projection (see Table 6 and Table 7 in annexes). The same level of the assumed EU and world prices was applied in simulations for Estonia, Latvia and Lithuania;
4. Data about number of inhabitants, income of population and structure of the expenditures of populations were used from the national statistic bureaus of the countries (see Table 8 in annexes);
5. Growth rates of technical progress, food expenditures, income of population were assumed on the same level for all three Baltic countries (see Table 6 and Table 7 in annexes).

4.4. The Assessment Results of CAP Reform Implementation According to the Scenarios

4.4.1. Analysis of the Results of Calculations Based on EAA Approach

The analysis of the CAP reform implementation impact on Baltic States using EAA methodological approach is carried out taking into account two main factors: prices and direct support payments. All calculations are based on the assumptions and scenarios described in chapter 4.2. Furthermore the effect of *modulation* is not taken into consideration in the EAA methodological approach.

In order to evaluate changes in the development of agricultural sector of Latvia before and after implementation of the CAP reform the following economical indicators would be analysed:

- Output of the agricultural industry.
- Total intermediate consumption.
- Factor income, of which:
 - Net value added at factor cost without subsidies.
 - Direct payments (including additional payments and national envelopes.
 - Other production related subsidies.

The calculation of Factor income and its components makes it possible to analyse the structure of sector income affected by CAP changes in terms of production and government support.

4.4.1.1. Analysis of the Results of Calculations Based on EAA Approach for Estonia

The analysis of EAA data showed the gain by Estonian agricultural sector in whole, comparing with 2001 situation, while applying both A (based on “*Agenda 2000*”) and R (based on the CAP reform proposals) calculation scenarios. However market revenues in R scenario for the year 2006 could be by EUR 4,5 million lower than in 2001 showing that the EU accession could negatively affect Estonian agricultural sector in terms of prices and reduce income from sales of agricultural production below the level of the year 2001.

Impact of the CAP reform implementation in 2006

⁸By Janeda Training and Advisory Centre for support calculation in Estonia, Latvian State Institute of Agrarian Economics – for support calculations in Latvia, Lithuanian Agricultural Economic Institute – for support calculations in Lithuania

Comparison of R scenario results with those of A scenario shows the negative impact of the CAP reform in 2006, as well. Due to the CAP changes output of the agricultural sector in the R scenario (comparing with the A scenario) could be lower by EUR 18,6 million (or by 3,3 %, see Table 4.6).

Table 4.6. Deviations in the level of agricultural sector economical indicators in Estonia for 2006 and 2010, deviation from A scenario

Indicator	2006		2010	
	EUR thou	%	EUR thou	%
Output of the agricultural 'industry'	-18 566	-3,3	6 281	1,1
Total intermediate consumption	0	0,0	0	0,0
Net value added at factor cost without subsidies	-25 798	-16,5	-18 796	-12,8
Direct payments including national envelopes	7 232	15,9	25 077	33,5
Other production related subsidies (including LFA payments)	0	0,0	0	0,0
Factor income	-18 566	-8,7	6 281	2,7

Source: Estonian MoA

Market revenues (Net value added at factor cost without subsidies) in Estonia for the year 2006 in R scenario could be by EUR 25,8 million (or 16,5 %) lower compared with the A one. Such results show the negative effect of price cuts for milk products (Council Regulation (EC) No 1787/2003). The increase in direct payments by EUR 7,2 million (by 15,6 %) could be insufficient to compensate the decline in the level of income from sales of agricultural production, which will lead to substantial decrease in the level of Factor income by EUR 18,6 million (or by 8,7 %).

According to the results of forecasts the structure of the sector income will not change so essentially. As a result of CAP reform implementation the share of direct payments would go up by 5,7 percentage points, the share of LFA payments – by 0,5 percentage points. The share of market revenues in Factor income will decrease by 6,2 percentage points (see Figure 4.2).

Impact of the CAP reform implementation in 2010

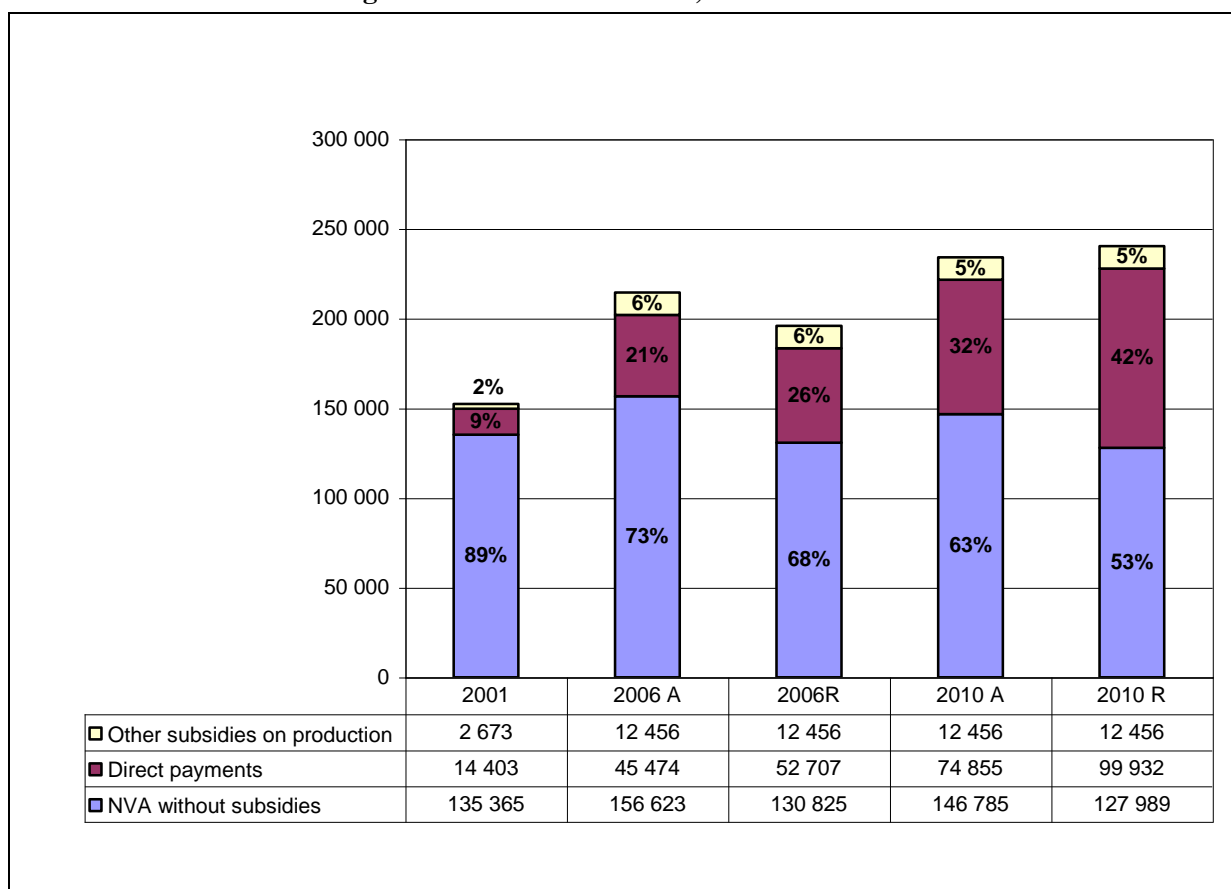
The results of calculations for the year 2010 differ from the results of the year 2006. As presented in Table 4.6, the policy reform will quite positively affect the agricultural sector of Estonia, the output of the agricultural sector could rise by EUR 6,3 million. According to the statements of Council Regulation (EC) No 1787/2003 after 2006 only butter will be subject to price cuts (the price for skimmed milk powder will not change after July 1, 2006). As a result income from sales of agricultural production will fall by EUR 18,8 million (by 12,9 %).

Due to the assumption made for the calculations in 2010 in the case of R scenario full envelope of direct payments agreed in Accession Treaty would be available. This could lead to a growth in direct payments of EUR 25,1 million (33,5 %), which will fully compensate the decrease of Net value added at factor cost without subsidies caused by institutional price cuts. The Factor income in Estonia in R scenario, compared with A scenario, will go up by EUR 6,3 million (2,7 %).

The share of LFA payments would not change. The share of Net value added at factor cost without subsidies will go down by 9,5 percentage points in Estonia; however, the share of direct payments would increase by 9,7 percentage points.

The analysis above shows the positive results to the Estonian agricultural sector by the CAP reform only after the year 2006.

Figure 4.2. Changes in structure of Factor income in Estonia for the years 2006 and 2010 according to the different scenarios, thousands of EUR



Source: Estonia MoA

4.4.1.2. Analysis of the Results of Calculations Based on EAA Approach for Latvia

Comparison of market revenues represented by the indicator Net value added at factor cost without subsidies for the simulation years 2001 and 2006 in case of both scenarios clearly illustrates the assumption that prices in Latvia will achieve the average level of EU prices in 2006 (see Figure 4.3). The difference between market revenues in 2001 and 2006 under R scenario is EUR 88,6 million, which shows the huge gap between the price levels in Latvia and the EU.

However in order to analyse the pure reform effect it is necessary to separate it from the impact of the accession, which will be able itself to affect Latvian agriculture considerably. For that reason all further analysis was carried out following the idea of comparing two different scenarios as development based on unchanged CAP policy according to “Agenda 2000” principles (A scenario) and development based on the main principles of CAP reform (R scenario).

Impact of the CAP reform implementation in 2006

Due to policy changes causing strong reduction of milk prices, the output of agricultural industry in the R scenario could be by EUR 23,8 million lower than the same indicator in the base scenario A (see Table 4.7). Since there are no differences assumed in price levels for crop production and agricultural input items between two scenarios (see chapter 4.2) the intermediate consumption will remain stable in case of both scenarios simulated.

Table 4.7. Deviations in the level of economical indicators for Latvian agricultural sector in 2006 and 2010 for R scenario compared with A scenario

Indicator	2006		2010	
	EUR thou	%	EUR thou	%
Output of the agricultural 'industry'	-23 811	-3,4	14 033	2,0
Total intermediate consumption	0	0	0	0
Net value added at factor cost without subsidies	-30 620	-11,1	-22 309	-8,4
Direct payments (including additional payments and national envelopes)	6 808	10,7	36 342	35,9
Other production related subsidies (including LFA payments)	0	0	0	0
Factor income	-23 811	-5,6	14 033	3,1

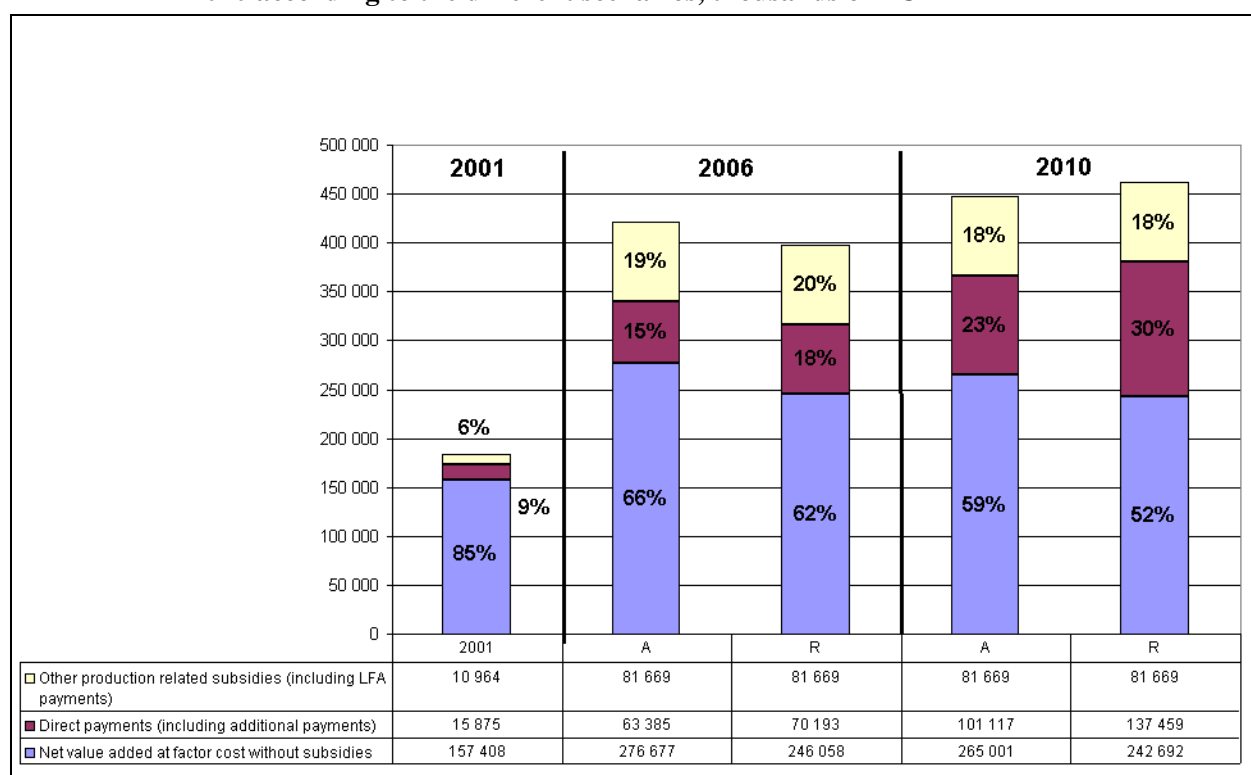
Source: LSIAE calculations

As it is shown in the Table 4.7 net value added at factor cost without subsidies for the year 2006 in **R** scenario could be by EUR 30,6 million lower compared to **A** scenario. Such results reflect the negative effect of price cuts for milk products (such as skimmed milk powder and butter) proposed by the EC (see chapter 4.2).

At the same time the increase of direct payments in dairy sector by EUR 6,81 million could be insufficient to compensate the decline in the level of income from the sales of agricultural products. The decrease in market revenues of agricultural producers will cause substantial decrease in the level of Factor income by EUR 23,8 million.

However according to the results of calculations the structure of sector income will not change essentially. Because of CAP reform implementation the share of support will go up only by 1 percentage point for LFA payments, and by 3 percentage points for direct payments. The share of market revenues in Factor income will decrease by 4 percentage points due to price cuts proposed (see Figure 4.3).

Figure 4.3. Changes in the structure of Factor income in Latvia for the years 2006 and 2010 according to the different scenarios, thousands of EUR



Source: LSIAE calculations

Impact of the CAP reform implementation in 2010.

The changes arisen by application of CAP reform measure as enhancing of competitiveness in the year 2010 are not as remarkable as for the year 2006. Table 4.7 shows that policy reform will quite positively affect the agricultural sector of Latvia. Output of the agricultural industry could rise by EUR 14 million. According to the statements of Council Regulation (EC) No 1787/2003 after 2006 only butter will be subject to price cuts. As a result Net value added at factor cost without subsidies will fall by EUR 22,3 million, which is almost by 30% less than in 2006 (see Table 4.7).

The assumed availability of the full national envelope for Latvia due to decoupling in 2010⁹ will cause significant growth of EUR 36,3 million in the level of direct payments, which will fully compensate the negative effect of institutional price cuts for milk products. Thus Factor income in **R** scenario compared with **A** scenario will go up by EUR 14 million and will reach almost EUR 461 million (see Table 10 in annexes) for the year 2010.

The essential increase of direct payments in 2010 due to assumption about usage of the total amount of national financial envelope, would lead to noticeable changes in Factor income structure of the agricultural sector as well. According to the results of calculations share of Net value added at factor cost without subsidies will go down by 7 percentage points but the share of direct payments would increase by the same number of percentage points.

More detailed analysis of calculations based on EAA approach proves that the CAP reform implementation in Latvia could mostly affect animal production, while crop production will remain almost unaffected. According to the results of calculations for both simulation years crop output at producer prices (does not include subsidies) will remain unchanged (see Table 10 in annexes). At the same time animal output at producer prices could decrease by 8,3 percent in 2006 and by 6,2 percent in 2010.

⁹ see more detail description about specificity of EAA approach in chapter 4.3.1.

Analysis of calculation results based on the EAA approach for two different scenarios in terms of sector income level gives possibility to conclude that introduction of the decoupled payment system (as might be SAP for instance) could give a sufficient positive effect to the agricultural sector of Latvia (in terms of sector income increase as well as in terms of respecting the requirements of cross-compliance) compared with maintaining of the standard scheme (A scenario), where the level of direct support is closely related with actual volumes of production.

4.4.1.3. Analysis of the Results of Calculations Based on EAA Approach for Lithuania

Impact of the CAP reform implementation in 2006

The analysis of EAA data showed the gain by Lithuanian agricultural sector, comparing with the situation in 2001, when applying both A (based on "Agenda 2000") and R (based on the CAP reform proposals) calculations scenarios. However, comparison of R scenario with the A one shows the negative impact of the CAP reform in 2006. Due to the CAP changes, the output of the agricultural sector in the R scenario (comparing with the A scenario) could be lower by EUR 58,8 million (or by 3,5 %, see Table 4.8).

Table 4.8. Deviations in the level of economical indicators for Lithuanian agricultural sector in 2006 and 2010 for R scenario compared with A scenario

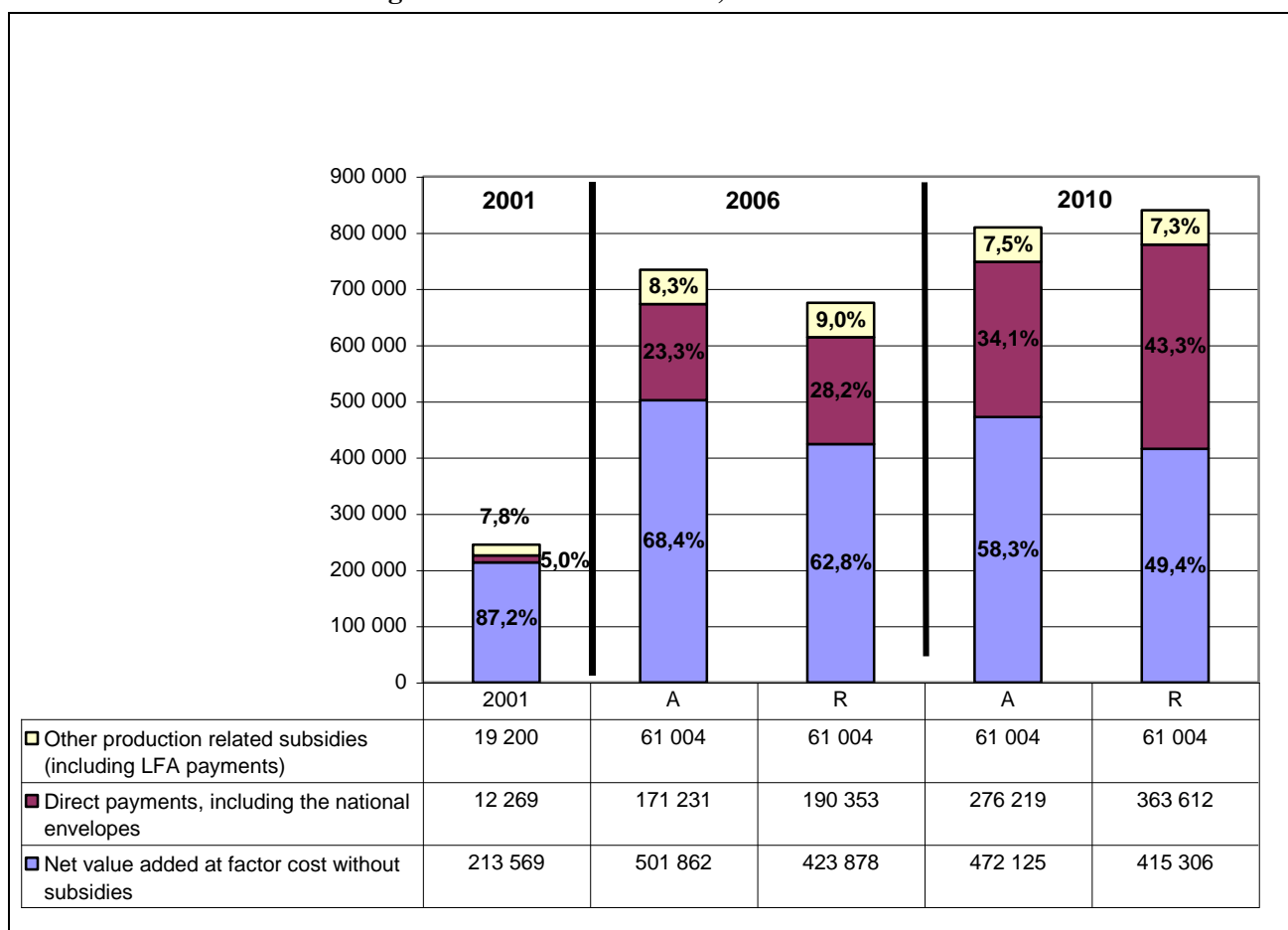
Indicator	2006		2010	
	EUR thou	%	EUR thou	%
Output of the agricultural 'industry'	-58 862	-3,5	30 575	1,7
Total intermediate consumption	0	0	0	0
Net value added at factor cost without subsidies	-77 985	-15,5	-56 818	-12,0
Direct payments (incl. the national envelopes)	19 123	11,2	87 393	31,6
Other production related subsidies (incl. LFA payments)	0	0	0	0
Factor income	-58 862	-8,0	30 575	3,8

Source: LAEI calculations

Net value added at factor cost without subsidies in Lithuania for the year 2006 in R scenario could be by EUR 78,0 million (or 15,5 %) lower compared to the A one. Such results show the negative effect of price cuts for milk products (Council Regulation (EC) No 1787/2003). The increase in direct payments by EUR 19,1 million (by 11,2 %) could be insufficient to compensate the decline in the level of income from sales of agricultural production, which will lead to substantial decrease in the level of Factor income by EUR 58,8 million (or by 8 %).

According to the results of forecasts the structure of sector income will not change so essentially. As a result of CAP reform implementation the share of direct payments would go up by 4,9 %, the share of other subsidies – by 0,7 %. The share of Net value added at factor cost without subsidies in Factor income will decrease by 5,6 % (see Figure 4.4).

Figure 4.4. Changes in the structure of Factor income in Lithuania for the years 2006 and 2010 according to the different scenarios, thousands of EUR



Source: LAEI calculations

Comparison of sector income structure in the years 2006 and 2001 shows that there is a huge gap between price levels and support levels in Lithuania and in the EU. The subsidies in Lithuania made only 12,8 % of Factor income in 2001 while after joining the EU the share of support could increase up to 31,6 %.

Impact of the CAP reform implementation in 2010

The estimations results for the year 2010 differ from the year 2006 results. As presented in Table 4.8, the policy reform will quite positively affect the agricultural sector of Lithuania, the output of the agricultural sector could rise by EUR 30,6 million (by 1,7 %). According to the statements of Council Regulation (EC) No 1787/2003 after 2006 only butter will be subject to price cuts (the price for skimmed milk powder will not change after July 1, 2006). As a result Net value added at factor cost without subsidies will fall by EUR 56,8 million (by 12 %).

It is assumed that direct support rates in Lithuania will achieve 100% of the EU level in 2010; the actual milk support rate in the case of **R** scenario will increase from EUR 15,9 per tonne in 2006 to EUR 24,5 per tonne in 2010. Furthermore the assumption has been made for the estimations that in 2010, in the case of **R** scenario full envelope of direct payments would be available. This could lead to a growth in direct payments by EUR 87,4 million (31,6 %), which will fully compensate the decrease in the level of market revenues of the Lithuanian agricultural sector. Thus Factor income in Lithuania in **R** scenario, compared with **A** scenario, will go up by EUR 30,6 million EUR (3,8 %).

The significant increase in direct payments would lead to noticeable changes in the income structure of the Lithuanian agricultural sector. While the share of other subsidies would not

change, the share of Net value added at factor cost without subsidies will go down by 8,9%. However, the share of direct payments would increase by 9,2 %.

The analysis above shows that positive results of the implementation of CAP reform on Lithuanian agricultural sector could be expected only after the year 2006.

4.4.1.4. Summary of EAA Calculations for Baltic States

The assessment of the CAP reform effect performed by comparing **R** scenario with the **A** one for the year 2006 shows negative results for all three Baltic states (see Table 4.9).

Table 4.9. Deviations in the level of economical indicators of agricultural sector in the Baltic States, R scenario compared with the A scenario, thousands of EUR

Indicator	Lithuania		Latvia		Estonia	
	2006	2010	2006	2010	2006	2010
Output of the agricultural 'industry'	-58 862	30 575	-23 811	14 033	-18 566	6 281
Total intermediate consumption	0	0	0	0	0	0
Net value added at factor cost without subsidies	-77 985	-56 818	-30 620	-22 309	-25 798	-18 796
Direct payments (incl. the national envelopes)	19 123	87 393	6 808	36 342	7 232	25 077
Other production related subsidies (including LFA payments)	0	0	0	0	0	0
Factor income	-58 862	30 575	-23 811	14 033	-18 566	6 281

Source: Estonia MoA, LSIAE, LAEI

Due to reduction of the institutional prices for milk products under Council Regulation (EC) No 1787/2003 the output of agricultural sector in **R** scenario (compared with the **A** scenario) in 2006 could fall by EUR 18,6 million in Estonia, by EUR 23,8 million in Latvia and by EUR 58,8 million in Lithuania. Even the increase in milk compensatory payments and support rate for protein crops in 2006 could be insufficient to compensate the decline in the level of market revenues (NVA at factor cost without subsidies) caused by the CAP reform in Estonia (by EUR 25,8 million), Latvia (by EUR 30,6 million) and Lithuania (by EUR 78 million). It is noticeable that market revenues of Estonian agricultural sector in 2006 could go down even below the level of the year 2001, while in Latvia and Lithuania this indicator would increase by 1,5 and 2 times respectively compared to 2001. Such diverse results illustrate differences in price levels of agricultural production between the Baltic States and the EU – in the case of Latvia and Lithuania the price gap could be more significant, but in Estonia prices could be closer, and for some products even higher than in the EU.

As a result of decrease of market revenues described above the Factor income in all three Baltic countries in **R** scenario for the year 2006 could be much lower compared to the **A** one (see Table 4.9). Despite the changes in the levels of above-mentioned economic indicators the structure of Factor income in 2006 would not change essentially.

The results of calculations for 2010, in contrast with 2006, show that the policy reform implementation might quite positively affect agricultural sectors of the three Baltic States. According to Council Regulation (EC) No 1787/2003 after the year 2006 only butter will be subject to intervention price cuts, which means that market revenues would not decrease so rapidly as before 2006. Moreover through the application of EAA approach the idea of decoupling was partly formalised in **R** scenario for 2010 (versus **A** scenario, where financial envelope is used only partly, according to the agricultural production volumes in the base year) by calculating the total national envelope, which will be available in Estonia, Latvia and Lithuania for supporting the agricultural producers.

According to the results of calculations the introduction of decoupled payment scheme could cause a significant growth in the level of direct payments by 33,5 % in Estonia, 35,9 % in

Latvia and 31,6 % in Lithuania, which will fully compensate the decrease of market revenues in the three Baltic States. Thus Factor income in 2010 in **R** scenario compared to **A** scenario will go up by EUR 6,3 million in Estonia, EUR 14,03 million in Latvia and EUR 30,6 million in Lithuania.

The analysis of calculation results based on the EAA approach for two different scenarios allows concluding that introduction of the decoupled payment system could give a sufficient positive effect to the development of agricultural sector in Baltic States by increasing the sector income as well as respecting the requirements of cross-compliance.

4.4.2. Analysis of the Results of Calculations Based on FADN Approach

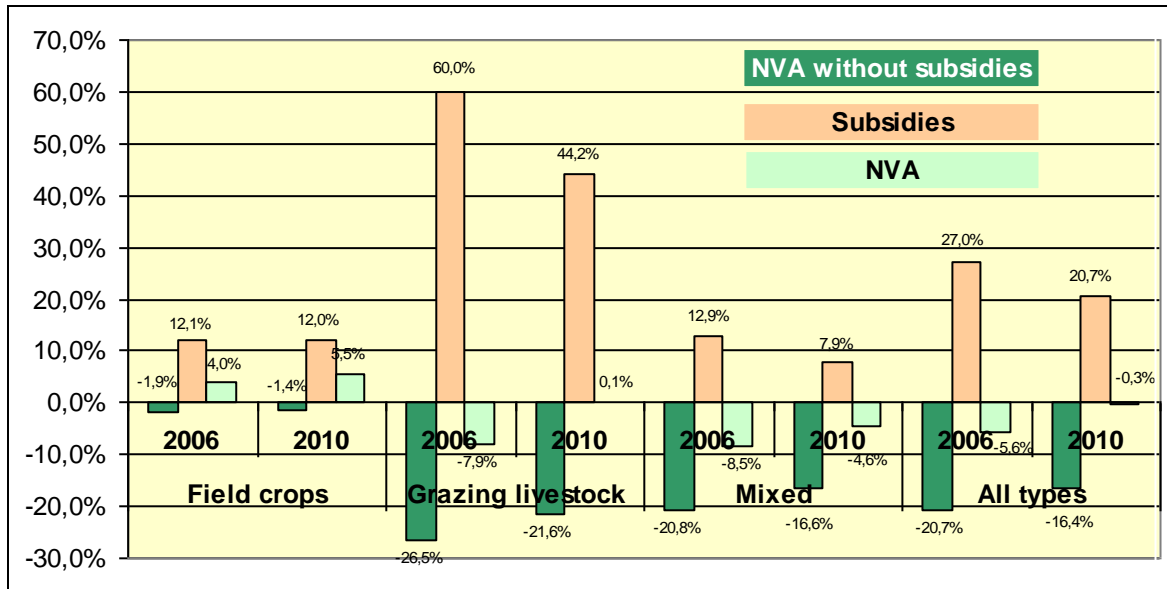
4.4.2.1. Farm Income Evaluation Based on FADN Data Analysis for Estonia

According to the results of analysis the CAP reform proposal would have a diverse impact on the level of Farm NVA across different types of farming. In particular, Farm NVA without subsidies in real terms would decline in all types of farming compared to Agenda 2000 due to the price cuts in the milk sector during the period from 2004 to 2007. In scenario **R** Farm NVA without subsidies for the holdings of grazing livestock type of farming would drop by 26,5% in 2006 and by 21,6 % in 2010 compared to scenario **A** (see Figure 4.5). Consequently, the price reduction in the milk sector proposed by European Commission would lead to an overall decline in Farm NVA without subsidies for holdings of all types of farming over the period under consideration.

On the other hand, the CAP reform proposal would contribute to the increase in the level of subsidies. Holdings of the grazing livestock type of farming would gain most – up to 60,0% in 2006 and up to 44,2% in 2010 compared to **A** scenario. The impact of the CAP reform proposal on farm subsidies for holdings of field crops and mixed type of farming would be considerably smaller compared to the holdings of grazing livestock type of farming. In particular, the level of subsidies for holdings of field crops and mixed type of farming would increase by 12,1% and 12,9%, respectively in 2006 compared to scenario **A** (12,0% and 7,9%, respectively in the year 2010).

However, even a considerable increase in the amount of subsidies would not fully compensate the decline of Farm NVA without subsidies. In addition, the CAP reform proposal would also result in a significant fall in the level of Farm NVA for the holdings of grazing livestock and mixed type of farming by 7,9% and 8,5% respectively, in 2006. However, Farm NVA of holdings of field crops type of farming is expected to increase by 4,0% in 2006 and by 5,5% in 2010 compared to the **A** scenario. The CAP reform proposal, in particular the price cuts in milk sector and introducing the system of decoupled income support as a whole, would lead to an additional decline of 5,6% in 2006 and 0,3% in 2010 in Farm NVA compared to Agenda 2000.

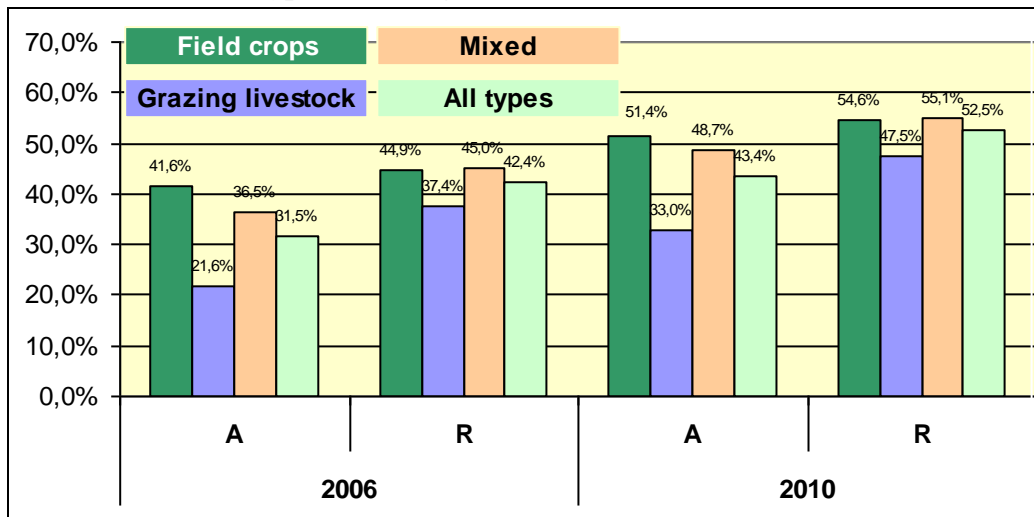
Figure 4.5. Impact of the CAP reform on Farm NVA and subsidies by type of farming in Estonia, % deviation from scenario A



Source: calculations of JTAC

The analysis indicates that the CAP reform proposal would lead to an overall increase in the share of subsidies in Farm NVA as compared to the implementation of Agenda 2000 policies (see Figure 4.6). Holdings of grazing livestock type of farming would be most affected by the CAP reform in Estonia. According to the CAP reform proposal the share of subsidies in Farm NVA would increase up to 37,4% in 2006 and by 47,5% in 2010 in case holdings of grazing livestock type of farming (21,6% and 33,0% respectively, under Agenda 2000 scenario). The CAP reform would impose a smaller impact on the share of subsidies in Farm NVA for the holdings of field crops type of farming than on the share of subsidies in Farm NVA for the holdings of grazing livestock and mixed type of farming. Following the CAP reform proposal, the biggest share of subsidies in Farm NVA is projected for the holdings of mixed and field crops type of farming - 55,1% and 54,6% respectively, in the year 2010.

Figure 4.6. Impact of the CAP reform on the share of subsidies in total Farm NVA by type of farming in Estonia for 2006 and 2010, %



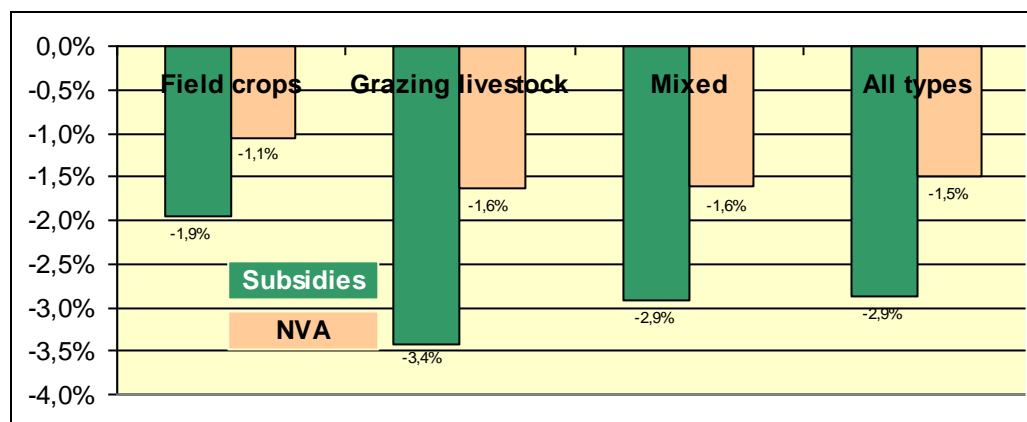
Source: calculations of JTAC

The effect of modulation of direct payments

The results of simulations indicate that the effect of modulation of direct payments on the level of Farm NVA would be very modest (see Figure 4.7). However, the modulation would have a major impact on the amount of subsidies. Holdings of grazing livestock type of

farming would be most affected by the modulation, total amount of subsidies would decline by 3,4% in 2013 compared to the implementation of the CAP reform in 2010. Holdings of the field crops type of farming would only be slightly affected by the modulation.

Figure 4.7. Modulation effect by type of farming in Estonia in 2013, % deviation from 2010

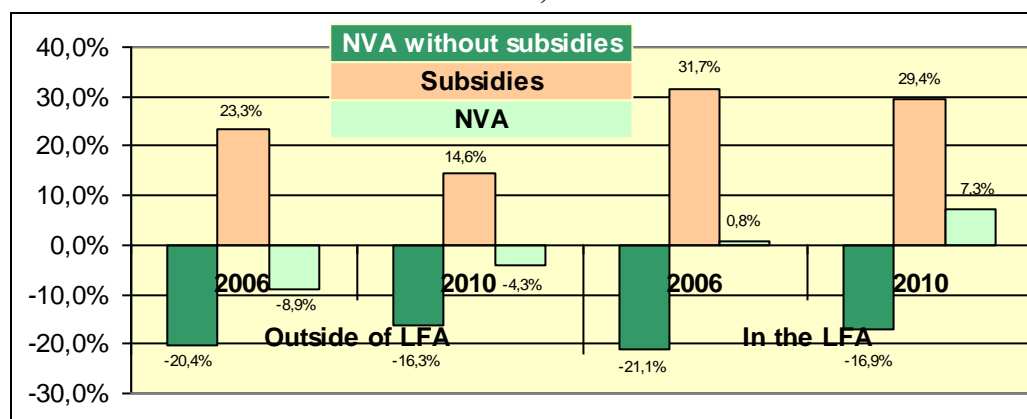


Source: calculations of JTAC

Impact of the CAP reform on farms located outside and within the LFA

The CAP reform proposal would have a different impact on the farms within the LFA and outside the LFA. As a result of the CAP reform Farm NVA of the holdings outside the LFA would decrease significantly i.e. by 8,9% in 2006 and by 4,3% in 2010 compared to Agenda 2000. Even a considerable increase in the amount of subsidies would not fully compensate the decline in Farm NVA without subsidies (see Figure 4.8). Consequently, the CAP reform proposal would result in a negative impact on the level of Farm NVA for holdings outside the LFA.

Figure 4.8. Impact of the CAP reform on the farms outside and within the LFA in Estonia for 2006 and 2010, % deviation from scenario A



Source: calculations of JTAC

However, the CAP reform might have a positive impact on the main economic indicators for the farms within the LFA. In particular, Farm NVA of holdings within the LFA is expected to increase by 0,8% in 2006 and by 7,3% in 2010 compared to the scenario of Agenda 2000. However, decline in Farm NVA without subsidies for holdings within the LFA would be fully compensated by the increase in the amount of subsidies.

The CAP reform proposal, particularly the decoupling of supports and the introduction of the Single Area Payment Scheme would have a negative impact on the level of Farm NVA compared to Agenda 2000 policy. However, the CAP reform would lead to a significant increase in the amount of subsidies for all types of farming over the period from 2006 to 2013.

4.4.2.2. Farm Income Evaluation Based on FADN Data Analysis for Latvia

Analysis of the CAP reform on the farm level was carried out using the Latvian FADN data for the year 2001(see Table 13 in annexes). In that year 349 agricultural holdings were observed with average economic size 4,3 units.

Calculations according to **A** and **R** scenarios were done on the ground of static analytical approach, assuming that structure of farms in Latvia will not be changed until 2013. All policy changes mostly referred to shifts in price and support levels affecting farms with different specialisation and belonged to different LFA territories. Simulations according to **R** scenario imply the introduction of Single area payment scheme for administration of direct support after accession, when common support rates (on the level EUR 62,6 per ha and EUR 96,9 per ha for the year 2006 and 2010 respectively) will be applied for each hectare of land eligible for direct support and maintained in good agricultural conditions.

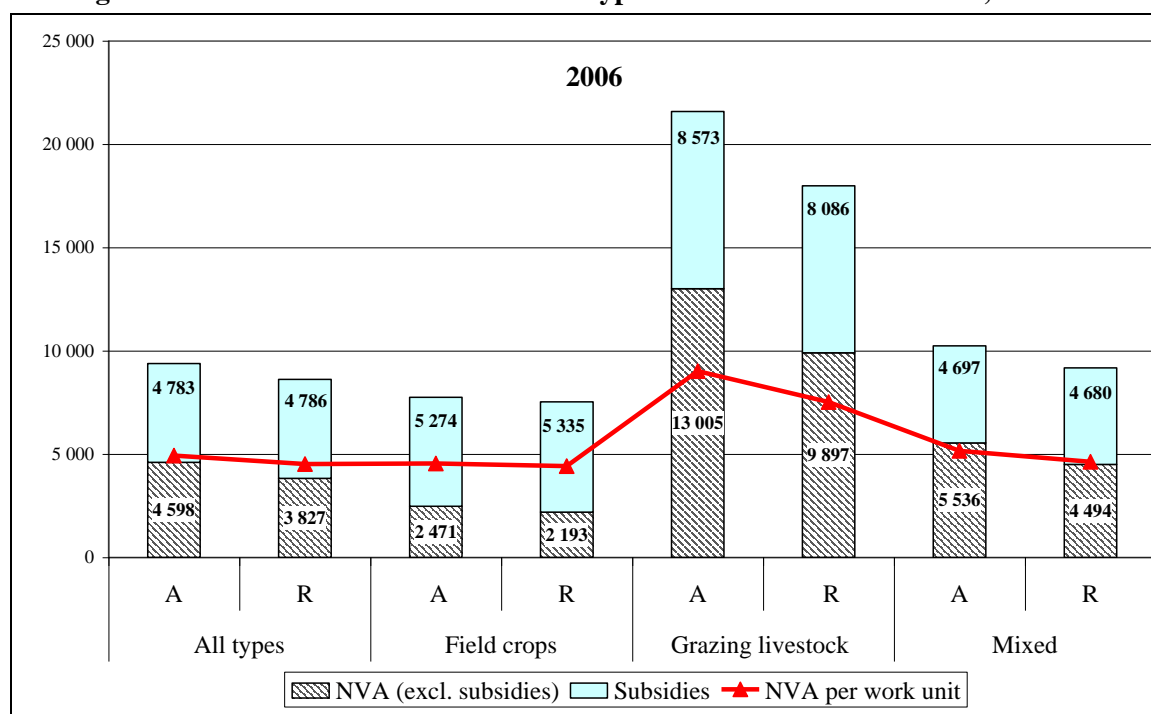
Price change effect

The total output of production and net value added (NVA) excluding subsidies are the most proper indicators describing the price effect on the farm performances in case of application of such CAP reform measure as enhancing the competitiveness.

By comparing the values of these indicators between the two scenarios simulated it is possible to conclude that institutional price cuts for butter and skimmed milk powder proposed by the EC (Regulation No. 1787/2003) might essentially affect Latvian farms on average, reducing market revenues for all farms dealing with milk production in Latvia. Insomuch as price reductions will start since 2004, in year 2006 reduction of the total output per Latvian farm could be on average EUR 770, that is 5% reduction of output in monetary terms. In the year 2010 the gap in the total output per farm between the two scenarios will decrease (only EUR 561 per farm or 3,5% reduction) as price cuts proposed is going to stop already in the year 2007.

At the same time NVA excluding subsidies will fall down even more dramatically than farm output, comprising 17% and 13% reduction of NVA produced in 2006 and 2010 respectively (see Figure 4.9 and Figure 4.10).

Figure 4.9. Structure of NVA in different types of Latvian farms for 2006, EUR



Source: LSIAE calculations

Among the holdings with different specialisation in Latvia, the farms with higher share of livestock production will suffer more from the political drop of intervention prices. For instance, market revenues in grazing livestock and mixed farms might decrease as far as by EUR 3108 and EUR1042 per each farm on average in 2006. In year 2010 such decrease might comprise EUR 2265 and EUR 760 respectively for grazing livestock and mixed farms.

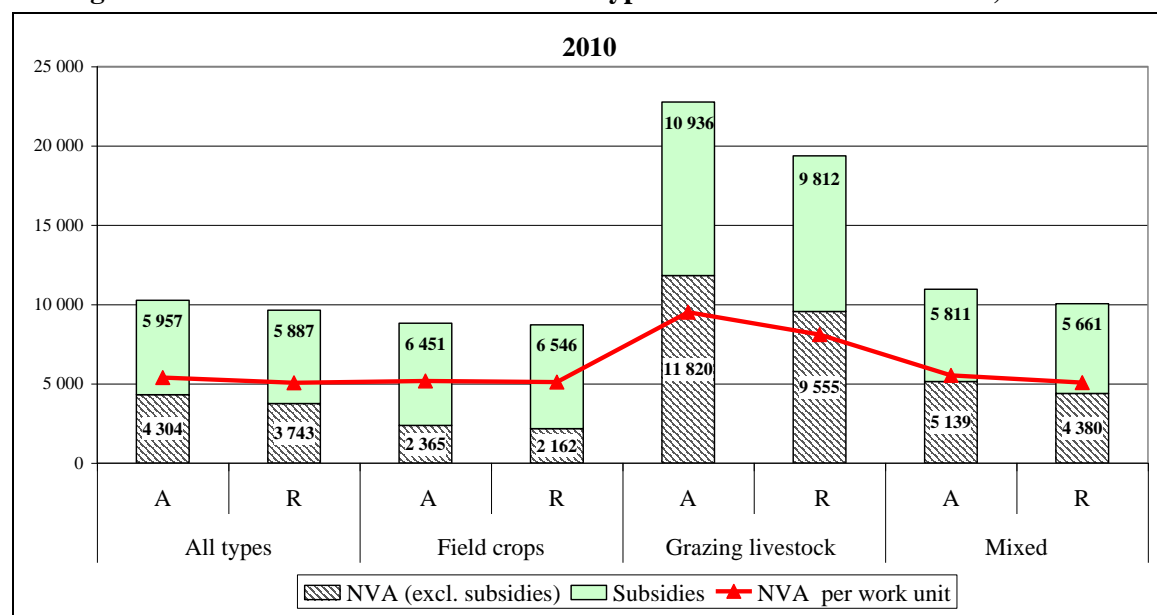
It is important to emphasise that negative price effect on the livestock production and market revenues will not be fully compensated by increase of direct support in the dairy sector from EUR 11,49 to EUR 24,49 per tonne of raw milk produced in 2006. Even an increase of direct payments on milk will not hold up the decline of farm NVA including subsidies in the case of **R** scenario by 8% and 6% in the years 2006 and 2010 per farm on average (Figure 4.9 and Figure 4.10).

The effect of introduction of SAP

The CAP reform implies the introduction of a new direct payment system – the Single Payment scheme (SPS) in all Member States. In order to be integrated smoothly into the reformed CAP, before the introduction of SPS, Latvia should choose which system will be implemented for administration of direct support after accession: application of classical direct payment scheme (**A** scenario) or Single area payment scheme (**R** scenario).

Analysis of decoupling issues on farm level shows that in case of application of SAP, there might not be any essential changes in the level of support for the average Latvian farm compared to introduction of classical direct payment scheme. The average farm would get only EUR 3 more in 2006 in the case of applying of SAP (see Figure 4.9). At the same time, in 2010 due to increase of phasing-in rates up to 100% of the EU level, each agricultural holding in Latvia could lose EUR 70 of direct subsidies if single area support rate will be still in force (see Figure 4.10).

Figure 4.10. Structure of NVA in different types of Latvian farms for 2010, EUR



Source: LSIAE calculations

However, less support will be definitely available for mixed farms and grazing livestock farms if SAP will be introduced in Latvia. Compared to application of classical direct support scheme grazing livestock farms will lose about 6% and 10% of support respectively in the years 2006 and 2010. In contrast with grazing livestock farms, decrease of support in mixed farms might be less due to smaller share of livestock production in the farm output.

At the same time, SAP introduction will arouse positive subsidy effect on field cropping farms, which might receive more support than it would be expected within the framework of “Agenda 2000”. If total financial envelope will be divided by agricultural area eligible for area payments in Latvia, the share of subsidies in NVA for field cropping farms will increase

on average by 3% in 2006, and by 2% in 2010, and the field cropping farms will remain the most subsidized type of farms in Latvia after accession (see Figure 4.9 and Figure 4.10).

The total CAP reform effect on farms with different specialisation

Analysing both - support and price effects of CAP reform on the farm level, it is possible to conclude that for all types of farms in Latvia the NVA level including subsidies will be reduced in the case of introduction of decoupling and price reduction measures. This is because the increase of direct payments on milk as well as higher level of support for field crops due to SAP application will not be able to stop the decline of NVA due to the price decrease proposed by the EC (Figure 4.9 and Figure 4.10).

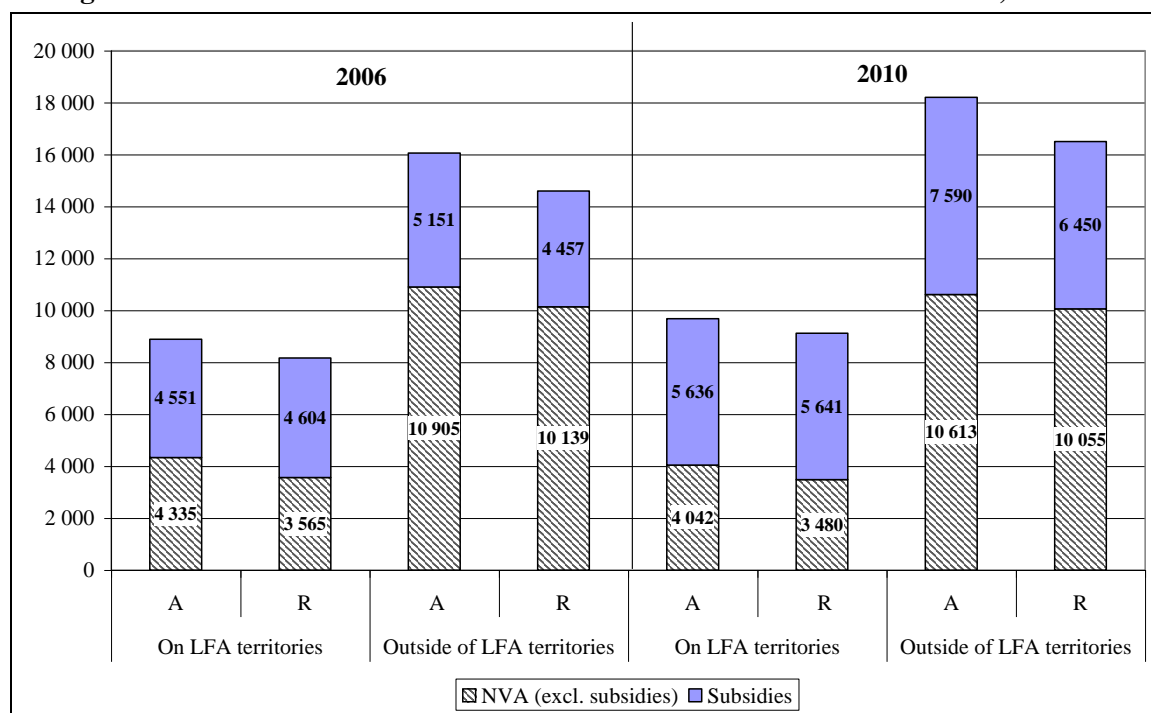
It is also necessary to mention that for majority of different types of Latvian farms the amount of subsidies will prevail in the structure of NVA. Such facts will be particularly relevant for field crop farms, where on each unit of NVA produced agricultural holding could get EUR 2,43 and EUR 3,03 of subsidies correspondingly in 2006 and 2010 in the case of SAP application in Latvia.

While the general price decrease and increase of support due to application of SAP and higher direct payments for milk, the grazing livestock farms will remain as the most efficient farms in terms of labour use in Latvia, with higher NVA per work unit (above the average level) among the farms with different specialisation (Figure 4.9 and Figure 4.10).

CAP reform effect on farms in and outside of LFA territories

Another category of farms, which might face a negative effect from the application of SAP, are farms with higher intensity of land use in their production. As an example of such farms, the agricultural holdings situated on the territories outside LFA could be mentioned. These farms are located in the central part of Latvia, rather close to Riga and characterised by relatively high economic size (13,3) and smaller utilized agricultural areas. In the case of introduction of SAP, such farms might lose essential share of their subsidies correspondingly 13 % and 15% in 2006 and 2010. This means that introduction of SAP might subsequently arouse significant structural changes of land use in the future and negatively affect farms with intensive agricultural production.

Figure 4.11. Structure of NVA in different Latvian farms for 2006 and 2010, EUR



Source: LSIAE calculations

At the same time, Latvian farms on LFA territories will definitely have much support from the subsidies. Similar to all farms on average, the share of state support (including DP and rural development funding) will prevail in the structure of NVA for the farms located on LFA territories. Introduction of SAP will make the share of subsidies even bigger, when on each unit of NVA produced EUR 1,29 and EUR 1,62 of subsidies will be paid in farms, which will be subject to LFA payments for 2006 and 2010 respectively (see Figure 4.11).

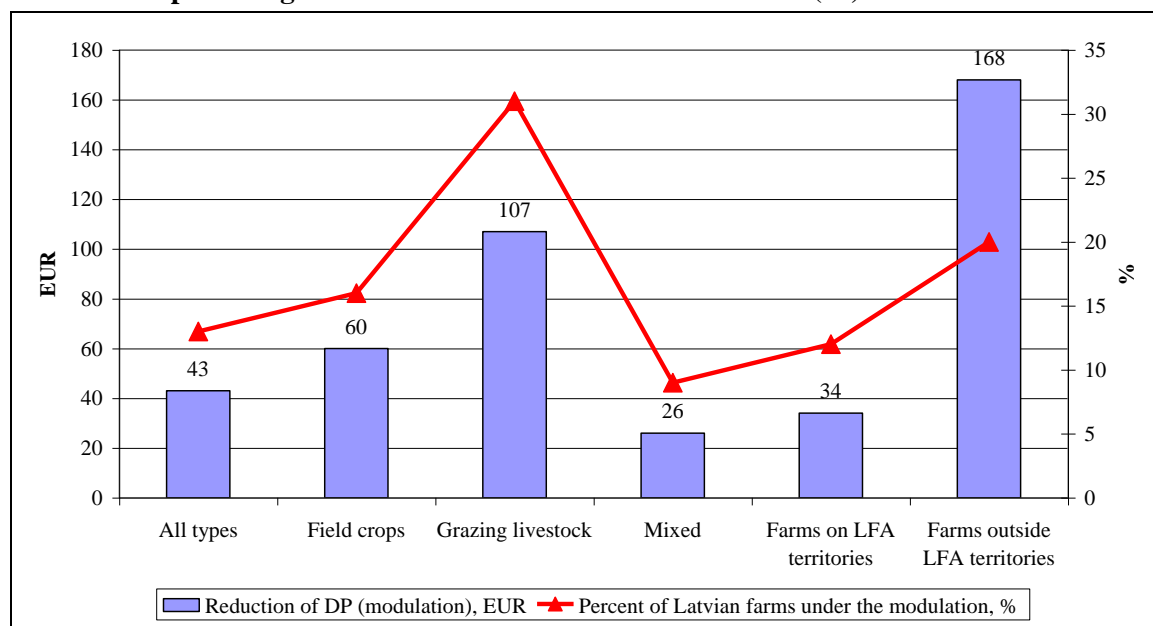
Modulation effect

If modulation measure applicable in 2013 would correspond to current farm structure of Latvian farms (with average economic size of farm 4,3 units) it is important to underline that the total modulation effect for Latvian agricultural sector could be up to EUR 2,49 million. In this case, 13 % of Latvian farms will face the reduction of direct support (EUR 43 per farm on average) due to introduction of modulation measure.

Figure 4.12 reflects the modulation effect for Latvian farms with different specialisation and belonging to LFA payments. Comparatively large reduction of direct support (EUR 168 per farm) could be applied for relatively big farms, such as farms located outside LFA territories with 13,3 units of economic size. 20% of such farms will be subject to modulation.

Among the farms with different type of specialisation, comparatively large reduction of direct support could be applied for the farms dealing with grazing livestock – EUR 107 per farm. 31% of grazing livestock farms will face the reduction of direct support due to exceeding of the EUR 5000 level of support granted per farm.

Figure 4.12. Impact of modulation on different types of farms in Latvia (EUR) and percentage of Latvian farms under the modulation (%) in 2013



Source: LSIAE calculations

However, taking into account that every Member State will receive at least 80% of its modulation fund through the rural development funds it is possible to conclude that the total effect of the modulation might be not so essential for Latvian agriculture, because only redistribution of funding granted to Latvian agriculture and rural development will take place.

4.4.2.3. Farm Income Evaluation Based on FADN Data Analysis for Lithuania

Estimating the CAP reform impact based on FADN data analysis for Lithuania, 1120 farms have been observed. The average economic size of Lithuanian FADN farm came up to 16,7

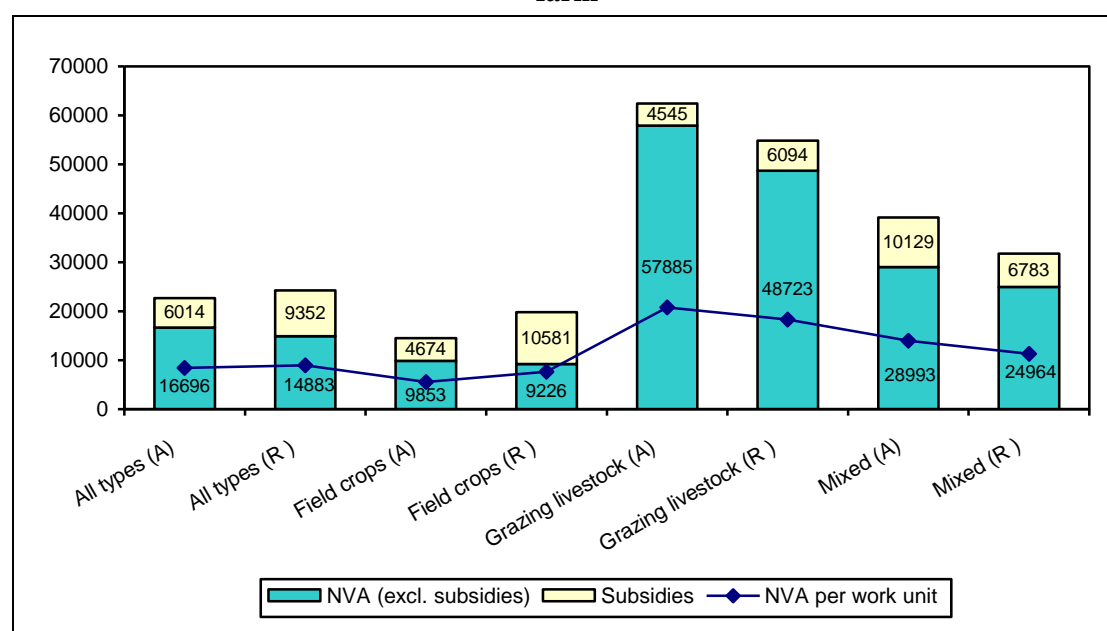
ESU¹⁰ in 2001. The size of an average Lithuanian farm was 84,4 ha, the input of labour – 2,7 work units (AWU). There were observed 787 farms of field crops specialisation, which made 70,3 % of FADN registered farms. The economic size within this farm group was 18,8 ESU, the farm size – 95,4 ha, the labour input – 2,6 AWU. Within the farm group, grazing livestock specialisation in 38 farms was observed and 295 farms within the farm group of mixed specialisation. The economic size of these farms was 12,9 ESU (grazing livestock specialisation) and 11,8 ESU (mixed specialisation). The size of farms came up to 54,9 ha and 61,5 ha, the labour input – 3,0 AWU and 2,8 AWU respectively.

Farms situated in normal areas made 58,3 % in of FADN farms researched while the rest 41,7 % of the farms were situated in less favoured areas (LFA). The economic size of farms situated in normal areas was 20,6 ESU, the size of farms– 98,4 ha, the labour input came up to 2,8 AWU. Within the group of Lithuanian FADN farms situated in the LFA these figures equalled to 11,3 ESU, 60,5 ha and 2,5 AWU.

Structure of net value added (NVA) in Lithuanian FADN farms

The subsidies in an average FADN farm in Lithuania in 2001 made only 19,3 % of farm income, whereas after the EU membership the share of support could increase significantly. As a result of CAP reform implementation (comparing with Agenda 2000) the share of subsidies in an average Lithuanian farm net value added will go up by 12,1% in 2006 (the share of direct payments (DP) will go up by 12,7 % and the share of other support will go down by 0,6 %), 14,1 % in 2010 (the share of DP will rise by 15.3 %; the share of other support will drop by 1,2 %) and 13,5 % in 2013 (by 14,6 % and (-1,1 %) respectively) (Figure 4.13 and Figure 4.14).

Figure 4.13. Structure of NVA in different types of Lithuanian farms in 2006, EUR per farm



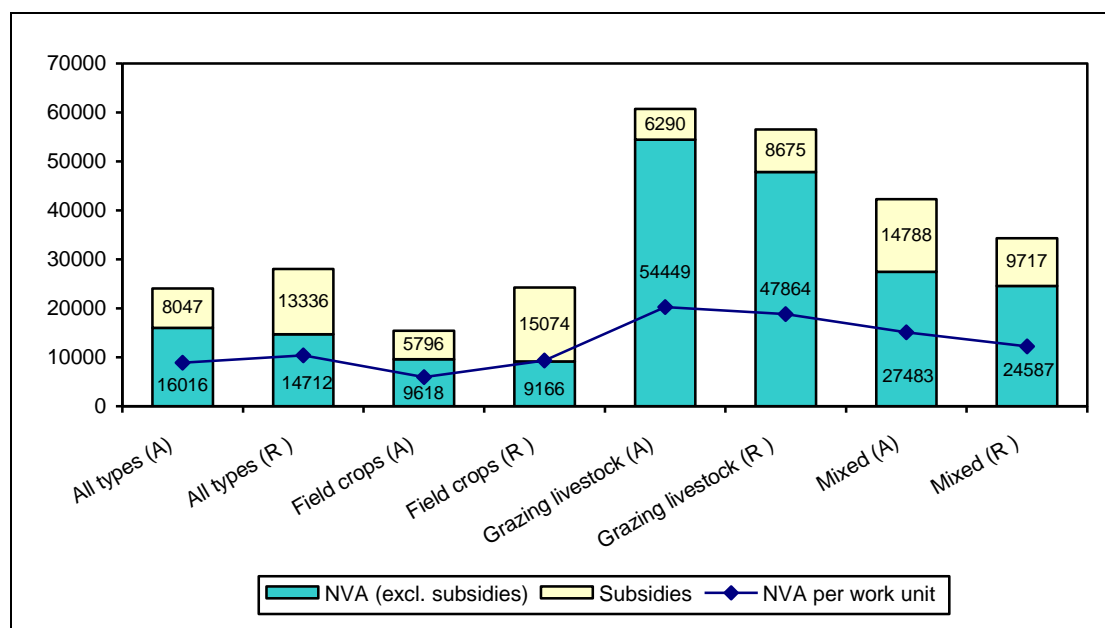
Source: LAEI calculations

The CAP reform measures will lead to the increase in the share of subsidies in the farm NVA within the farm groups of field crops and grazing livestock specialisation compared to Agenda 2000 policies. The greatest increase in the share of subsidies in the NVA is expected in the field cropping type of farming in Lithuania (21,2 % and 24,6 % in the years 2006 and 2010 respectively). The main reason is that the direct payments will cover a wider range of field crops based on the CAP reform measures. Contrary to the above, the share of subsidies

¹⁰ The farm size is presented in European size units (ESU). One size unit corresponds to an SMG of 1200 EUR.

will decrease in Lithuanian farms of mixed specialisation as a result of the reform (changes in dairy sector policies). Milk production makes a greater share in farm production. In 2006 this reduction will equal to 4,5% in 2006 and 6,7 % in 2010.

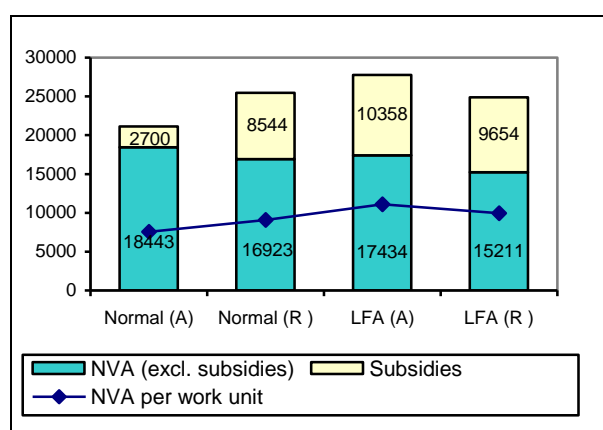
Figure 4.14. Structure of NVA in different types of Lithuanian farms in 2010, EUR per farm



Source: LAEI calculations

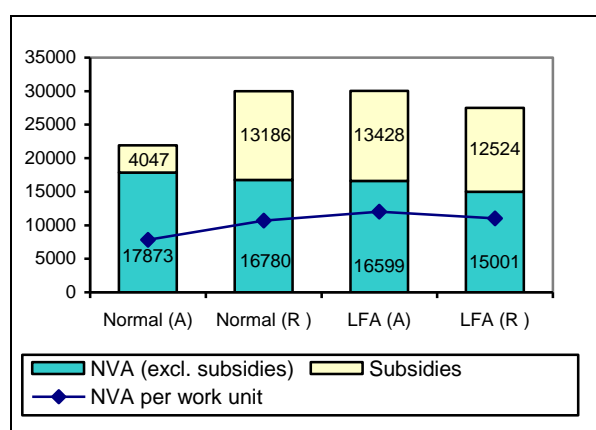
The analysis based on the land feasibility for farming in Lithuanian FADN farms show that the CAP reform will lead to an increasing share of subsidies in the NVA both for farms situated in normal areas as well as for those situated in LFA. This will be significant in the NVA structure in farms of the normal areas, where the share of subsidies tends to increase by 20,8% (the share of DP will rise by 20,8 %; the LFA support not applicable) in 2006 and by 25,5 % in 2010.

Figure 4.15. Structure of NVA in Lithuanian farms according to different types of land for farming in 2006, EUR per farm



Source: LAEI calculations

Figure 4.16. Structure of NVA in Lithuanian farms according to different types of land for farming in 2010, EUR per farm



Source: LAEI calculations

The effect of the CAP reform upon farm NVA structure in farms situated in LFA will be minor and it will lead to increase in the share of subsidies by 1,4 % in 2006 and 0,7 % in 2010.

CAP reform impact based on FADN types of specialisation

The comparison of R (CAP reform) and A (“Agenda 2000”) scenarios gives various results of the aggregated economic indicators (such as output, subsidies, farm NVA and farm NVA per

AWU) for different types of specialisation. Implementation of R scenario shows the gain by Lithuanian farms of field and mixed cropping FADN specialisation, while the farms specialised in grazing livestock and the mixed farms will be losers there.

All farms on average

Comparison of R (CAP reform) and A (Agenda 2000) scenarios for an average Lithuanian FADN farm (Table 4.10) shows the decrease in output value by 3,9 % in 2006 and by 2,9 % in 2010 and 2013 because of the milk price reduction. This will be the reason for a significant reduction in NVA without subsidies, by 10,9 % in 2006 as well as by 8.1 % in 2010 and 2013. Subsidies will increase significantly: by 55,5 % in 2006, 65,7 % in 2010 and 61,8 % in 2013. Such increase will compensate the decline in the level of NVA without subsidies, and the common impact on NVA of the average FADN farm in Lithuania will be positive: increase by 1524 EUR (6,7 %) in 2006, 3985 EUR (16,6 %) in 2010 and 3669 EUR (15,2 %) in 2013.

Table 4.10. Changes in the level of basic farm performance indicators for all Lithuanian farms in R scenario compared to A one

Indicator	2006		2010		2013	
	EUR	%	EUR	%	EUR	%
Output	-1814	-3,9	-1303	-2,9	-1303	-2,9
Subsidies	3338	55,5	5289	65,7	4973	61,8
Farm NVA without subsidies	-1814	-10,9	-1304	-8,1	-1304	-8,1
Farm NVA	1524	6,7	3985	16,6	3669	15,2
Farm NVA/AWU	565	6,7	1476	16,6	1359	15,2
DP reduction (modulation effect), EUR					316	2,8

Source: LAEI calculations

The effect of modulation in the R scenario will lead to decrease in farm direct payments in 2013 (compared to 2010) by 316 EUR (or by 2,8 %) per average Lithuanian FADN farm.

Field, mixed cropping farms

The output value of farms specialising in field and mixed crops (Table 4.11) will decrease by 1,5 % in 2006; in the years 2010 and 2013, this decrease will count to 1,1 %. There will be the reduction in farm NVA without subsidies by 6,4 % in 2006 and 4,7 % in 2010 and 2013. However the increase in subsidies by 126,4 % (in 2006), 160,1 % (in 2010) and 153,3 % (in 2013) will fully compensate the above reduction and result in a positive change in the farm net value added by EUR 5280 (36,3 %), EUR 8826 (57,3 %) and EUR 8436 (54,7 %) in the years 2006, 2010 and 2013.

Table 4.11. Changes in the level of basic farm performance indicators for Lithuanian field cropping farms in R scenario compared to A scenario

Indicator	2006		2010		2013	
	EUR	%	EUR	%	EUR	%
Output	-628	-1,5	-451	-1,1	-451	-1,1
Subsidies	5907	126,4	9278	160,1	8888	153,3
Farm NVA without subsidies	-627	-6,4	-452	-4,7	-452	-4,7
Farm NVA	5280	36,3	8826	57,3	8436	54,7
Farm NVA/AWU	2031	36,3	3395	57,3	3245	54,7
DP reduction (modulation effect), EUR					390	3,1

Source: LAEI calculations

The effect of modulation in the R scenario will lead to the decrease in farm direct payments in 2013 (comparing with 2010) of EUR 390 (or by 3,1 %) per average farm within this specialisation group.

Grazing livestock farms

For grazing livestock farms (Table 4.12), the output value will decrease by 9,8 % in the year 2006, and by 7,3 % for the years 2010 and 2013. The considerable reduction in farm NVA without subsidies per farm of grazing livestock specialisation by 15,8 % in 2006 as well as by 12,1 % in 2010 and 2013 will be only to small extent covered by the increase in subsidies. This will lead to a decrease in farm NVA (comparing R scenario results with the A ones) by EUR 7613 or 12,2 % (in 2006), EUR 4200 or 6,9 % (in 2010) and EUR 4318 or 7,1 % (in 2013).

Table 4.12. Changes in the level of basic farm performance indicators for Lithuanian grazing livestock farms in R scenario compared to A scenario

Indicator	2006		2010		2013	
	EUR	%	EUR	%	EUR	%
Output	-9162	-9,8	-6585	-7,3	-6585	-7,3
Subsidies	1549	34,1	2385	37,9	2267	36,0
Farm NVA without subsidies	-9162	-15,8	-6585	-12,1	-6585	-12,1
Farm NVA	-7613	-12,2	-4200	-6,9	-4318	-7,1
Farm NVA/AWU	-2538	-12,2	-1400	-6,9	-1439	-7,1
DP reduction (modulation effect), EUR					118	1,6

Source: LAEI calculations

The effect of modulation in the R scenario will lead to the decrease in farm direct payments in 2013 (compared to 2010) by EUR 118 (or by 1,6 %) per average farm within this specialisation group.

Mixed farms

The situation in the farms of mixed specialisation will be aggravated by the CAP reform even more significantly (Table 4.13). The output value tends to decrease by 7,3 % in the year 2006; for the years 2010 and 2013 – by 5,4 %. However, there will be a decrease in farm NVA without subsidies as well as in the subsidies based on the R scenario (comparing with the A one) during all the period of 2006 – 2013. The farm NVA in the R scenario (comparing with

the A one) will drop by EUR 7375 (by 18,9 %), EUR 7967 (18,8 %) and EUR 8129 (19,2 %) in the years 2006, 2010 and 2013 respectively.

Table 4.13. Changes in the level of basic farm performance indicators for Lithuanian mixed farms in R scenario compared to A scenario

Indicator	2006		2010		2013	
	EUR	%	EUR	%	EUR	%
Output	-4028	-7,3	-2896	-5,4	-2896	-5,4
Subsidies	-3346	-33,0	-5071	-34,3	-5233	-35,4
Farm NVA without subsidies	-4029	-13,9	-2896	-10,5	-2896	-10,5
Farm NVA	-7375	-18,9	-7967	-18,8	-8129	-19,2
Farm NVA/AWU	-2634	-18,9	-2845	-18,8	-2903	-19,2
DP reduction (modulation effect), EUR					162	2,0

Source: LAEI calculations

The effect of modulation in the R scenario will lead to a decrease in farm direct payments in 2013 (compared to 2010) by 162 EUR (or by 2,0 %) per average farm within this specialisation group.

Impact by the CAP reform based on land feasibility for farming

The research of the impact of the CAP reform based on land feasibility for farming in FADN farms shows the positive impact of the reform upon the farms situated in normal areas, and the negative effect upon the farms situated in the LFA, at the same time.

Farms situated in normal areas

The output value in farms situated in normal areas (Table 4.14) is expected to decrease by 2,9 % in the year 2006 and by 2,1 % in the years 2010 and 2013. The NVA without subsidies will reduce in the farms in the normal areas as a result of the CAP reform, and this decrease will come up to 8,2 % in 2006 and 6,1 % in the years 2010 and 2013. But the above mentioned reduction will be fully compensated by the increase in subsidies by 216,4 % in 2006, 225,8 % in 2010 and by 215,7 % in 2013. These changes will lead to an increase in farm NVA by 4324 EUR (20,5 %) in the year 2006. In 2010 and 2013, this increase will come up to EUR 8046 (36,7 %) and EUR 7816 (34,8 %) respectively.

Table 4.14. Changes in the level of basic farm performance indicators for Lithuanian farms located outside of LFA in R scenario compared to A scenario

Indicator	2006		2010		2013	
	EUR	%	EUR	%	EUR	%
Output	-1520	-2,9	-1093	-2,1	-1093	-2,1
Subsidies	5844	216,4	9139	225,8	8729	215,7
Farm NVA without subsidies	-1520	-8,2	-1093	-6,1	-1093	-6,1
Farm NVA	4324	20,5	8046	36,7	7636	34,8
Farm NVA/AWU	1544	20,5	2874	36,7	2727	34,8
DP reduction (modulation effect), EUR					410	3,1

Source: LAEI calculations

The effect of modulation in the R scenario will lead to a decrease in farm direct payments in 2013 (compared to 2010) by EUR 410 (or by 3,1 %) per average farm situated in normal areas.

Farms within LFA territories

The impact of the CAP reform upon the farms situated in LFA is expected to be negative (Table 4.15). The output value within this farm group is estimated to decrease by 5,9 % in the year 2006 and by 4,4 % in the years 2010 and 2013. Farm NVA without subsidies will be reduced by 12,8 % in 2006 and by 9,6 % in 2010 and 2013. Subsidies will decrease as well for all the period of 2006 – 2013, and the most significant reduction (7,9 %) will be noticeable in the year 2013. As a result of the above mentioned, the farm NVA will drop by EUR 2927 (10,5 %) in 2006, EUR 2502 (by 8,3 %) in 2010, and by EUR 2657 (by 8,8 %) in 2013.

Table 4.15. Changes in the level of basic farm performance indicators for Lithuanian farms located within LFA in R scenario compared to A scenario

Indicator	2006		2010		2013	
	EUR	%	EUR	%	EUR	%
Output	-2224	-5,9	-1598	-4,4	-1598	-4,4
Subsidies	-704	-6,8	-904	-6,7	-1059	-7,9
Farm NVA without subsidies	-2223	-12,8	-1598	-9,6	-1598	-9,6
Farm NVA	-2927	-10,5	-2502	-8,3	-2657	-8,8
Farm NVA/AWU	-1171	-10,5	-1001	-8,3	-1063	-8,8
DP reduction (modulation effect), EUR					155	1,9

Source: LAEI calculations

The effect of modulation in the R scenario will lead to the decrease in farm direct payments in 2013 (compared to 2010) of EUR 155 (or by 1,9 %) per average Lithuanian farm situated in LFA.

Conclusions

The research above leads to the conclusion that the impact of the CAP reform (compared to the Agenda 2000 provisions) will vary among Lithuanian farms of different land feasibility for farming and types of specialisation. The reform will lead to positive changes to the average FADN farm in Lithuania, however, the farms of grazing livestock specialisation and of mixed specialisation will be impacted negatively, especially in the case of farms with mixed specialisation.

The farm net value added in the average Lithuanian farm will increase by 6,7 % in 2006 as well as by 16,6 % in 2010 and 15,2 % in 2013 as a result of the reform (compared to the current CAP). That means a higher EU support level will be sufficient to compensate the loss caused by reduction of milk prices in Lithuania.

However, within the farm groups of grazing livestock and mixed specialisation, the decrease in farm NVA by 12,2 % and 18,9 % (in 2006), 6,9 % and 18,8 % (in 2010) as well as by 7,1% and 19,2 % in 2013, is noticeable. The output reduction resulted by the CAP reform within these farm groups will not be covered by the higher support, and in the farms of mixed specialisation subsidies will decrease as well (by 33 % in 2006, 34,3 % in 2010 and 35,4 % in 2013).

The farms of field crops specialisation will gain from the reform since the increase in their NVA is estimated: by 36,3 % in 2006, 57,3 % in 2010 and 54,7 % in 2013.

The CAP reform will lead to positive impact upon the farms situated in normal areas (increase in farm NVA by 20,5 % in 2006, 36,7 % in 2010 and 34,8 % in 2013), whereas it will

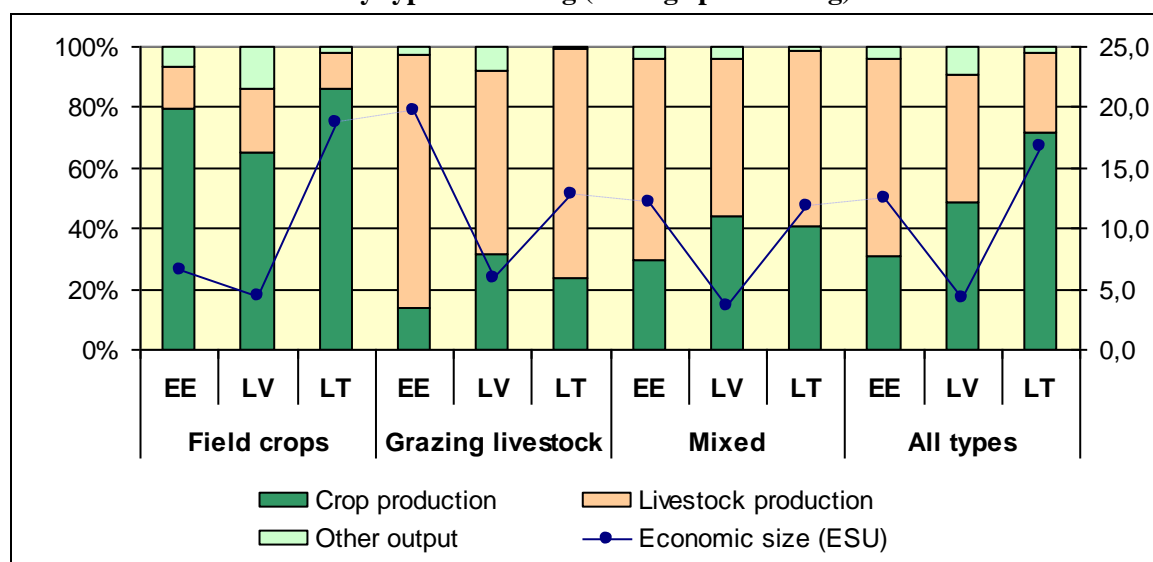
influence negatively the farms situated in LFA (decrease in farm NVA by 10,5 %, 8,3 % and 8,8 % respectively).

4.4.2.4. The Impact of CAP Reform on Farm Income in Baltic States

Two scenarios – unchanged CAP policy i.e. Agenda 2000 (scenario A) and CAP reform proposals (scenario R) – have been compared to evaluate the impact of CAP reform proposals upon the level of income of Estonian, Latvian and Lithuanian agricultural holdings. All calculations have been made for the following groups of farms categorized according to the type of farming: field cropping, grazing livestock, mixed and all types of farming i.e. the average farm. Analysis of the impact of CAP reform proposals upon farm income of the Baltic States has been carried out for the years 2006 and 2010 as well as for the year 2013 (in order to assess the effect of modulation). In addition, calculations have been made in terms of the farms within the LFA and outside the LFA.

The quantitative analysis on the farm level in three Baltic States shows that CAP reform would have a quite different impact on the level of farm income among three Baltic countries. These differences can be caused to a certain extent due to the specificity of agricultural holdings: the structure of production, average size of agricultural holdings. Figure 4.17 illustrates differences in production structures and economic size of Estonian, Latvian and Lithuanian agricultural holdings.

Figure 4.17. The structure of agricultural production and farm size in Baltic countries in 2001 by type of farming (average per holding)

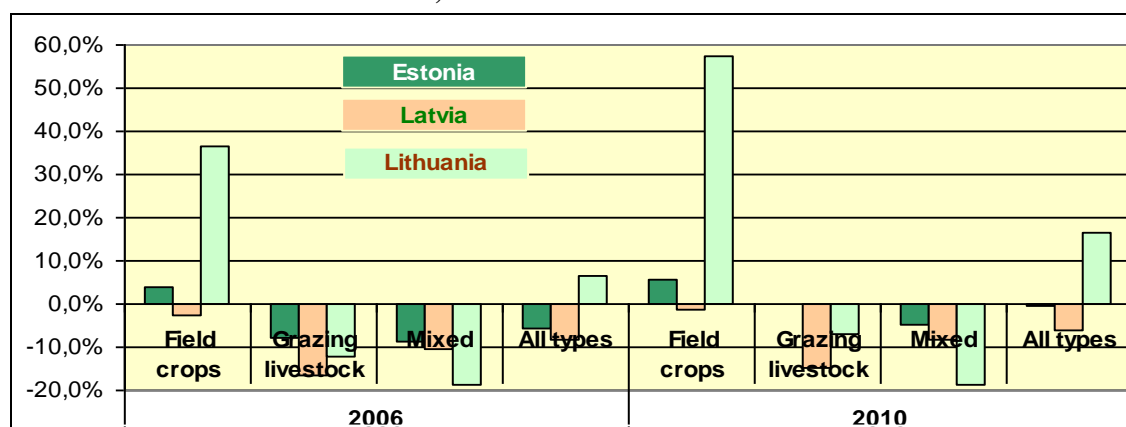


Source: calculations of JTAC, LVAEI and LAEI

The reform will lead to positive changes in the average FADN farm in Lithuania when farm NVA would increase by 6,7% in 2006 and up to 16,6% in 2010 compared to Agenda 2000 scenario (see Figure 4.18). However, agricultural holdings of grazing livestock type of farming and mixed type of farming will be negatively affected, particularly the holdings of mixed type of farming in percentage terms.

At the same time, the CAP reform would lead to a significant decline in the level of Farm NVA of the average holding in Estonia and Latvia (by 5,6% and 8,2% in 2006 and by 0,3% and 6,2% in 2010, respectively). In particular, as a result of the implementation of CAP reform, agricultural holdings of grazing livestock and mixed type of farming would be most negatively affected in Estonia and Latvia.

Figure 4.18. Impact of CAP reform on Farm NVA by type of farming in Baltic countries, % deviation from scenario A



Source: calculations of JTAC, LVAEI and LAEI

The analysis indicates that the CAP reform proposals would lead to an overall increase in the share of subsidies in Farm NVA compared to Agenda 2000 scenario (except for the mixed type of farming in Lithuania). However, the CAP reform would have various effects on the structure of farm income for holdings with different specialisation. According to the CAP reform scenario (R), the biggest share of subsidies in farm NVA would account for the mixed type of farms in Estonia (45% by 2006 and 55,1% by 2010), field crops type of farms in Latvia and Lithuania (70,9% and 53,4% in 2006; 75,2% and 62,2% in 2010, respectively).

CAP reform proposals would have a negative impact upon the level of NVA without subsidies for all types of farms in all three Baltic States mainly due to the gradual price reduction in the milk sector proposed by the European Commission during the period from 2004 to 2007. As a result of the price cuts the farm NVA without subsidies would drop most of all in grazing livestock type of farming in Estonia, Latvia and Lithuania compared to Agenda 2000 (26,5%, 23,9% and 15,8% in the year 2006, and 21,6%, 19,2% and 12,1% in 2010 respectively).

The modulation effect

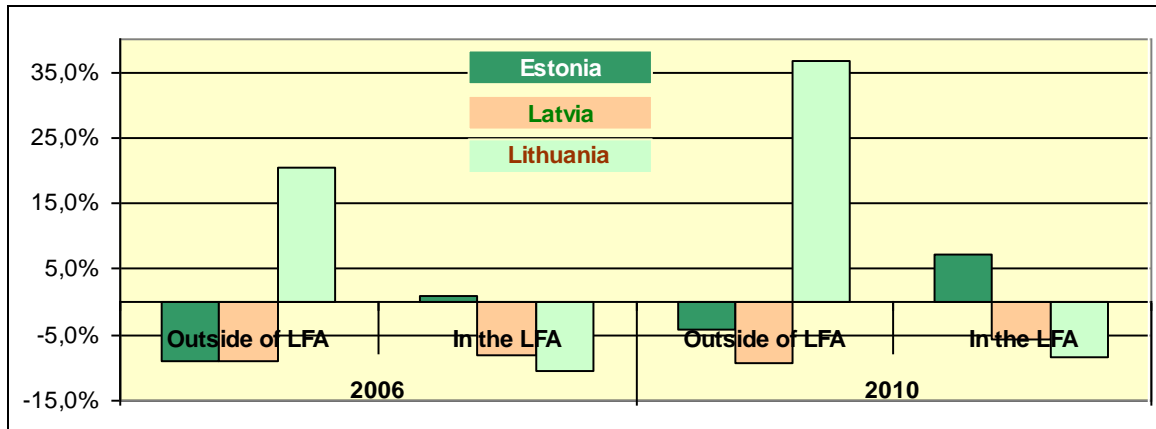
The results of simulations indicate that the effect of modulation of direct payments on the farm level would be related to a more significant decrease in the level of subsidies of agricultural holdings in the case of Estonia compared to Latvia and Lithuania. Holdings of grazing livestock type of farming would be most affected by the modulation in Estonia and Latvia. The total amount of subsidies would decline by 683 EUR i.e. by 3,4% and 107 EUR i.e. respectively by 1,1%, in 2013. Holdings of field crops type of farming would be most affected by the modulation in Lithuania with subsidies decreasing by 390 EUR i.e. by 3,1%.

Impact of CAP reform on the farms outside and within the LFA territories

The CAP reform proposals would have a quite different impact upon the farms within the less-favoured areas (LFA) and outside LFAs. As a result of the CAP reform, farm NVA of holdings outside LFAs would decrease significantly – by 8,9% in Estonia and by 9,1% in Latvia in the year 2006, and by 4,3% and 9,3%, respectively in 2010 compared to Agenda 2000 scenario (see Figure 4.19). In contrast, the CAP reform would affect positively the farms outside the LFA in Lithuania, since farm NVA is projected to increase by 20,5% in 2006 and by 36,7% in 2010.

The CAP reform might have a positive impact upon the main economic indicators of the farms within the LFA in Estonia (farm NVA is projected to increase by 0,8% in 2006 and by 7,3% in 2010 compared to Agenda 2000) and might have a negative impact on Latvian as well as Lithuanian farms (farm NVA is expected to decline by 7,9% and 10,5% in 2006 and by 5,7% and 8,3% in 2010 respectively).

Figure 4.19. Impact of CAP reform on Farm NVA of agricultural holdings outside and within the LFA in Baltic States for 2006 and 2010, (% deviation from A scenario)



Source: calculations of JTAC, LVAEI and LAEI

The CAP reform proposals, particularly the introduction of the system of decoupled income support for each farm, would have a negative impact upon the level of income of the average farm in Estonia and Latvia compared to the scenario of Agenda 2000. At the same time, the CAP reform would affect positively the income level of the average Lithuanian farm. Despite of that, the CAP reform will give more freedom to farmers to produce what the market wants by stimulating the farmers to move from less to more competitive agricultural products.

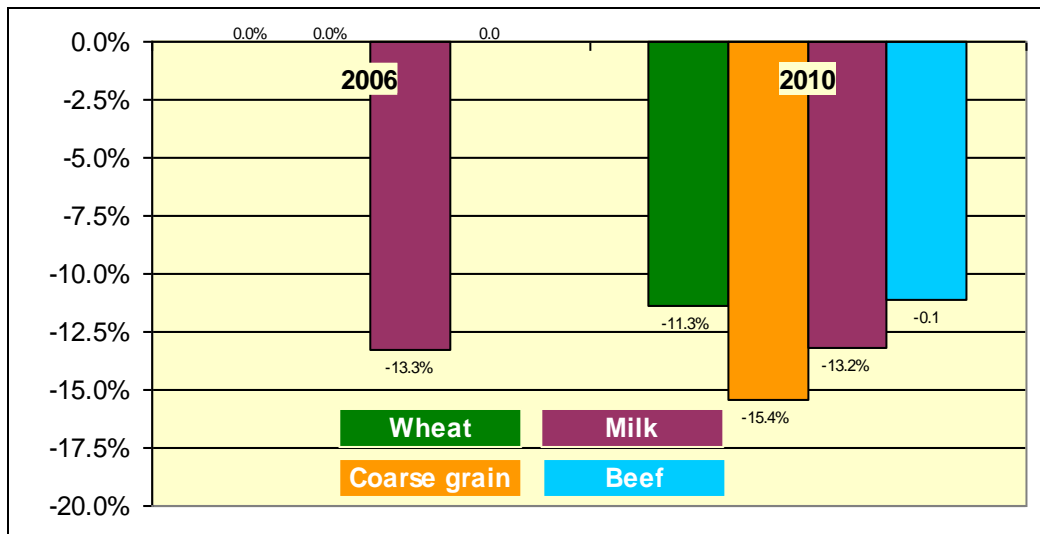
4.4.3. Analysis of the Results of Calculations Based on the Modelling Projections

4.4.3.1. Modelling Projections for Estonia

The price and support effects of the reform

The results of modelling simulations for Estonia indicate that the CAP reform proposals would have diverse impact on the level of producer incentive prices across the various sectors of agricultural production, especially in the year 2010. In particular, the incentive price of milk would decline by 13,3% in 2006 and by 13,2% in 2010 compared to A scenario (see Figure 4.20). At the same time, the level of incentive prices for other products would remain stable. However, decoupling of income support after 2009 would lead to a significant decline in the level of incentive prices for almost all products considered in the model in 2010 (except for pork and poultry).

Figure 4.20. Changes in the level of Estonian incentive prices in 2006 and 2010, % deviation from A scenario



Source: LSIAE calculations

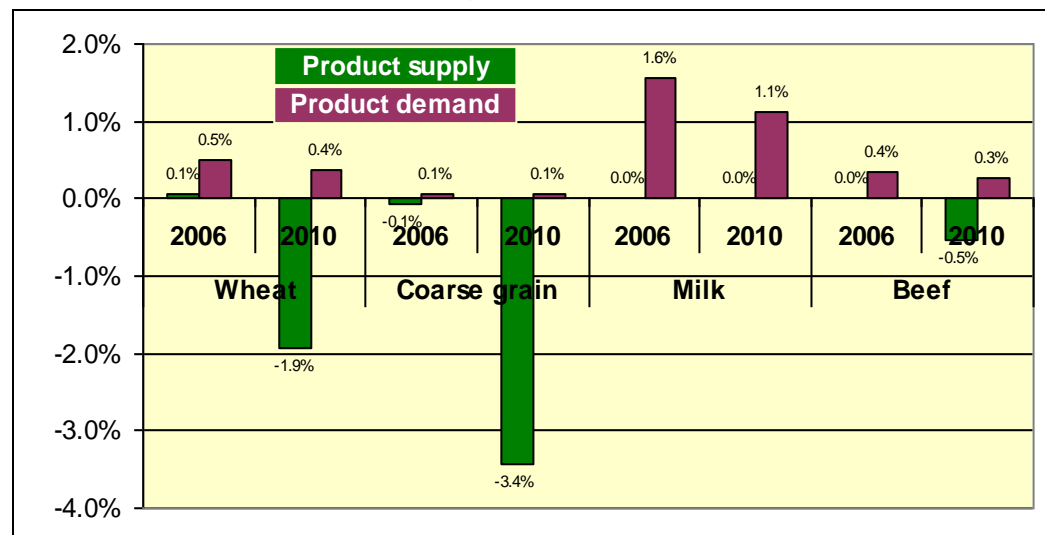
Effect on supply and demand

The CAP reform proposals would result in a negative impact upon the amount of agricultural production (see Figure 4.21). Nevertheless, the production of milk will remain within the quota limits which, as a result of the accession negotiations of Estonia with the European Union was fixed at the level of 624,5 thousand tonnes by the year 2006 and 646,4 thousand tonnes from the year 2007 onwards (including the reserve of 21,9 thousand tonnes available from 2007 onwards).

It should be pointed out that if milk production quota were not introduced in Estonia, the production of milk is likely to increase up to 732 thousand tonnes by 2006 and up to 771 thousand tonnes by 2010 as a result of the CAP reform proposals (773 and 818 thousand tonnes, respectively, in the case of A scenario). Consequently, introduction of milk production quotas might have a negative impact upon a number of Estonian dairy holdings over a long-term perspective.

Conversely, the price cuts in the milk sector, especially reduction of intervention price for butter and skimmed milk powder, would have a positive effect on consumption of milk products, by increasing demand for milk by 1,6%, i.e. from 435,2 thousand tonnes in A scenario up to 442 thousand tonnes in R scenario in 2006.

Figure 4.21. Impact of the CAP reform on product supply and demand in Estonia for 2006 and 2010, % deviation from A scenario

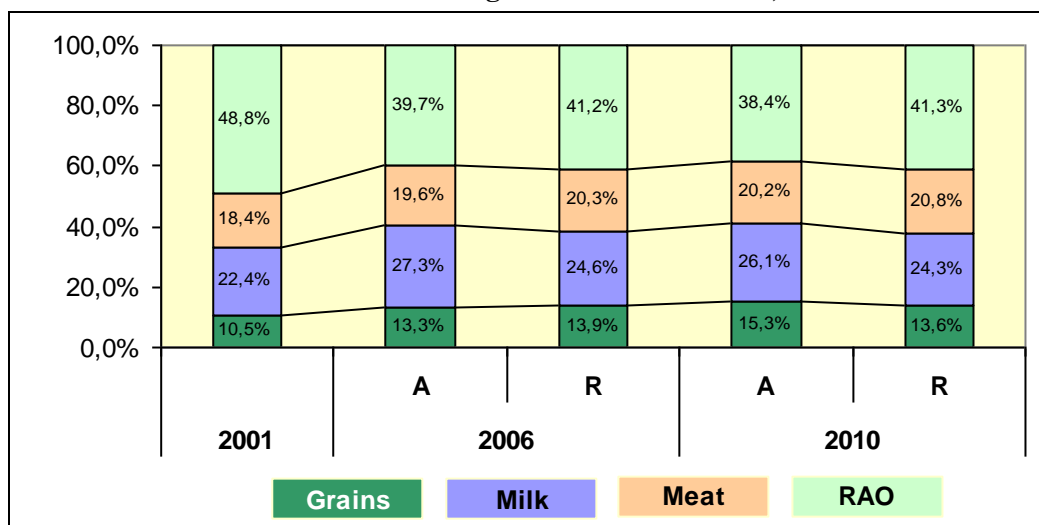


Source: LSIAE calculations

Implementation of the decoupled payment scheme would lead to a reduction in the production of cereals, particularly in wheat and coarse grain production (1,9% and 3,4%, respectively, by 2010 compared to A scenario). The impact of CAP reform upon consumption of cereals would be very modest.

The CAP reform proposals are also expected to change to a lesser extent the production structure of Estonian agricultural sector. In R scenario, the share of milk production would decrease by 2,7% in 2006 and 1,8% in 2010 compared to A scenario, mainly due to the gradual price cuts proposed by the European Commission during the period from 2004 to 2007 (see Figure 4.22). On the contrary, the share of meat and the rest of agricultural output is projected to increase by some 0,5-3% in 2006 and 2010.

Figure 4.22. Structural changes in Estonian agricultural production in 2001, 2006 and 2010 according to different scenarios, %

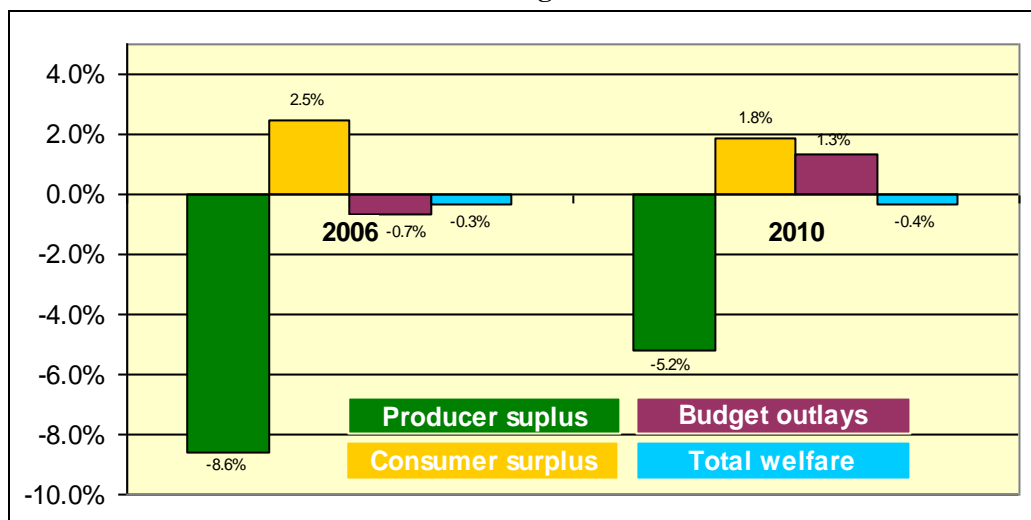


Source: LSIAE calculations

The changes in level of welfare

The CAP reform proposals would result in a significant fall in producer surplus. According to the CAP reform scenario, producer surplus would drop by 8,6% in 2006 and by 5,2% in 2010 compared to Agenda 2000 scenario (see Figure 4.23). The reform, however, would definitely have a positive impact upon Estonian consumer surplus. For instance, according to scenario **R** consumer surplus would remain at about EUR 795 million in 2006 (an additional increase of 2,5% compared to Agenda 2000 scenario).

Figure 4.23. Impact on welfare indicators for Estonia in 2006 and 2010, % deviation from Agenda 2000



Source: LSIAE calculations

At the same time, the budget expenditures on export subsidies of agricultural products would increase up to EUR 80 million (an additional increase of 1,3% compared to scenario **A**) by 2010, in the result of projected increase in export of agricultural products. On the whole, the impact of CAP reform proposals on the total welfare of Estonia would be very modest and might become positive only in a long-term perspective. However, the CAP reform proposals, especially the shift from production support to producer support by introducing the system of decoupled income support for each farm, would lead to a significant increase in the effectiveness of the income aid and thus facilitate more market-oriented and sustainable agriculture.

4.4.3.2. Modelling Projections for Latvia

The price and support effects of the reform

According to the model calculations, it can be noted that an essential difference between the level of farm gate (FGP) and incentive prices will be retained for all products, which are and will be subsidized by the National government, and after accession – by the European government.

If European milk policy is not going to change (as unchanged conditions of “Agenda 2000” programme considered “**A**” scenario) the incentive price on milk in Latvia (as well as in other Baltic States) could be on the level of EUR 282,8 per tonne in 2006 and EUR 277,0 per tonne – in 2010 according to the calculation results (see Table 20 in annexes).

The CAP reform measures targeted to enhance the competitiveness of the Community agriculture are reflected in assumptions of changes in the level of farm gate prices and support for **R** scenario. In comparison with “**A**”, scenario “**R**” implies the drop in institutional prices such as reduction of intervention prices on skimmed milk powder and butter by 15 % and 21 % correspondingly by year 2006 (for butter even by 25%, by year 2007)¹¹. For that reason the level of incentive price on milk is going to decrease in **R** scenario for the years 2006 and 2010.

The measures of enhancing the competitiveness in the EU dairy sector (**R** scenario) will be able to reduce the governmental efforts to encourage penetration of dairy products into the market (domestic and European as well). In such case, the decrease of the level of incentive prices for milk to EUR 245,5 per ton in 2006 and to EUR 241,2 – in 2010 compared to price level in **A** scenario, is quite indicative.

Even increasing of milk compensatory payments as early as from 2004 will not stop the decrease of level of incentive price in Europe and Latvia as well.

Another subject of CAP reform is the increase of direct support level for protein crops. For Latvia (taking into account 2,5 tonnes per ha as a reference yield), the support rate for pulses on the level of EUR 181 per ha could be increased to EUR 213 per ha. For that reason the level of incentive price for pulses in scenario **R** will be higher than in **A** scenario already in the year 2006.

However, comparison of incentive price levels between **A** and **R** scenarios in the year 2010 shows quite essential reduction in level of incentive prices for CAP reform scenario practically for all products considered in the model (with the exception of pork and poultry, which are not subsidized in the EU) due to switching from direct to indirect support, like shifting from production support to producer support since 2009 at latest, and by introducing the system of decoupled income support.

Effect on supply and demand

The calibrated matrixes of elasticities for supply and demand are calculated with the purpose to analyse influence of prices upon changes in production and consumption. The production and consumption volumes for 2006 and 2010 are calculated on the basis of calibrated elasticities and forecast incentive values or retail prices. The calibrated sets of price and income elasticities are reflected in Table 18 and Table 19 in annexes.

While certain measures of the reform will start since 2004 there will be no substantial effect on Latvian agricultural production in the year 2006. Reasonably to conclude that such effect might appear in the case of Latvian dairy sector as a response to price cuts applied since 2004. However the milk quota introduced for sales of dairy products will hold up any essential

¹¹ See the Council Regulation (EC) No 1787/2003 (of 29 September 2003) amending Regulation (EC) No 1255/1999 on the common organisation of the market in milk and milk products

changes. Latvian milk production (excluding feed requirements) will stay on unchanged level of 695,4 thousand tonnes of milk in 2006 (see Table 20 in annexes).

It is important to emphasize that if Latvian milk production would not be restricted by definite quota amount, in 2006 the production of milk could increase up to 1 million tones even assuming reduction of milk prices in the case of **R** scenario. Such a rapid development of milk production is determined by growth of milk prices in Latvia after joining the EU through the introduction of European intervention mechanism in dairy sector, when Latvian farm gate prices might gradually achieve 1,8 times higher level according to **A** scenario and 1,5 times higher level - in **R** scenario versus the year 2001.

Restriction of milk production by quota might reduce the number of Latvian actors playing their roles on the domestic and European dairy markets, or affect the domestic price level for milk. For instance, modelling calculations show that introduction of milk quota in Latvia on the level of 695,4 thousand tonnes in 2006 might essentially reduce the level of incentive price on milk – 2 and 2,3 times less for **R** and **A** scenarios correspondingly.

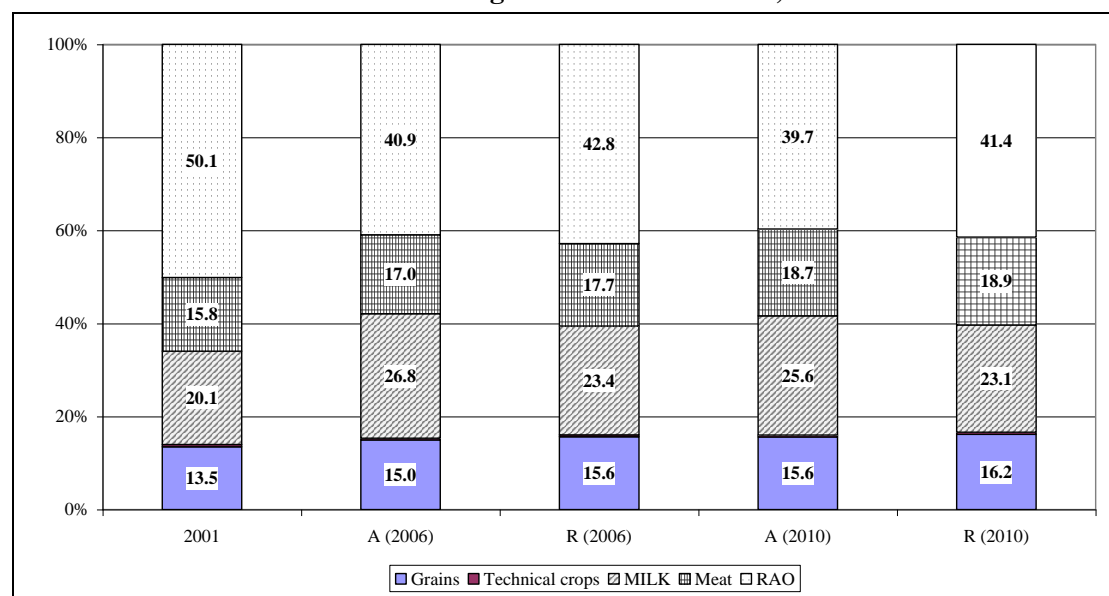
At the same time, reduction of milk price proposed by the European Commission will have a positive effect on consumption of dairy products, by increasing their demand from 671,6 thousand tonnes in **A** scenario to 679,3 in **R** scenario, in 2006 (see Table 21 in annexes).

Consequently, due to higher demand for milk products on the domestic market, the export of Latvian dairy products could be 7,6 thousand tonnes lower in **R** scenario compared to **A** scenario, in 2006.

Decoupling of direct support from the production might have a different impact upon the development of various sectors of agricultural production. The simulations for the year 2010 mostly describe the effect of decoupling of the EU income support by changes in the level of incentive price, which is going to be lower in **R** scenario compared to the situation when “Agenda 2000” will be still in force.

Figure 4.24 reflects the possible changes in the production structure of Latvian agricultural sector on various stages of CAP reform.

Figure 4.24. Structural changes in Latvian agricultural production in 2001, 2006 and 2010 according to different scenarios, %



Source: LSIAE calculations

As is shown, the share of milk production in Latvian agriculture is going to decrease slightly due to price reductions assumed during the period from 2004 to 2007. Latvian milk production will remain within the quota limits, which might increase after 2007 by 33 thousand tonnes (to the level of 728 thousand tonnes) according to the negotiation results.

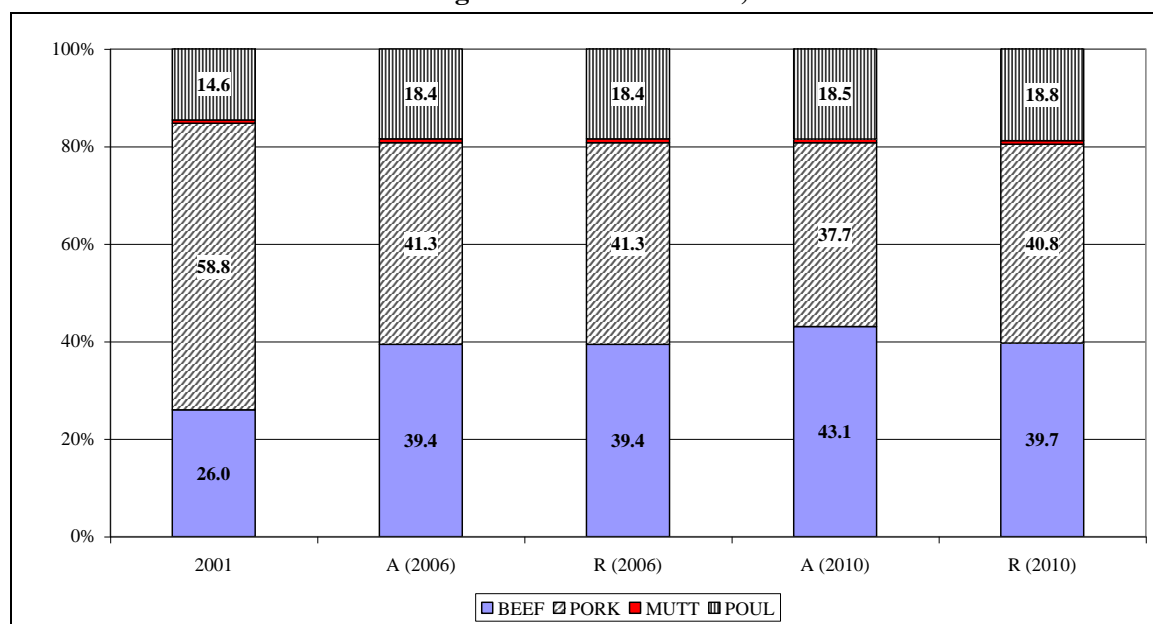
However, even in case of quota increase, the share of milk production will go down in **R** scenario for 2010.

Shares of all other agricultural sectors (as cereals, technical crops, meat production and the rest of agricultural output in general) will gradually increase in 2006 and 2010.

While the cereal production will increase substantially after accession (by 1,27 times for both accession scenarios – **A** and **R**), the share of wheat and other types of grain in cereal production will become larger in the case of **R** scenario.

In the Latvian meat sector, production of beef is going to decrease by 10% compared to **A** scenario in 2010. This is the most sensitive sector to CAP changes among all other branches of Latvian agriculture (see Figure 4.25). Decoupling of support in agriculture may affect the increase of pork production by 7% in 2010. At the same time production of poultry meat and mutton in **R** scenario will be almost on the level of **A** scenario, taking into account that poultry and pork production will increase correspondingly by 1,7 and 1,15 times after accession.

Figure 4.25. Structural changes in Latvian meat production in 2001, 2006 and 2010 according to different scenarios, %



Source: LSIAE calculations

While the levels of incentive prices among **A** and **R** scenarios differ significantly there is no any essential variations in level of retail prices between the scenarios mentioned, except for milk prices with levels of EUR 467,3 per tonne for **A** scenario and EUR 434,7 per tonne for **R** scenario in 2010. For that reason the demand calculated on the main agricultural and food products is nearly the same in both scenarios for the year 2010.

Analysing the Latvian foreign trade flows it is important to conclude that Latvia will still remain as a the net importer of beef in **R** scenario (although on the level of 70 tonnes only) against to **A** scenario when it would be possible even to export the beef in amount of 2,2 thousand tonnes (see Table 22 in annexes).

Besides, import of pork and poultry meat will decrease gradually after accession. The export amount of dairy products will be lower in **R** scenario (46,12 thousand tonnes) compared with **A** one (51,69 thousand tonnes) due to higher level of domestic consumption in 2010.

The changes in the level of welfare

Assessment of the effect of the reform on different interest groups of society – such as producers and consumers, enables to conclude that consumers will definitely gain in the case of reform against the agricultural producers, who might be the losers.

Because of substantial drop of institutional prices in the milk production sector during the period from 2004 to 2007, the revenues of producers will become less by EUR 25 million in 2006 and by EUR 20 million less in 2010 compared to “Agenda 2000” scenario (see Table 4.16). Growth of compensatory payments to milk producers will not be able to stop declining of their surpluses even before the decoupled system of payments will be introduced in the Community.

At the same time, price reductions proposed by the European Commission will save consumers’ spending in Latvia at EUR 29,9 million in 2006 and EUR 22 million in 2010.

Table 4.16. Deviations of Latvian welfare level in R scenario compared with A scenario, EUR million

The type of indicator	2006	2010
Producer surplus	-25,3	-20,0
Consumer surplus	29,9	21,8
Budget outlays	-5,2	1,3
Total welfare	-0,6	3

Source: LSIAE calculations

Budget expenditures for support to agriculture as well as outlays to cover the gap between the level of world and domestic prices (in the form of export subsidies) for products exported, might be reduced in long-term perspective due to changes in the structures of export and production among **A** and **R** scenario.

Thus in the case of implementation of CAP reform, the total welfare effect, distributed among producers, consumers and governmental budget (national or European after accession) might become positive in the year 2010 due to structural changes in Latvian agriculture after accession.

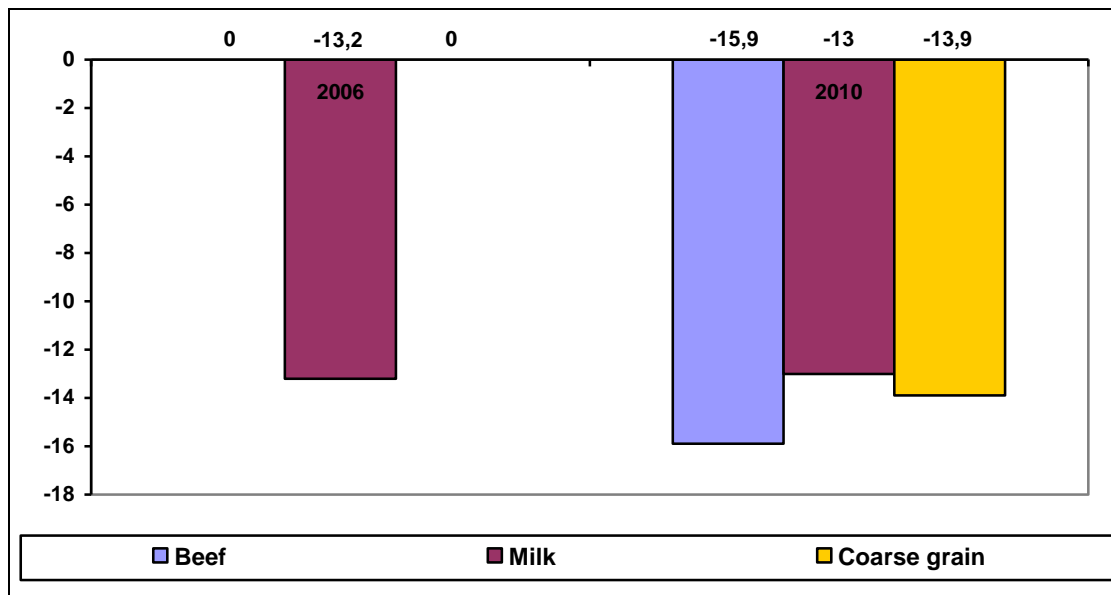
4.4.3.3. Modelling Projections for Lithuania

Price and support effects of the reform

Estimations show that as a result of the CAP reform, the level of incentive prices for most of the agricultural products in Lithuania will remain stable in 2006. The milk price is the exception, which is estimated to be lower by 13,2 % in R (CAP reform) scenario compared to the A one (Agenda 2000) because of the reductions in the intervention prices proposed by the reform (see Figure 4.26)

Unlike the above, the prices of most agricultural products (except milk and the products for which support is not applicable according to the provisions of Agenda 2000: poultry, pork and feedstuffs) will decrease in the year 2010. The milk price is expected to be lower by 13 % in 2010. The beef and coarse grain prices will not be affected by the reform in 2006, however, reductions of prices for these products by 15,9 % and 13,9 % respectively (comparing the CAP reform provisions with the Agenda 2000 policies) are expected in 2010.

Figure 4.26. Changes in the level of Lithuanian incentive prices in 2006 and 2010, % deviation from A scenario



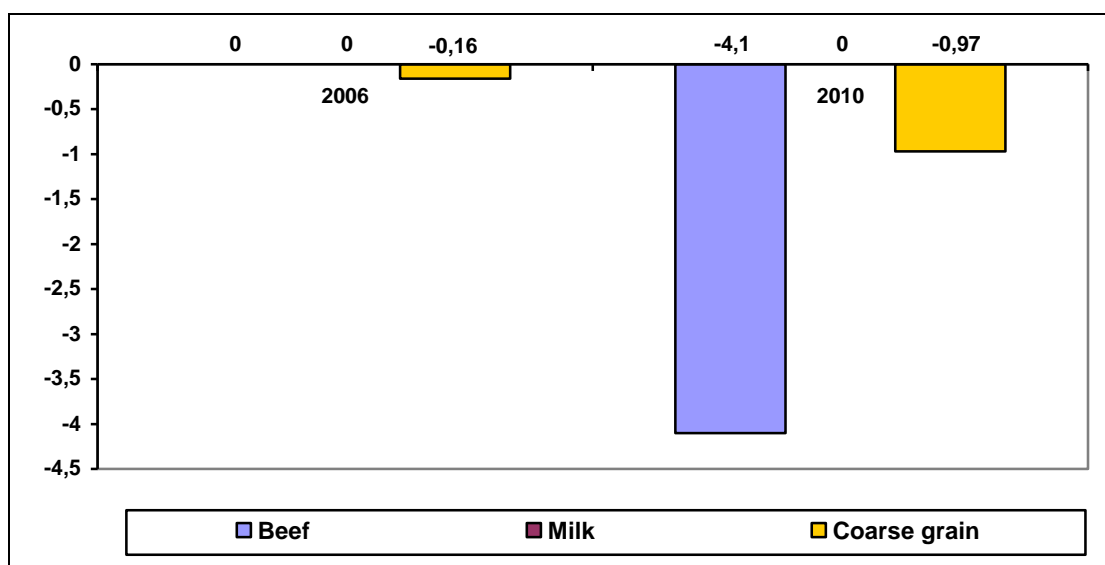
Source: LSIAE calculations

Effect on supply and demand

The product supply in Lithuania will be affected negatively by the CAP reform, especially in 2010 (see Figure 4.27). The milk production will remain within the quota limits negotiated in both 2006 and 2010. There will be no effect of the reform on beef production in Lithuania in 2006. However, for the year 2010 the negative effect of the reform appears in this sector (4,1 % decrease comparing R and A scenarios). This is due to decrease in the level of incentive price for beef from 3974,6 (A) to 3340,8 (R) EUR/t when beef premiums would be partly decoupled from production in Lithuania.

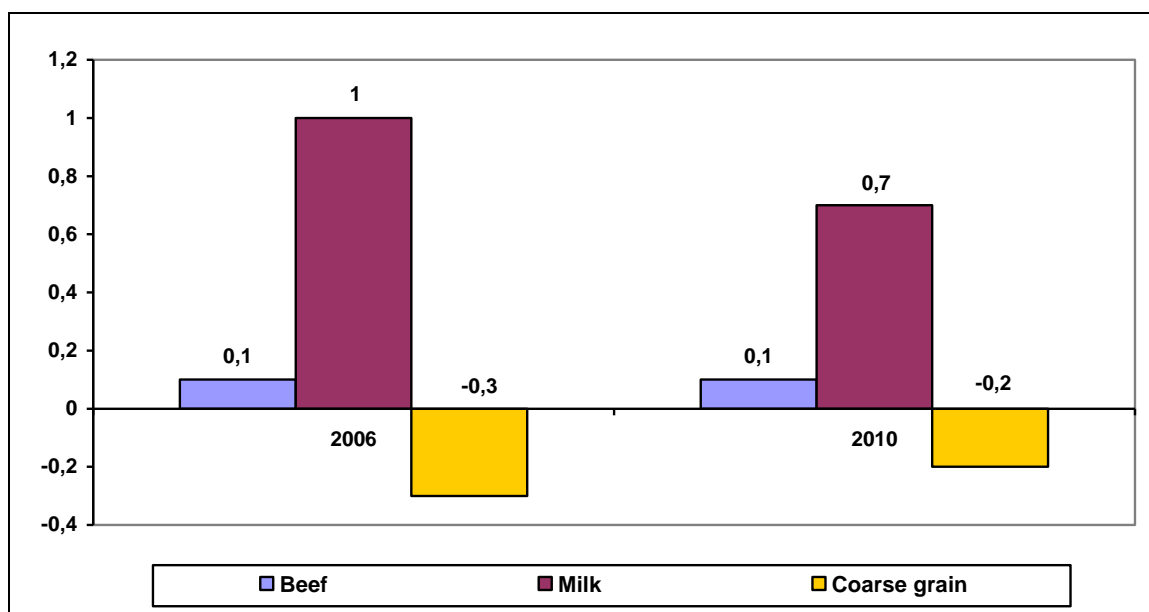
The effect of the CAP reform upon the supply of coarse grain crops would be insignificant (0,16 % reduction) in 2006, however, in 2010 the negative impact of the CAP reform by 0,97 % will appear. Prevailing of substitution effect among the different crops in plant-growing sector as well as reaction on the changes of incentive price are some of the reasons. The production of coarse grain and other types of grain will go down in 2010 (comparing A and R scenarios). At the same time, production of wheat will go up. The decrease of incentive price for wheat (from 148,1 (A) to 133,2 (R)) is less, as compared to the decrease of incentive prices for coarse grains and other types of grains. Furthermore such price decrease will take place because of partial decoupling of DP in Lithuania assumed in our calculations for 2010 through the transformation of all DP into the indirect payments (see formula (4.1) in Chapter 4.3.3).

Figure 4.27. Impact upon product supply in Lithuania for 2006 and 2010, % deviation from A scenario



Source: LSIAE calculations

Figure 4.28. Impact on product demand in Lithuania for 2006 and 2010, % deviation from A scenario



Source: LSIAE calculations

Comparison of R scenario with the A one shows an insignificant increase in beef demand affected by the CAP reform in 2006 and in 2010. Reduction in milk prices proposed by the EU Commission would have the positive impact upon the consumption of dairy products by increasing the demand from 949,5 thousand tonnes (A scenario) to 959 thousand tonnes (R scenario) in 2006 as well as from 955,6 thousand tonnes (A scenario) to 962,5 thousand tonnes (R scenario) in 2010. The CAP reform would decrease the coarse grain consumption, though not substantially (by 0,3 % in 2006 and by 0,2 % in 2010).

The changes in the demand for the domestic market will impact the net export. Consequently, due to a higher demand for dairy products on the domestic market the export of Lithuanian dairy products could be lower by 9,5 thousand tonnes in R scenario comparing with the A one in 2006 while in 2010 this difference would equal to 6,9 thousand tonnes.

Changes in the level of welfare

Estimating the impact of the CAP reform to the different groups (comparing with the current CAP) of society, conclusions could be made that consumers in Lithuania will gain in the case of the reform, and the producers of the agricultural production will be the losers. Producer surplus would go down by EUR 59,6 million or by 7,3 % in the R scenario compared to the A one, in 2006. In 2010, the reduction would count to EUR 43,9 million, or 4,5 %.

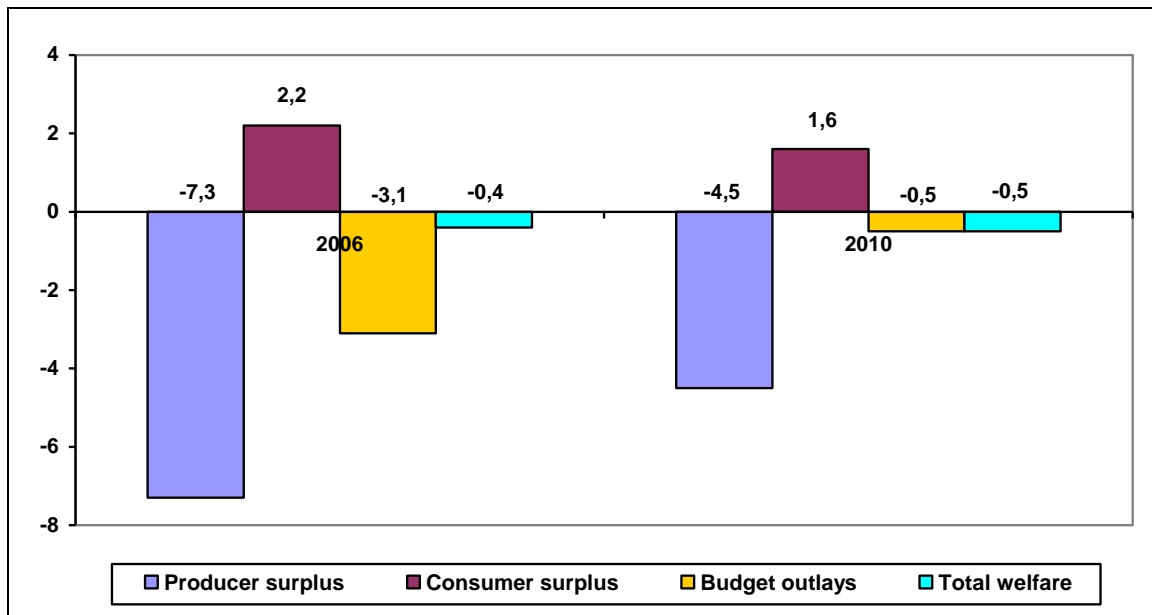
Table 4.17. Deviations of Lithuanian welfare level in R scenario compared with the A one, EUR million

The type of indicator	2006	2010
Producer surplus	-59,6	-43,9
Consumer surplus	42,0	30,6
Budget outlays	-6,7	-1,6
Total welfare	-10,9	-11,8

Source: LAEI calculations

The budget expenditures on the support to the agricultural sector and for the export subsidies would be lower by EUR 6,7 million (or by 3,1 %) in R scenario than in the A one, in 2006. In 2010, it would be lower in R scenario by EUR 1,6 million (or by 0,5 %).

Figure 4.29. Impact upon welfare indicators in Lithuania for 2006 and 2010, % deviation from A scenario



Source: LSIAE calculations

Increase in the consumer surplus and reduction of budget expenditures in R scenario compared to the A scenario results will not cover the negative effect aroused by reduction in the producer surplus caused by the CAP reform, and the total welfare will be lower by EUR 10,9 million (0,4 %) in the year 2006 and by EUR 11,8 million (or by 0,5 %) in 2010.

On the basis of above mentioned, it can be concluded that the total welfare effect of the CAP reform in Lithuania could be expected to become positive only after the year 2010. However, the changes in budget expenditures and consumer surpluses will lead to a positive effect of the reform in Lithuania.

4.4.3.4. The Impact of CAP Reform upon the Structure of Agricultural Sector in Baltic States

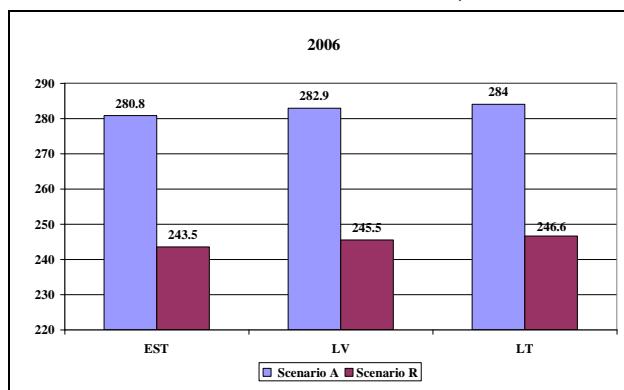
The modelling tool was applied in the present analytical study in order to assess the impact of CAP reform on the structural changes of agricultural production in Baltic States. For this purpose the simulation results for the years 2006 and 2010 were compared between two scenarios assuming unchanged CAP policy, which will be implemented in Baltic States after accession (as scenario **A**) and CAP policy reform scenario (scenario **R**). After joining the EU, the changes of CAP will definitely affect development of agricultural sector not only in EU-15, but also in the countries newcomers, including Baltic States as well. For that reason with the help of LASIM model (see chapter 4.3 of the present report) under certain assumptions and on the ground of scenarios elaborated (see chapter 4.2), an attempt was made to analyse the effects of the implementation of certain CAP reform measures intended to enhance the competitiveness of European agricultural products as well as to decouple the direct support from the production in Baltic States.

(1) Price and support effects of the reform

According to the model calculations it can be noted that an essential difference between the level of farm gate (FGP) and incentive prices will be retained for all agricultural products considered in the present study. This is because the majority of these products are subsidized by the National government, but after accession will be supported by the European Budget.

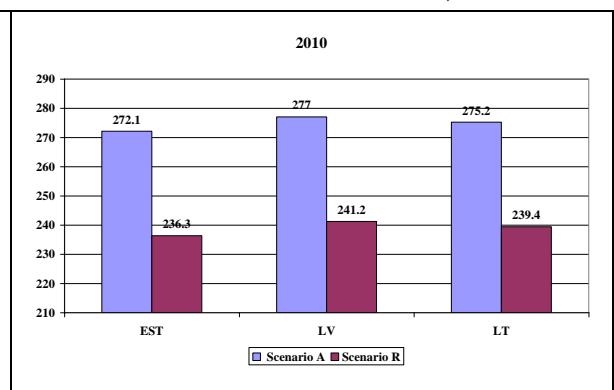
Projections of incentive prices for all products analysed in three Baltic countries shows that application of CAP reform in the EU could reduce the level of the EU incentive prices within the mid-term period compared to the conditions of unchanged CAP based on the principles of Agenda 2000 principles. At the beginning of the EU policy reform, no essential changes in the level of incentive prices for the majority of agricultural products under CMO are expected. The only important exception refers to the dairy sector in Baltic States. Enhancing the competitiveness of Community's dairy products by decrease of the intervention prices during the period from 2004 till 2007 will affect the diminishing of farm gate prices on milk in Baltic States, as well. Even the increase of compensatory payments from EUR 11,49 per tonne to EUR 24,49 per tonne of milk in 2006 will not stop the decrease in the level of incentive milk prices (on 13%) in Estonia, Latvia and Lithuania as it is shown in Figure 4.30. However, the decrease in the level of incentive prices means less motivation for agricultural producers to be engaged in milk production activities.

Figure 4.30. The level of incentive price for milk in Baltic States for 2006, EUR/t



Source: calculations of LSIAE, assumptions of EMoA, JTAC, LAEI, LSIAE

Figure 4.31. The level of incentive price for milk in Baltic States for 2010, EUR/t



Source: calculations of LSIAE, assumptions of EMoA, JTAC, LAEI, LSIAE

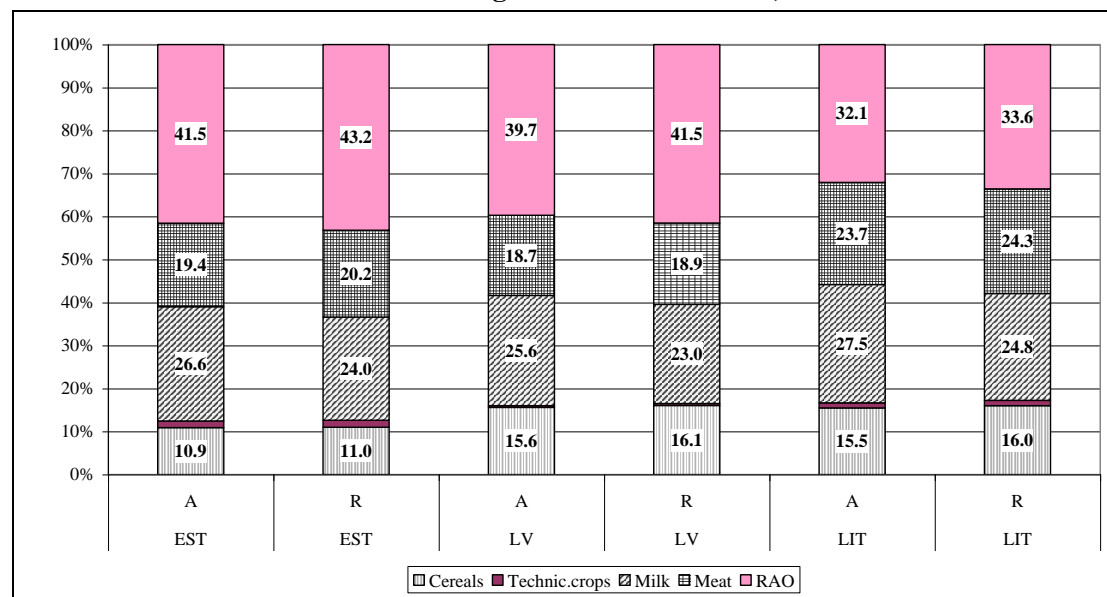
In 2010, the level of incentive prices will change considerably between the two scenarios not only in the case of dairy sectors, but in all other analysed agricultural sectors, such as cereals, rapeseed, beef and sheep meat (see Table 28 in annexes). Such difference might appear due to decoupling of income support from the agricultural production. As was mentioned in the Council Regulation No 1782/2003, while decoupling will leave the actual amounts paid to farmers unchanged, it will significantly increase effectiveness of the income aid. According to the assumptions used in the simulations, all direct support payments in Baltic States will be

transformed into indirect support, which will have two times less effect on the level of incentive price as a motivation of production decisions for agricultural producers. This is why in 2010 the decrease of incentive price level on main agricultural products might take place after introduction of the system of decoupled income support for each farm. Figure 4.31 reflects the expected changes of the incentive prices for milk in Estonia, Latvia and Lithuania after implementation of CAP reform measures as enhancing of competitiveness and decoupling of production support. Because in Latvia the essential support will be provided to farmers through LFA measures of rural development funding (about 40% of total Latvian agricultural land will be covered by LFA), Latvian incentive prices on agricultural products (including milk as well) could be higher compared to Estonia and Lithuania, where the amount of the land eligible for LFA measures is much smaller.

(2) Production and trade effects of the reform

While certain measures of the reform will be started from 2004, there will be no substantial effect on agricultural production in Baltic States in the year 2006. The milk quota introduced for sales of dairy products in Estonia, Lithuania and Latvia will hold up any essential changes not only in the dairy sector of Baltic States, but also in the agricultural sector as a whole. At the same time, usage of special restructuring reserve quantities¹² for increasing of milk production quota after 2007 as well as introduction of decoupled payments to agricultural producers might change substantially the agricultural production structures of Baltic countries in 2010.

Figure 4.32. Changes in the structure¹³ of agricultural production of Baltic countries in 2010 according to A and R scenarios, %



Sources: LSIAE calculations

Figure 4.32 shows the slight declining of milk share within the total structure of agricultural production in all three Baltic countries after application of CAP reform measures. At the same time, the share of cereals, rape and meat production could even increase in 2010. When analysing the tendencies in Baltic meat sector, it is important to emphasise that decoupling of support might have negative impact on beef production. In contrast with A scenario, production of beef will go down by 10 % in Latvia and 4% in Lithuania. Reduction in Estonian beef sector will be quite minor.

In Estonian and Latvian plant-growing sectors the production of rape will be able to compete successfully with the coarse grain production as the main cross product for rape. Production

¹² In the amount of 21885 tones for Estonia, 33253 – for Latvia and 57900 – for Lithuania.

¹³ Calculated on the basis of FGP assumed for 2010 (see Chapter 4.2.)

of coarse grain is going to decline in 2010 due to substantial decrease in the level of incentive price (up to 15% in both countries compared to A scenario). In Lithuania, coarse grain and rape production will be partly substituted by production of wheat, which will slightly increase in 2010 under the conditions of CAP reform.

Taking into account relatively stable consumers' demand on main agricultural and food products, the increase in the agricultural production will raise the export potential of Baltic countries in 2010. For instance after the implementation of CAP reform measures the export of wheat will increase all over Baltic. At the same time, the export of milk will go down, because of the restrictive mechanism of milk quota introduced after accession and the growth of domestic consumption as a reaction of consumers towards the price cuts assumed in the context of policy reform. Compared to "Agenda 2000" scenario, the export of beef will drop in all Baltic countries: by 11% in Estonia and 13% in Lithuania respectively. Latvia could even become the net importer of beef from the abroad in 2010 again.

(3) The overall country effect of the reform

LASIM model also enables to analyse the effects of CAP reform upon separate groups of interests in the society, such as producers, consumers and governmental budget, which is not distinguished between funding coming from the state and the EU.

As shown in Table 4.18, CAP reform measures will have a negative effect on the producers in all Baltic States because of essential institutional price cuts in milk sector. Even the increase of compensatory payments would not stop the decline of producer surpluses in R scenario compared to the unchanged policy scenario. At the same time it is important to point out that due to further restructuring process the gap in producer surplus between the two scenarios will become essentially less in 2010.

Table 4.18. Deviations of welfare level for Baltic States in R scenario compared with A scenario, EUR million

<i>Indicator</i>	<i>Estonia</i>		<i>Latvia</i>		<i>Lithuania</i>	
	<i>2006</i>	<i>2010</i>	<i>2006</i>	<i>2010</i>	<i>2006</i>	<i>2010</i>
Producer surplus	-22,7	-16,5	-25,3	-20,0	-59,6	-43,9
Consumer surplus	19,3	14,0	29,9	21,8	42,0	30,6
Budget expenditures	0,4	-1,1	-5,2	1,3	6,7	1,6
Total welfare	-3,0	-3,6	-0,6	3,0	-10,9	-11,8

Sources: LSIAE calculations

Contrary to producers consumers will be the subject of positive effects of the reform, because the decrease of the level of institutional prices will give them an access to cheaper agricultural and food products.

The structure of agricultural production and export will affect essentially the amounts of budget expenditures to agriculture in the form of producer and export subsidies. Comparatively high indirect support to milk and grain sector in Latvia paid through the LFA measures in the case of implementation of CAP reform will increase Latvian budget expenditures in the amount of EUR 5,2 million in 2006. More governmental support (on EUR 1,1 million) will be referred to production of rape, pork and other grains in Estonia for 2010.

Total welfare effect could vary essentially between Baltic countries in different years due to diverse production, export and costs structures.

5. COMMON PROJECTION FOR DEVELOPMENT OF BALTIC AGRICULTURE AND RURAL AREAS IN THE CONTEXT OF CAP REFORM

In the present study, the quantitative assessment of the CAP reform application in Baltics was carried out with the help of three different analytical tools based on EAA approach, farm income analysis on the ground of FADN data and application of Latvian Agricultural Simulation model (LASIM). Combination of these analytical tools gives the possibility to enforce the study by assessing the policy reform impact not only on the sector, but also on farm level after implementation of the following main policy measures in Baltic States:

- Enhancing the competitiveness of agricultural sector through the institutional price drop in dairy sector;
- Decoupling of direct support and introduction of Single area payment scheme (SAPS) for administration of direct support after accession;
- Modulation.

Table 5.1 illustrates the application of certain analytical tools for various measures of CAP reform proposed by the EC for the new Member States including Baltic as well.

Table 5.1. Analytical methods used in the quantitative assessment of the CAP reform

The policy measures evaluated	EAA approach	FADN data base	LASIM model
Enhancing the competitiveness	x	x	x
Decoupling, of which	x		x
- Introduction of SAP		x	
Modulation		x	

The specificity of implementation of policy measures reflected in Table 5.1 in each Baltic State is described in subchapters below.

5.1. Assessment of the Impact of CAP Reform upon Development of Agricultural and Rural Sectors in Estonia

The CAP reform measures proposed by the EC will completely change the way the EU supports agricultural producers. The new CAP will give farmers the freedom to produce what the market wants and will make the EU farmers including in the new Member States more competitive and market orientated, while providing the necessary income stability. At the same time, the majority of subsidies will be paid independently from the volume of production and will be linked to the respect of environmental, food safety and animal welfare standards, as well as the maintenance of farms in good agricultural and environmental conditions. All these substantial adjustments proposed by the EC i.e. enhancing the competitiveness of agriculture sector, promoting a market-oriented, sustainable agriculture and strengthening rural development could be achieved through the application of certain CAP reform measures.

This summary describes the main findings of the analysis of the economic impact of the main policy measures introduced by the CAP reform on the Estonian agricultural sector. The main results of these analyses are summarized as follows:

Enhancing of competitiveness

The analysis of EAA data showed the gain of Estonia agricultural sector compared to the situation in 2001, while applying both CAP reform measures and Agenda 2000 policies, due to the significant increase in the level of procurement prices after accession. However, the CAP reform would lead to a significant decline in the level of NVA without subsidies. ***Due to the gradual reduction in milk price level, NVA without subsidies would decline by EUR 25,8 million in the year 2006 and by EUR 18,8 million in the year 2010.*** Even a considerable increase in the amount of subsidies by some EUR 7,2 million would not fully compensate the decline of NVA without subsidies, which will lead to a substantial decrease in the level of Factor Income by EUR 8,6 million in 2006.

Comparison of two different scenarios in terms of sector income level brings to conclusion that the sufficient positive effect of the CAP reform on the Estonian agricultural sector might be expected only after 2006, due to a significant growth in product-related subsidies up to EUR 25 million in 2010, which will fully compensate the decrease in NVA without subsidies.

Decoupling of direct support and introduction of Single area payment scheme (SAPS)

Having regard of the Council Regulation No 1782/2003 establishing common rules for direct support schemes under the CAP, each new Member State should decide not later than by the date of accession whether to apply the classical direct payment scheme or the SAPS. For the purposes of this issue, the effect of introduction of SAPS was evaluated on the farm level as compared to the implementation of the classical direct payment scheme.

According to the results of the analysis, decoupling of direct support and introduction of SAPS would have a diverse impact upon the level of support across different types of farming. Holdings of the grazing livestock type of farming would gain most – up to 60,0% in 2006 and up to 44,2% in 2010 compared to the unchanged CAP policies. The impact upon farm subsidies for holdings of field crops and mixed type of farming would be considerably smaller compared to the holdings of grazing livestock type of farming. In particular, the level of subsidies for holdings of field crops and mixed type of farming would increase by 12,1% and 12,9%, respectively in 2006 compared to Agenda 2000 levels (12,0% and 7,9%, respectively in the year 2010).

However, even a considerable increase in the amount of subsidies would not fully compensate the decline of Farm NVA without subsidies. CAP reform proposal would result in a significant fall in the level of Farm NVA for the holdings of grazing livestock and mixed type of farming by 7,9% and 8,5%, respectively in 2006. However, Farm NVA of holdings of field crops type of farming is expected to increase by 4,0% in 2006 and 5,5% in 2010 compared to Agenda 2000 scenario.

Application of SAPS would have a quite positive impact upon the farms within the LFA and outside the LFA as well. Thus, in case of introduction of SAPS, subsidies for the holdings outside the LFA would increase by some 23,3% in 2006 and by 14,6% in 2010. The holdings within the LFA would gain even more 31,7% by 2006 and 29,4% by 2010.

As a result of the implementation of SAPS the share of subsidies in Farm NVA would increase in all types of farming compared to Agenda 2000 policies. The share of subsidies in Farm NVA would increase most of all in the case of holdings of grazing livestock type of farming, by some 15,9% in 2006 and about 14,5% in 2010 compared to continuation of the Agenda 2000 policy. Following the CAP reform proposal, the biggest share of subsidies in Farm NVA is projected for the holdings of mixed and field crops type of farming - 44,9% and 45,0% in the year 2006, and 55,1% and 54,6 % in the year 2010 respectively.

Introduction of the system of decoupled income support for each farm would lead to reduction in the production of cereals, particularly in wheat and coarse grain production in the year 2010 (1,9% and 3,4% respectively, compared to Agenda 2000). In addition, the CAP reform proposals would result in a significant fall of producer surplus, which might drop by 8,6% in 2006 and by 5,2% in 2010 compared to Agenda 2000 scenario. The reform, however, would definitely have a positive impact on Estonian consumer surplus, which might increase by EUR 19,3 million in 2006 and EUR 14 million in 2010.

Modulation

Reduction of direct payments, the so-called “modulation” for bigger farms to finance the rural development policy will start in the current EU Member States in the year 2005. However, according to the proposal of the EC, the system of modulation shall not be applied in the new Member States until the phasing-in of direct payments reaches the EU level i.e. until the year 2013. For the purposes of assessment of modulation affect on farm level, an additional calculation was made for the year 2013.

Modulation of direct payments would have a major impact on the amount of subsidies. The grazing livestock type of farming would be most affected by the modulation; the total amount of subsidies would decline by about EUR 683 i.e. by some 3,4% in 2013. It is possible to conclude from the results of the present study that *the total modulation effect for Estonian agricultural sector could be up to EUR 2,82 million in the year 2013. The results also indicate that about 51% of Estonian farms could be subject of modulation measure, and average reduction of direct support could be EUR 340 per farm.* However, taking into account that any Member State shall receive at least 80% of the total amounts, which the modulation has generated in that Member State, it is possible to conclude that the total impact of the modulation measure upon the income level of Estonian agricultural sector might be modest.

5.2. Assessment of the Impact of CAP Reform upon Development of Agricultural and Rural Sectors in Latvia

Evaluating the impact of CAP reform, which will come in force from 2004 in all Member States including Latvia, Lithuania and Estonia, it is important to point out the core of the reform is *significantly increase the effectiveness of the income aid while the actual amounts of support paid to farmers will remain unchanged, which would mean for the new Member States - within the national envelopes agreed during the accession negotiations.* At the same time, introduction of new support schemes as single area payments or single farm payments should be conditional on cross-compliance with environmental, food safety, animal health and welfare, as well as maintenance of the farm in good agricultural and environmental conditions.

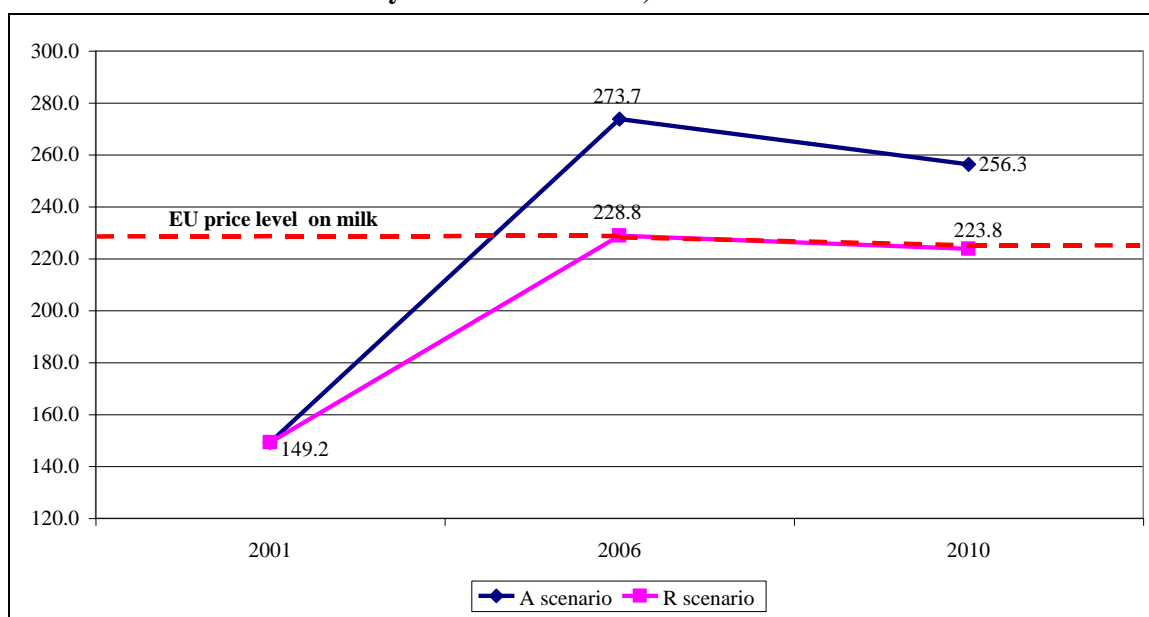
Promoting more market-orientation and sustainable agriculture, the effectiveness of income aid could be increased through the application of several important policy measures, which comprise the essence of CAP reform.

Enhancing the competitiveness

As was said in the Council Regulation 1782/2003: “Enhancing the competitiveness of Community agriculture and promoting food quality and environment standards necessarily entail a drop in institutional prices for agricultural products and an increase in the costs of production for agricultural holdings in the Community”. For these purposes the level of market support should be diminished, specifically by gradual reduction of intervention prices for butter and skimmed milk powder set by the Council Regulation (EC) No 1787/2003.

However, such *price cuts will not affect much the milk and dairy producers in Latvia, particularly during the first years of Latvian membership in the EU.* Application of Common Agricultural Policy (CAP) in all Member Countries, including the newcomers, as well as essential current price gap between Latvian and EU price on milk and dairy products will create the conditions when after accession, Latvian milk prices should go up gradually until the EU price level. As shown in Figure 5.1, even in case of CAP reform (**R** scenario) and overall milk price decrease in Europe, Latvian milk procurement prices might increase by 50% after accession.

Figure 5.1. Development of procurement price on milk in Latvia after accession for the years 2006 and 2010, EUR/t



Source: Agriculture of Latvia, 2003., p.45; assumptions of LSIAE, LAEI, EMoA, JTAC.

The price cuts proposed by the EC would mostly refer to the old Member Countries. However, even in this case the price drop will be compensated by increase of direct payment for milk to EUR 8,15 per tonne in 2004, EUR 16,31 per tonne in 2005, EUR 24,49 per tonne from 2006 and onwards. Such increase of compensatory payments will be applicable for the new Member States as well with corresponding phasing-in rate until 2013.

At the same time even compensatory payments would not stop the gradual decrease of market revenues for milk producers due to institutional price cuts in case of the reform. Compared to the unchanged conditions of Common Agricultural Policy, Latvian agricultural sector could lose EUR 30,6 million and EUR 22,3 million in the years 2006 and 2010 correspondingly because of reduction in milk price level.

It is also important to mention that general increase of milk prices in Latvia after accession will be relevant only to producers meeting all EU standards and quality requirements. Further increase of milk production within the all quality restriction will be limited by total milk quota set on amount of Latvian raw milk sales.

Thus, after joining the EU the expected increase of prices on milk and dairy products in Latvia with simultaneous introduction of milk quota will not change essentially the structure of agricultural production.

Decoupling of direct support and introduction of Single area payment scheme (SAPS)

As was clearly defined in the EC regulation 1782/2003, it is necessary in European agricultural policy to complete the shift from production support to producer support for each farm. For such purpose a new direct payment system such as the Single Payment Scheme (SPS) will be introduced from 1st January 2005 in EU-15. In order to be integrated smoothly into the reformed CAP, before the introduction of SPS each new Member State should decide, which system will be implemented for administration of direct support after accession: the application of classical direct payment scheme or Single area payment scheme (SAPS). Inasmuch as all three Baltic States are intensively carrying out the consultations about the option to introduce the SAP system, the effect of introduction of SAP was evaluated in the present study on farm and sector level by application of the following quantitative techniques:

1. *Application of common single area payment rate for direct support on the level of farms with different specialisation in Latvia.* According to proposal for a council

decision adapting the Act of Accession¹⁴ single area payment rate for Latvia was calculated by dividing annual financial envelope (for the years 2006 and 2010) by agricultural area as a part of utilised agricultural land, which has been maintained in a good agricultural condition. These rates calculated (see Table 4.1 in Chapter 4.2) were assumed to be applicable after accession to agricultural holdings in case of **R** scenario.

2. ***Assuming that on the sector level, all direct payments would be decoupled in year 2010 by decrease of producers' motivation to produce definite agricultural product.*** All direct support, which is recalculated per tonne of product produced and is used for calculation of incentive prices in LASIM model (see formula (4.1) in Chapter 4.3.3.) was transformed into indirect support for **R** scenario. The calculation of incentive price level was done assuming that all support granted to producers is indirect, but the value of the multiplier applicable to the share of support in the level of incentive price is 0,5 for all indirect support paid in 2010.

Quantitative analysis of decoupling issues on farm level (based on FADN data) shows that in case of application of SAP there might not be any essential changes in the level of support for an average Latvian farm compared to introduction of classical direct payment scheme taking into consideration the current farm structure in Latvia.

However, definitely less support will be available for mixed farms and grazing livestock farms if SAP will be introduced in Latvia. Compared to application of classical direct support scheme, grazing livestock farms will lose about 6% and 10% of support correspondingly in the years 2006 and 2010. In contrast to grazing livestock farms, decrease of support in mixed farms might be less due to smaller share of livestock production in the farm output.

In case of SAP application the decreases of direct support will result to reduction of the value of total farm output and NVA for these two types of farms in Latvia.

Another category of farms, which might sense negative effect from the application of SAP, is farms with higher intensity of land use in their production. As example of such farms the agricultural holdings situated on the territories outside of LFA could be mentioned. These farms are located in the central part of Latvia, rather close to Riga and characterised by relatively high economic size (13,3) and smaller utilized agricultural areas. In case of introduction of SAP, such farms might lose essential share of their subsidies correspondingly 13 % and 15% in 2006 and 2010. Therefore introduction of SAP subsequently might arouse significant structural changes of land use in the future.

At the same time, field-cropping farms might receive more support, as it would be expected within the framework of "Agenda 2000". If the total financial envelope will be divided by agricultural area eligible for area payments in Latvia, the share of subsidies in NVA for field cropping farms will increase on 3% more in 2006 and on 2% in 2010 in average, remaining the field-cropping farms as the most subsidized type of farms in Latvia after accession with absolute shares of subsidies 71% and 75% in NVA correspondingly in 2006 and 2010.

Analysis of decoupling effect on the basis of modelling projections show that less support impact on the production could negatively affect the production of beef in Latvia. ***While the volume of agricultural production could increase essentially after accession due to the efficiency increase, the growth in Latvian beef production could be significantly less compared to other agricultural sectors (particularly wheat and rape production).***

¹⁴ Proposal for a Council decision adapting the Act of Accession of Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia and the adjustments to the Treaties on which the European Union is founded, following the reform of the common agricultural policy, COM(2003) 643 final, Brussels, 27.10.2003.

Comparing with the conditions of “Agenda 2000” programme, Latvian production of beef could even decrease by 9,2% in 2010. In this case, Latvia will remain the net importer of all types of meat including the beef as well.

Modulation.

While according to the proposal for the Council Regulation adapting the Regulation (EC) No 1782/2003¹⁵ it was said that the system of modulation should not be applied in the new Member States until the level of direct payments applicable in the new Member States is at least equal to the level applicable in the Community, the present study contains the assessment of modulation effect which might appear in 2013 when the level of support applicable in Latvia corresponds to the EU level.

Assuming the application of modulation measure on the basis of current farm structure (FADN data for the year 2001) and taking into account that average economic size of a farm in Latvia will remain on the level of 4,3 units, it is possible to conclude that *the total modulation effect for Latvian agricultural sector could be up to EUR 2,49 million in 2013. It means that 13 % of Latvian farms could be subject of modulation measure and average reduction of direct support could be EUR 43 per farm.*

Among the farms with different type of specialisation comparatively large reduction of direct support could be applied for farms dealing with grazing livestock – EUR 107 per farm as the biggest farms (in terms of economic size with 5,9 units in average) in Latvia. 31% of grazing livestock farms will face the reduction of direct support due to exceeding of EUR 5000 level of support granted per farm.

However, taking into account that every Member State will receive at least 80% of its modulation fund through the rural development funds it is possible to conclude that the total effect on the modulation might not be so essential for Latvian agriculture as only redistribution of funding granted to Latvian agriculture and rural development will take place.

5.3. The Assessment of the Impact of CAP Reform on Development of Agricultural and Rural Sectors in Lithuania

The dairy sector in Lithuania will be influenced most significantly by the CAP reform since the reductions of prices within this sector proposed by the reform. Decoupling and modulation measures are the other ones, which will have effect on Lithuanian agriculture on the farm and sector level.

Enhancing the competitiveness in the dairy sector

The dairy sector prices will be reduced in the EU member states, and this is one of the main elements of the CAP reform making the influence to Lithuanian milk and dairy producers (comparing with the Agenda 2000 policies). However, compared to the situation in 2001, the application of the Common Agricultural Policy (CAP) measures in Lithuania will lead to the increase in dairy prices after the EU accession even in the case of the reform.

The price drop caused by the reform will be compensated by the increase in the direct payments by EUR 8,15 per tonne in 2004, EUR 16,31 per tonne in 2005, EUR 24,49 per tonne from 2006 and onwards in Lithuania as well as in the other current and new EU Member States. *Nevertheless, the compensatory payments will be insufficient to cover the*

¹⁵ Proposal for a council regulation adapting the Regulation (EC) No 1782/2003, establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers, Regulation (EC) No 1786/2003 on the common organisation of the market in dried fodder, and Regulation (EC) No 1257/1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) by reason of the accession of Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia to the European Union. COM(2003) 640 final, Brussels, 27.10.2003.

loss by Lithuanian Agricultural sector, which will amount to EUR 78 million and EUR 56,8 million in the years 2006 and 2010 respectively. On the other hand, the fulfilment of the cross compliance requirements will require additional investments by Lithuanian dairy producers.

However, on the basis of the modelling results it is possible to conclude that milk production is expected to change neither in 2006, nor in 2010. The incentive prices for milk are expected to decrease by approximately 13 % in both 2006 and 2010, which will result in slight increase in the consumption, by 1 % and 0,7 % in 2006 and 2010 respectively.

Decoupling of direct support and introduction of Single area payment scheme (SAPS)

The analysis performed on the basis of FADN data approach in Lithuania shows that there would be a significant increase in the level of support for the average Lithuanian FADN farm in case of application SAP proposed by the CAP reform comparing it with the current EU direct payments scheme. This will compensate the decline in the level of NVA without subsidies (caused by price reductions in the dairy sector), and NVA in the average FADN farm will rise by 6,7 % in 2006 and 16,6 % in 2010.

However, the comparison of R (CAP reform) and A (“Agenda 2000”) scenarios gives various results for the farms with the different types of specialisation. *Implementation of SAP results the gain by Lithuanian farms of field cropping FADN specialisation (the farm NVA within this farms’ group will increase by 36,3 % in 2006 and 57,3 % in 2010) while the farms specialised in grazing livestock and the mixed farms will be the losers.*

Compared to the standard EU direct payments scheme the support to Lithuanian FADN farms of grazing livestock specialisation will increase by 34,1 % and 37,9 % in the years 2006 and 2010 respectively; however, this will be insufficient to cover the losses caused by the decrease in milk prices, so farm NVA will drop by 12,2 % (in 2006) and 6,9 % (in 2010).

The situation in the farms of mixed specialisation will be worsened by the CAP reform even more significantly, since these farms will lose 33 % and 34,3 % of their support in the years 2006 and 2010. This will increase the gap in farm NVA between A (Agenda 2000) and R (CAP reform) calculations scenarios (there will be the decrease in farm NVA of approximately 19 % in the R scenario in both 2006 and 2010).

The level of direct payments will increase in the farms situated on areas outside LFA (by approximately 2,2 times in 2006 and 2,3 times in 2010) while it will decrease in those situated in LFA (by approximately 7 % in both 2006 and 2010). This will cause the increase in farm NVA in 2006 and 2010 by 20,5 % and 36,7 % (in the farms of normal areas) as well as the decrease in farm NVA by 10,5 % and 8,3 % respectively (in the farms of LFA).

The estimations above could be explained in terms of the production structure in the farm groups researched. If the crop production makes the greatest share in the production structure of the average Lithuanian FADN farm, then the share of the livestock production is not so significant. Different situation is in the farms of grazing livestock and in the mixed farms where the livestock production makes a considerable share in their income structure. The single per hectare payment means the full decoupling, which will enable the livestock sector to be supported only through the payments per hectare of meadows and pastures. However, these payments would not be lower than direct payments, which could be received by the livestock sector if standard direct support schemes under Agenda 2000 provisions will be used. Taking into account the priority goals by Lithuanian agricultural policy to foster the development of the milk and meat sectors in the country leads to the conclusion that the full decoupling from the agricultural production would contradict with Lithuanian agricultural policy priorities, and for that reason the Lithuanian government decided to choose the alternative case or partial decoupling laid down in the CAP reform provisions.

In the case of the farms situated on the LFA territories, the structure of agricultural production is the reason of decrease in the direct payments as well as in the farm income in this farm group since the livestock sector comprises much bigger share in the production structure in this farm group than in those located in the normal areas. In the year 2013, the direct

payments would be reduced to an even greater extent as a result of modulation. The estimation above leads to the necessity of choosing the alternative as the partial decoupling, as it has already been mentioned above.

Forecasts done on the basis of the modelling approach show that the decoupling could have the negative impact upon beef production, which is expected to decrease by 4,1 % in 2010. At the same time, the production of poultry will increase by 6,3 %. There will also be a slight effect of about 1 % reduction in coarse grain production; however, the production of wheat is expected to increase by 1,9 %.

Modulation

The estimations done on the basis of Lithuanian FADN approach (taking into account that the average economic farm size will remain 16,7 ESU) show that *the direct payments will be reduced by EUR 316 (or 2,8 %) per average Lithuanian FADN farm as a result of modulation*. Based on preliminary results of Agricultural Census approximately 10 thousands (about 3,6 %) of Lithuanian farms will be subject to modulation. *Thus it is possible to conclude that the total modulation effect on Lithuanian agricultural sector could count to about EUR 3,16 million in year 2013*.

The farms of field cropping specialisation as well as the farms situated in areas outside LFA will be mostly influenced by modulation. The modulation effect per farm of field cropping specialisation will come up to EUR 390 (direct payments will be reduced by 3,1 %). In the farms of normal areas the DP will be reduced by EUR 410 or 3,1 %.

Taking into consideration that at least 80% of the modulation funds in Lithuania (as well as in the other member states) will be retained inside the country through the rural development funds the modulation impact upon the Lithuanian agricultural sector is expected to be not very significant, and the modulation will perform the redistribution function within the sector in order to strengthen the rural development.

5.4. Assessment of the Impact of CAP Reform upon Development of Agricultural and Rural Sectors in Baltic States

With the help of three different analytical tools, such as EAA, farm income analysis on the basis of FADN data and mathematical modelling, the certain set of CAP reform measures, which will be applicable in Baltic States after accession, were assessed in the present study. *The policy measures comprising the core of the reform as enhancing the competitiveness (mostly in dairy sector), decoupling of direct support from the production as well as the modulation were analysed on the sector and farm levels for agriculture of Estonia, Latvia and Lithuania.*

One of the most important features of application of CAP reform in candidate countries including Estonia, Latvia and Lithuania, is that the reform principles should incorporate the negotiation results in order to integrate smoothly new Member States into the reformed CAP. *Therefore after joining the EU the increase of the effectiveness of income aid will be carried out in Baltic States within the amounts of national envelopes agreed during the accession negotiations.* That means there will not be any essential changes in the financial framework (financial regimes or discipline) set by the Accession Treaty for Baltic States implementing CAP reform measures immediately after accession.

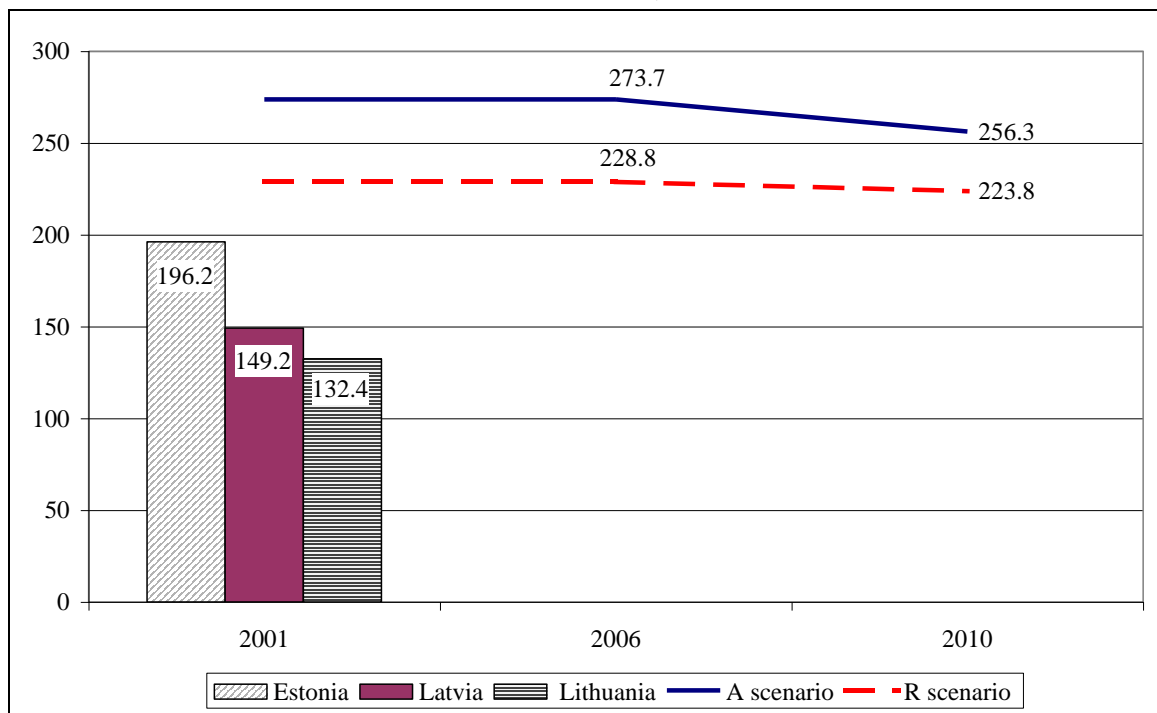
It is necessary to emphasize that CAP reform effects are much more dependent on the concrete policy mechanisms, which will provide the application of definite reform measures in each particular country. Thus the national specificity of Baltic States in the application of the changed EU Common agricultural policy (for instance, the nationally specific policy mechanisms for introduction of SAP) was taken into account in the mid-term policy analysis carried out in the study.

Enhancing the competitiveness in dairy sectors

Comparing the current level of producer prices on raw milk in Baltic States with the corresponding price level in the EU, it is possible to conclude that gradual reduction of intervention prices for butter and skimmed milk powder set by the Council regulation (EC) No 1787/2003 *will not affect much milk production in Baltic States particularly during the first years of their membership in the EU.*

As it is shown on Figure 5.2 even in case of overall milk price decrease in Europe (according to CAP reform scenario **R**), milk producer prices in Baltic might increase after accession (in 2006) by 17% - in Estonia, 54% - in Latvia and by 73% -in Lithuania. However, general increase of milk prices in Baltic after accession will be relevant only under fulfilment of the obligations referred to the cross-compliance with environmental, food safety, animal health and welfare, as well as the maintenance of the farm in good agricultural and environmental conditions.

Figure 5.2. Producer price level on raw milk in Baltic States and in the EU according to the different scenarios, EUR/t



Source: Agriculture of Latvia, 2003, p.45; assumptions of LSIAE, LAEI, EMoA, JTAC.

The milk price increase after accession will be able to foster the development of dairy sectors in Baltic States. But further increase of milk production within the all quality restriction will be limited by total milk quota set on amount of raw milk sales for each country.

Thus, after joining the EU the expected increase of prices on milk and dairy products in Baltic States with simultaneous introduction of milk quota will not change essentially the structure of agricultural production.

While the increase of milk compensatory payments since 2004 will take place in the new Member States, the phasing-in rates will be attributed to such compensations until 2013. As a result, *new (increased according to EC Regulation No 1787/2003) phased-in milk payments in three Baltic countries will not compensate the gradual decrease of market revenues for milk producers due to institutional price cuts in the case of the reform.* The calculations based on EAA approach show, that compared to the unchanged conditions of Common Agricultural Policy agricultural sector could lose EUR 25,8 million and EUR 18,8 million - in Estonia, EUR 30,6 million and EUR 22,3 million - in Latvia, EUR 78 million and EUR 56,8 million in Lithuania for the years 2006 and 2010 correspondingly due to reduction in milk price level only.

Decoupling of direct support and introduction of Single area payment scheme (SAPS)

Insomuch as all three Baltic States are intensively carrying out the consultations about the option to introduce the SAP system as a transitional measure of decoupling before the introduction of SPS, the effect of introduction of SAP and the general idea of decoupling were evaluated in the present study on farm and sector level.

Taking into consideration the current farm structures in Baltic States, the quantitative analysis of decoupling issues on farm level (based on FADN data) shows that in Latvian case of SAP application there might not be any essential changes in the level of support for the average farm compared to introduction of classical direct payment scheme. However, in the case of Estonia and Lithuania the average farm under the SAP conditions might get correspondingly by 27% and 56% more direct support versus the application of classical scheme in 2006. At the same time, only in Lithuania SAP application will result in increase of NVA produced by average farms in the sector. The increase of support due to SAP in Latvia and Estonia will not compensate the reduction of NVA, which might appear because of price decrease.

The differentiation in the effects of SAP among the countries is mostly related to variance in level of rates for single area payments in Estonia, Latvia and Lithuania. As shown in Table 4.1 of sub-chapter 4.2, SAP rates in Lithuania might be the highest among all the Baltic States.

Analysing the farms with different specialization it is possible to conclude that if SAP will be introduced, less support will be available for mixed farms and grazing livestock farms in Latvia and Lithuania. Only in the case of Estonia, introduction of SAP will be definitely more attractive in terms of getting support for all types of farms considered in the study.

With the specificity of SAP application in different Baltic countries, the negative effect from the introduction of SAP could affect the farms with higher intensity of land use in their production. These farms are characterised by relatively high economic size and smaller utilized agricultural areas. Such farms might lose essential share of their subsidies under the SAP. ***Therefore introduction of SAP might subsequently arouse significant structural changes of land use in the future.***

Analysis of decoupling effect on the basis of modelling projections show that less support impact on the production could negatively affect the production of beef in Latvia and Lithuania as well as production of cereals (mainly wheat and coarse grain) in Estonia. ***While the volume of agricultural production could increase essentially after accession due to the efficiency increase, the growth in beef production in Latvia and Lithuania as well as cereal production in Estonia could be significantly less comparing with other agricultural sectors.***

Modulation.

Assuming that the modulation measure might be applicable in Baltic States since 2013 as well as that the structure of farms will be kept unchanged until that time the ***total modulation effect could be up to EUR 2,82 million for Estonian, EUR 2,49 million for Latvian and EUR 3,16 million for Lithuanian agricultural sectors.***

Due to national specificity of farms in Baltic, the modulation effect calculated for average farm might vary essentially among the countries. Reduction of direct support per farm on average could be EUR 340 in Estonia, EUR 43 in Latvia and EUR 316 in Lithuania. Taking into account the average economic size of agricultural holdings per country (as 12,5 - for Estonia, 4,3 - in Latvia and 16,7 - in Lithuania) it is possible to conclude that Latvian farms will be less complied with the effect of modulation because of their small size in terms of economic units and land use.

Among the farms with different type of specialisation, a comparatively large reduction of direct support could be applied for farms dealing with grazing livestock as the biggest farms (in terms of economic size in average) in Latvia and Estonia. In Lithuania, the most essential reduction of direct support (in amount of EUR 390 per farm) will be faced by field crops farms, which could exceed EUR 5000 level of support granted per holding.

However, taking into account that every Member State will receive at least 80% of its modulation fund through the rural development funds, it is possible to conclude that the total

effect of the modulation might not be so essential for Baltic States as only redistribution of funding granted to Baltics' agriculture and rural development will take place.

6. SOME CONCLUSIONS

On 26 June 2003, the Council of Agricultural Ministers of the European Union (EU) adopted the fundamental reform of the Common Agricultural Policy (CAP) that makes “the beginning of new era” as Mr. Fischler said commenting the Council decision.

The core of the CAP reform agreement comprises application of the following main policy measures:

- Revisions to the market policy of the CAP;
- Decoupling via introduction of single payment scheme;
- Modulation;
- Compulsory cross-compliance

Some of the measures proposed in the new CAP will not be absolutely new ones, such as the mechanism of reduction of intervention prices for certain products or modulation, which were already applicable within the framework of Agenda 2000 programme. However, other measures make the reform really fundamental, which might cause significant structural changes in the EU agriculture and rural areas by giving the farmers freedom to produce what the market wants. Therefore only applying a variety of analytical methods and research approaches gives possibility to assess the CAP reform impact on the structural changes and further development of agricultural sectors in Baltic States. The achieved analytical results have become the basis for some conclusions:

1. The combination of different analytical tools (such as EAA, farm income analysis based on FADN data and Latvian Agricultural Simulation model) gives the possibility to strengthen the economic analysis focused on assessing the policy reform impact by considering the economical effects not only on the sector, but also on farm level. Quantitative assessment of the CAP reform application in Baltic countries was carried through the detailed analysis of the main policy measures as enhancing the competitiveness of agricultural sector, decoupling of direct support and introduction of Single area payment scheme (SAPS) and modulation.

The illustration of the application of certain analytical tools for various measures of CAP reform proposed by the EC for the new Member States including Baltic is given in table below.

Analytical methods used in the quantitative assessment of the CAP reform

The policy measures evaluated	EAA approach	FADN data base	LASIM model
Enhancing the competitiveness	x	x	x
Decoupling, of which	x		x
-Introduction of SAP		x	
Modulation		x	

2. Evaluating the impact of CAP reform, which will come in force from 2004 in all Member States including Latvia, Lithuania and Estonia, it is important to emphasize that the core of the reform is to increase significantly the effectiveness of the income aid while the actual amounts of support paid to farmers will remain unchanged, which would mean for the new Member States - within the national envelopes agreed during the accession negotiations. At the same time, introduction of new support schemes, such as single area payments or single farm payments should be conditional on cross-compliance with environmental, food safety, animal health and welfare, as well as the maintenance of the farm in good agricultural and environmental conditions.

3. Comparing the current level of producer prices on raw milk in Baltic States with the corresponding price level in the EU it is possible to conclude that gradual reduction of intervention prices for butter and skimmed milk powder set by the Council Regulation (EC) No 1787/2003 will not affect much milk production in Baltic States particularly during the first years of their membership in the EU. This is because the overall milk price decrease in Europe due to implementation of CAP reform will be accompanied by essential increase of producer prices on milk to the European level in Baltic after accession. However, it is necessary to emphasise that general increase of milk prices in Baltic States after accession will be relevant only under the fulfilment of the obligations referred to the cross-compliance with environmental, food safety, animal health and welfare, as well as the maintenance of the farm in good agricultural and environmental conditions.
4. The milk price increase after accession will be able to foster the development of dairy sectors in Baltic States. However, further increase of milk production within the all quality restriction will be limited by total milk quota set on the amount of raw milk sales for each country. Thus after joining the EU, the expected increase of prices on milk and dairy products in Baltic States with simultaneous introduction of milk quota will not change essentially the structure of agricultural production.
5. While the increase of milk compensatory payments since 2004 will take place in the new Member States, the phasing-in rates until 2013 will be attributed to such compensations. As a result, new (increased according to the EC Regulation No 1787/2003) phased-in milk payments in three Baltic countries will not compensate the gradual decrease of market revenues for milk producers due to institutional price cuts in case of the reform.
6. With the specificity of application of Single Area Payment scheme (SAPS) in different Baltic countries, the negative effect from the introduction of SAP could be faced by the farms with higher intensity of land use in their production. These farms characterised by relatively high economic size and smaller utilized agricultural areas. Such farms might lose essential share of their subsidies under the SAP. Therefore introduction of SAP might subsequently arouse significant structural changes of land use in the future.
7. Analysis of decoupling effect shows that less support impact on the production could negatively affect the production of beef in Latvia and Lithuania, as well as production of cereals (mainly wheat and coarse grain) in Estonia. While the volume of agricultural production could increase essentially after accession due to the efficiency increase, the growth in beef production in Latvia and Lithuania, as well as cereal production in Estonia could be significantly less compared to other agricultural sectors.
8. Assuming that the modulation measure might be applicable in Baltic States from 2013, as well as that the current structure of farms will be kept unchanged until that time, the total modulation effect could be up to EUR 2,82 million for Estonian, EUR 2,49 million for Latvian and EUR 3,16 million for Lithuanian agricultural sectors. However, taking into account that every Member State will receive at least 80% of its modulation fund through the rural development funds it is possible to conclude that the total effect on the modulation might be not so essential for Baltic States, as only redistribution of funding granted to Baltic agriculture and rural development will take place.

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ANNEXES

Table 1. Negotiation results for Baltic States

Sector	Units	Latvia			Lithuania			2001	Estonia	
		2001	Request in the Position Paper	Negotiation results according to Accession Treaty	2001	Request in the Position Paper	Negotiation results according to Accession Treaty		2001	Request in the Position Paper
White sugar quota	1000 t	64	110	66		165,0	103,0	0,0	75,0	0,0
Milk quota	1000 t	505	1 200	728,648	1 476,0	2 250,0	1 704,8	564,3	900,0	646,4
deliveries to industry:	1000 t	x	900	468,943		1 700,0	1 256,4		810,0	537,1
direct sales:	1000 t	x	300	226.452		550,0	390,5		90,0	87,4
additional reserve:	1001 t	x	x	33,253		x	57,9	x	x	21,9
Starch quota, tonnes	t	3 700	15 000	5 778		8 500	1 211	80	10 000	250
Long flax fibre	t	800	1 500	360		6 000	2 263	25	1 400	30
Short flax fibre	t		3 500	1 313		8 500	3 463	50	1 750	42
Dried fodder quota	t	x	x	x		20 000	650	0	30 000	0
Reference yield	t/ha	2,09	3,59	2,50		3,5	2,7	2,0	3,5	2,4
National base area	1000 ha	457,1	753	443,58	1 025,1	1 355,0	1 146,6	301,9	650,0	362,8
Special beef premium	units	19 800	75 000	70 200	72 700	154 000	150000	27500	70 000	18 800
Suckler cow premium	units	3 217	25 000	19 368	2 461	62 000	47 232	700	16 000	13 416
Extensification premium	units	23 017	100 000	89 568						
Slaughter premium (bulls, steers, cows and heifers)	units	74 740	145 000	124 320	361 500	335 000	367 484	60200	115 000	107 813
Slaughter premium (calves)	units	68600	75000	53280	47 500	290 000	244 200	12000	30 000	30 000
Ewe and goat premium	units	5000	50000	18437	7 500	12 000	17 304	24150	142 000	48 000

Table 2. Comparison of data availability for Baltic countries by type of farming, 2001

Groups for valuation	Farm grouping by type, national FADN	Number of farms			
		Latvia	Estonia	Lithuania	
				Individ.	Compan.
<u>Field crops</u>	Spec. cereals, protein, oilseeds (13)	94	184	337	17
	Field crops (14)			359	13
	Mixed cropping (60 for feed crops)	35		91	
	Horticulture (20)	2	5	-	-
	Permanent crops (32,34)	6	-	-	-
<u>Grazing livestock</u>	Dairying (41)	75	169	38	-
	Other grazing livestock (42, 43, 44)		6		
	Granivores (50)	18	9	-	5
<u>Mixed</u>	Mixed livestock mainly grazing (71)	32	113	262	8
	Mixed livestock mainly granivores (72)			12	-
	Mixed (81, 82)	87		21	-
<u>Average</u>	All types	349	489	1120	43

Table 3. The input information about national prices and quantities used in modelling simulations.

Type of Product/Resource	Notation used in the model	Farm gate prices in 2001, EUR/t			Consumer prices in 2001, EUR/t			Production quantities, thou t.			Consumption quantities, thou t.		
		Estonia	Latvia	Lithuania	Estonia	Latvia	Lithuania	Estonia	Latvia	Lithuania	Estonia	Latvia	Lithuania
Wheat	WHEAT	92,9	91,9	113,2	285,4	358,6	291,7	123,0	416,7	952,9	71,7	160,8	352,1
Coarse grain (rye, barley, oats)	CGRAIN	75,2	84,7	106,0	504,3	419,8	427,2	366,7	368,8	903,0	53,6	54,4	78,2
Other types of grains and pulses	OTHGR	96,2	103,2	106,0	394,8	553,3	556,9	24,8	51,2	188,1	5,0	33,2	24,5
Rape	RAPE	237,7	194,2	215,8	337,3	384,9	417,1	41,1	12,6	63,8	2,5	2,0	2,0
Flax	FLAX	281,5	95,1	257,0	1294,7	1156,3	1132,4	0,1	1,8	4,0	0,1	2,0	4,2
Milk	MILK	196,2	149,2	132,4	414,3	360,2	402,6	564,3	746,6	1519,6	443,0	692,1	978,2
Beef	BEEF	1070,1	1295,4	1220,6	3856,9	2569,1	3009,2	14,2	17,6	49,6	16,1	23,4	48,9
Pork	PORK	1579,6	1663,5	1256,8	4083,3	2817,7	2751,4	33,6	31,0	81,2	38,9	53,3	121,9
Mutton	MUTT	1332,0	1683,4	2324,6	5348,0	4306,2	4199,5	0,3	0,4	0,8	0,4	0,4	2,4
Poultry	POUL	1459,5	1434,9	1390,0	2100,4	2380,4	2771,7	9,2	8,9	30,1	29,2	25,5	36,9
Rest of Agricultural output	RAO	1000,0	1000,0	1000,0	x	x	x	274,5	277,8	520,3	x	x	x
Wheat for feeding	FWHEAT	69,7	68,9	84,9	x	x	x	54,9	140,0	366,6	x	x	x
Coarse grain for feeding	FCGRAIN	56,4	63,5	79,5	x	x	x	237,5	235,8	738,6	x	x	x
Other types of grains and pulses for feeding	FOTHGR	72,2	77,4	79,5	x	x	x	13,0	22,5	141,5	x	x	x
Fertilisers	FERT	330,0	402,3	122,8	x	x	x	29,7	51,7	51,7	x	x	x
Labour	LAB	2525,5	2277,5	2507,1	x	x	x	64,6	120,0	200,8	x	x	x
Rest of variable input	RVI	1000,0	1000,0	1000,0	x	x	x	198,5	37,4	316,1	x	x	x
Rest of spending	ROSP	1000,0	1000,0	1000,0	1000,00	1000,00	1000	x	x	x	251,2	535,7	841,1

Table 4. The input information about governmental support measures in the year 2001 and 2006 used in the modelling simulations.

Type of Product/Resource	Notation used in the model	Direct subsidies in 2001, EUR per t of product			Indirect subsidies in 2001, EUR per t of product			Direct subsidies in 2006, EUR per t of product according to "A" and "R" scenarios						Indirect subsidies in 2006, EUR per t of product according to "A" and "R" scenarios					
		Estonia	Latvia	Lithuania	Estonia	Latvia	Lithuania	Estonia		Latvia		Lithuania		Estonia		Latvia		Lithuania	
								"A"scen.	"R"scen.	"A"scen.	"R"scen.	"A"scen.	"R"scen.	"A"scen.	"R"scen.	"A"scen.	"R"scen.		
Wheat	WHEAT	9,8	6,3	3,6	2,1	4,5	1,1	32,8	32,8	30,9	30,9	27,6	27,6	3,4	3,4	13,9	13,9	5,6	5,6
Coarse grain (rye, barley, oats)	CGRAIN	11,3	7,6	5,2	2,1	2,9	1,2	45,2	45,2	46,7	46,7	38,5	38,5	3,8	3,8	21,6	21,6	7,3	7,3
Other types of grains and pulses	OTHGR	16,3	9,7	4,4	2,4	3,1	0,9	51,6	54,2	51,3	52,0	55,6	57,8	7,7	7,7	24,1	24,1	9,6	9,6
Rape	RAPE	17,3	14,4	13,0	3,7	6,5	0,9	51,7	51,7	52,8	52,8	57,0	57,0	5,1	5,1	24,4	24,4	10,1	10,1
Flax	FLAX	40,8	355,9	395,5	7,7	2,4	0,1	70,2	70,2	69,7	69,7	108,4	108,4	7,3	7,3	25,8	25,8	18,8	18,8
Milk	MILK	10,4	6,2	4,8	1,3	4,4	3,7	7,5	15,9	7,5	15,9	7,5	15,9	0,7	0,7	4,8	4,8	7,1	7,1
Beef	BEEF	3,7	28,5	12,9	0,0	15,2	23,9	719,8	719,8	593,1	593,1	830,2	830,2	59,4	59,4	290,1	290,1	230,9	230,9
Pork	PORK	0,0	23,4	0,0	7,1	32,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	21,5	21,5	85,9	85,9	9,4	9,4
Mutton	MUTT	716,4	129,7	331,2	10,4	50,1	576,6	1 386,9	1 386,9	574,9	574,9	76,1	76,1	80,0	80,0	234,5	234,5	32,0	32,0
Poultry	POUL	0,0	0,6	0,0	10,8	17,9	3,2	0,0	0,0	0,0	0,0	0,0	0,0	42,1	42,1	197,2	197,2	11,3	11,3

Table 5. The input information about governmental support measures in the year 2010 used in simulations with the help of LASIM model.

Type of Product/Resource	Notation used in the model	Direct subsidies in 2010, EUR per t of product according to "A" and "R" scenarios						Indirect subsidies in 2010, EUR per t of product according to "A" and "R" scenarios					
		Estonia		Latvia		Lithuania		Estonia		Latvia		Lithuania	
		"A"scen.	"R"scen.	"A"scen.	"R"scen.	"A"scen.	"R"scen.	"A"scen.	"R"scen.	"A"scen.	"R"scen.	"A"scen.	"R"scen.
Wheat	WHEAT	43,2	0,0	43,8	0,0	37,3	0,0	3,43	46,6	31,6	75,4	5,6	42,9
Coarse grain (rye, barley, oats)	CGRAIN	61,0	0,0	71,8	0,0	52,8	0,0	3,85	64,9	49,1	120,9	7,3	60,1
Other types of grains and pulses	OTHGR	71,6	0,0	75,2	0,0	80,4	0,0	4,16	79,3	54,7	130,9	9,6	93,1
Rape	RAPE	70,3	0,0	73,5	0,0	80,2	0,0	5,10	75,4	55,6	129,0	10,1	90,3
Flax	FLAX	94,5	0,0	89,5	0,0	162,0	0,0	7,30	101,8	58,6	148,1	18,8	180,8
Milk	MILK	17,2	0,0	17,2	0,0	17,2	0,0	0,64	25,1	10,4	27,7	6,8	31,3
Beef	BEEF	925,1	0,0	1759,3	0,0	1584,6	0,0	36,85	961,9	532,1	2291,4	154,4	1739,0
Pork	PORK	0,0	0,0	0,0	0,0	0,0	0,0	21,54	21,5	195,2	195,2	9,4	9,4
Mutton	MUTT	2041,0	0,0	872,7	0,0	109,9	0,0	41,19	2082,2	413,3	1286,0	13,1	123,0
Poultry	POUL	0,0	0,0	0,0	0,0	0,0	0,0	42,10	42,1	448,1	448,1	11,3	11,3

Table 6. The input information about annual growth rates of national farm gate prices for the period from 2001 to 2006 (or 2010) used in simulations with the help of LASIM model.

Type of Product/Resource	Notation used in the model	Annual growth rates for farm gate prices in each country, for different simulation periods according to the different scenarios											
		Estonia				Latvia				Lithuania			
		from 2001 to 2006		from 2001 to 2010		from 2001 to 2006		from 2001 to 2010		from 2001 to 2006		from 2001 to 2010	
		"A"	"R"	"A"	"R"	"A"	"R"	"A"	"R"	"A"	"R"	"A"	"R"
Wheat	WHEAT	0,0376	0,0376	0,0207	0,0207	0,0398	0,0398	0,0219	0,0219	-0,0027	-0,0027	-0,0015	-0,0015
Coarse grain (rye, barley, oats)	CGRAIN	0,0621	0,0621	0,0340	0,0340	0,0371	0,0371	0,0205	0,0205	-0,0083	-0,0083	-0,0046	-0,0046
Other types of grains and pulses	OTHGR	0,0175	0,0175	0,0097	0,0097	0,0033	0,0033	0,0018	0,0018	-0,0019	-0,0019	-0,0010	-0,0010
Rape	RAPE	-0,0100	-0,0100	0,0011	0,0011	0,0308	0,0308	0,0238	0,0238	0,0093	0,0093	0,0119	0,0119
Flax	FLAX	0,0040	0,0040	0,0022	0,0022	0,2472	0,2472	0,1306	0,1306	0,0224	0,0224	0,0124	0,0124
Milk	MILK	0,0689	0,0312	0,0301	0,0147	0,1290	0,0893	0,0619	0,0460	0,1564	0,1157	0,0762	0,0601
Beef	BEEF	0,1822	0,1822	0,0975	0,0975	0,1379	0,1379	0,0744	0,0744	0,1515	0,1515	0,0815	0,0815
Pork	PORK	-0,0066	-0,0066	-0,0037	-0,0037	-0,0168	-0,0168	-0,0094	-0,0094	0,0399	0,0399	0,0220	0,0220
Mutton	MUTT	0,1391	0,1391	0,0751	0,0751	0,0870	0,0870	0,0474	0,0474	0,0191	0,0191	0,0106	0,0106
Poultry	POUL	0,0289	0,0289	0,0160	0,0160	0,0324	0,0324	0,0179	0,0179	0,0390	0,0390	0,0215	0,0215
Rest of Agricultural output	RAO	0	0	0	0	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
Wheat for feeding	FWHEAT	0,0376	0,0376	0,0207	0,0207	0,0398	0,0398	0,0219	0,0219	-0,0027	-0,0027	-0,0015	-0,0015
Coarse grain for feeding	FCGRAIN	0,0621	0,0621	0,0340	0,0340	0,0371	0,0371	0,0205	0,0205	-0,0084	-0,0084	-0,0047	-0,0047
Other types of grains and pulses for feeding	FOTHGR	0,0179	0,0179	0,0099	0,0099	0,0037	0,0037	0,0021	0,0021	-0,0016	-0,0016	-0,0009	-0,0009
Rest of variable input	RVI	0,0192	0,0192	0,0106	0,0106	0,0192	0,0192	0,0106	0,0106	0,0192	0,0192	0,0106	0,0106
Labour	LAB	0	0	0	0	0	0	0	0	0	0	0	0
Fertilisers	FERT	0	0	0	0	0	0	0	0	0	0	0	0
Rest of spending	ROSP	0	0	0	0	0	0	0	0	0	0	0	0

Table 7. The input information about annual growth rates of world prices and technical progress as well as world price level used in simulations with the help of LASIM model.

Type of Product/Resource	Notation used in the model	Annual growth rates of technical progress for the period from 2001 to 2010	Annual growth rates of world price level		The level of world prices in 2001, EUR/t
			from 2001 to 2006	from 2001 to 2010	
Wheat	WHEAT	0,020	-0,063	-0,032	139,4
Coarse grain (rye, barley, oats)	CGRAIN	0,020	-0,057	-0,033	121,6
Other types of grains and pulses	OTHGR	0,018	-0,043	-0,025	130,5
Rape	RAPE	0,011	-0,041	-0,018	251,0
Flax	FLAX	0,017	0,000	0,000	95,1
Milk	MILK	0,020	-0,080	-0,045	370,1
Beef	BEEF	0,010	0,006	-0,008	2158,9
Pork	PORK	0,020	-0,008	0,002	1248,4
Mutton	MUTT	0,012	-0,003	-0,008	3900,0
Poultry	POUL	0,012	-0,046	-0,026	1453,6
Rest of Agricultural output	RAO	0,003	0,000	0,000	1000,0
Wheat for feeding	FWHEAT	0,020	-0,063	-0,032	104,6
Coarse grain for feeding	FCGRAIN	0,010	-0,057	-0,033	91,2
Other types of grains and pulses for feeding	FOTHGR	0,000	0	0	97,9
Rest of variable input	RVI	0,022	0	0	1000,0
Labour	LAB	-0,012	0	0	2277,5
Fertilisers	FERT	0,022	0	0	362,1
Rest of spending	ROSP	-	0	0	1000,0

Table 8. Some macroeconomic indicators about Estonia, Latvia and Lithuania as well as some general assumptions used in simulations with the help of LASIM model.

Indicator used or assumed	Estonia	Latvia	Lithuania
Number of population in 2001, thou persons	1364	2356	3481
Gross wage per employee in 2001, EUR	2525,533	2277,5	2507,1
Annual growth rate for food expenditures from year 2001 to 2006	0,015	0,015	0,015
Annual growth rate for food expenditures from year 2001 to 2010	0,005	0,005	0,005
Annual growth rate for income of population from year 2001 to 2006	0,03	0,03	0,03
Annual growth rate for income of population from year 2001 to 2010	0,01	0,01	0,01
Exchange rate, X LC = 1 EUR; 2003 I quart.	15,65	0,627	3,5849

Table 9. Summary results of calculations based on EAA approach in Estonia, EUR thousands

Indicator	2001	2006		2010	
		A	R	A	R
Crop output (at producer prices)	141 964	145 697	145 697	145 697	145 697
Subsidies on crop products	7 069	30 069	30 143	46 260	55 055
Animal output (at producer prices)	233 573	286 385	260 587	276 548	257 752
Subsidies on animal products	7 335	15 405	22 563	28 595	44 877
Crop output (at basic prices)	149 033	175766	175840	191957	200752
Animal output (at basic prices)	240 907	301791	283150	305143	302628
Output of the agricultural 'industry'	476 895	564 511	545 945	584 054	590 335
Total intermediate consumption	269 129	304 416	304 416	304 416	304 416
Resources supplied by the agricultural "industry" (seeds, feedingstuffs)	158 997	179 977	179 977	179 977	179 977
Other resources	110 133	124 440	124 440	124 440	124 440
Gross value added at basic prices	207 765	260 094	241 528	279 638	285 918
Other subsidies on production	2 673	12 456	12 456	12 456	12 456
Other taxes on production	4 580	4 580	4 580	4 580	4 580
Fixed capital consumption	53 417	53 417	53 417	53 417	53 417
Net value added at factor without subsidies	135 365	156 623	130 825	146 785	127 989
<i>Direct payments (including additional payments)</i>	<i>14 403</i>	<i>45 474</i>	<i>52 707</i>	<i>74 855</i>	<i>99 932</i>
<i>Other production related subsidies</i>	<i>2 673</i>	<i>12 456</i>	<i>12 456</i>	<i>12 456</i>	<i>12 456</i>
Factor income	152 441	214 553	195 987	234 096	240 377
Total agricultural labour input (in AWU)	64 555	64 555	64 555	64 555	64 555
Indicator A (NVA/AWU)	2,36	3,32	3,04	3,63	3,72

Table 10. Summary results of calculations based on EAA approach in Latvia, EUR thousands

Indicator	2001	2006		2010	
		A	R	A	R
Crop output (at producer prices)	189 328	221 695	221 695	221 695	221 695
Subsidies on crop products	8 470	45 920	45 984	69 941	70 040
Animal output (at producer prices)	245 818	368 676	338 056	357 000	334 691
Subsidies on animal products	7 405	17 465	24 209	31 177	67 419
Crop output (at basic prices)	197 798	267615	267679	291636	291735
Animal output (at basic prices)	253 223	386140	362265	388176	402110
Output of the agricultural 'industry'	494 832	690 626	666 814	716 683	730 715
Total intermediate consumption	258 119	287 134	287 134	287 134	287 134
Resources from agricultural origin (seeds, feedingstuffs)	108 725	119 982	119 982	119 982	119 982
Other resources	149 393	167 152	167 152	167 152	167 152
Gross value added at basic prices	236 713	403 492	379 681	429 549	443 581
Other subsidies on production	10 964	81 669	81 669	81 669	81 669
Other taxes on production	21 480	21 480	21 480	21 480	21 480
Fixed capital consumption	41 950	41 950	41 950	41 950	41 950
Net value added at factor without subsidies	157 408	276 677	246 058	265 001	242 692
<i>Direct payments (including additional payments)</i>	<i>15 875</i>	<i>63 385</i>	<i>70 193</i>	<i>101 117</i>	<i>137 459</i>
<i>Other production related subsidies (including LFA)</i>	<i>10 964</i>	<i>81 669</i>	<i>81 669</i>	<i>81 669</i>	<i>81 669</i>
Factor income	184 247	421 731	397 919	447 787	461 820
Total agricultural labour input (in AWU)	143 120	143 120	143 120	143 120	143 120
Indicator A (NVA/AWU)	1,29	2,95	2,78	3,13	3,23

Source: LSIAE calculations

Table 11. Summary results of calculations based on EAA approach in Lithuania, EUR thousands

Indicator	2001	2006		2010	
		A	R	A	R
Crop output (at producer prices)	575 404	585 918	585 918	585 918	585 918
Subsidies on crop products	11 762	115 885	116 274	178 285	196 148
Animal output (at producer prices)	551 897	891 679	813 694	861 941	805 123
Subsidies on animal products	507	55 346	74 079	97 934	167 463
Crop output (at basic prices)	587 165	701803	702192	764203	782066
Animal output (at basic prices)	552 405	947025	887774	959875	972586
Output of the agricultural 'industry'	1 165 238	1 674 496	1 615 634	1 749 746	1 780 320
Total intermediate consumption	797 900	859 902	859 902	859 902	859 902
Resources from agricultural origin (seeds, feedingstuffs)	366 900	395 782	395 782	395 782	395 782
Other resources	431 000	464 120	464 120	464 120	464 120
Gross value added at basic prices	367 338	814 593	755 731	889 843	920 418
Other subsidies on production	19 200	61 004	61 004	61 004	61 004
Other taxes on production	13 100	13 100	13 100	13 100	13 100
Fixed capital consumption	128 400	128 400	128 400	128 400	128 400
Net value added at factor without subsidies	213 569	501 862	423 878	472 125	415 306
<i>Direct payments, including the national envelopes</i>	<i>12 269</i>	<i>171 231</i>	<i>190 353</i>	<i>276 219</i>	<i>363 612</i>
<i>Other production related subsidies</i>	<i>19 200</i>	<i>61 004</i>	<i>61 004</i>	<i>61 004</i>	<i>61 004</i>
Factor income	245 038	734 097	675 235	809 347	839 922
Total agricultural labour input (in AWU)	200 800	200 800	200 800	200 800	200 800
Indicator A (NVA/AWU)	1,22	3,66	3,36	4,03	4,18

Source: LAEI

Table 12. Summary results by type of farming in Estonia, average per holding, EUR**All types**

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	40 607	45 860	43 005	44 867	42 757	44 867	42 757
Crop production	12 464	12 655	12 655	12 655	12 655	12 655	12 655
Livestock production	26 663	31 726	28 870	30 733	28 622	30 733	28 622
Other output	1 480	1 480	1 480	1 480	1 480	1 480	1 480
Input	33 933	37 442	37 442	37 442	37 442	37 442	37 442
Subsidies	2 188	6 357	8 076	9 833	11 866	9 833	11 526
-DP							
-RD							
-Additional payment							
Total labour input	3,3	3,3	3,3	3,3	3,3	3,3	3,3
Farm NVA	14 274	20 187	19 050	22 670	22 592	22 670	22 252
<i>Farm NVA / AWU</i>	<i>4 320</i>	<i>6 110</i>	<i>5 766</i>	<i>6 862</i>	<i>6 838</i>	<i>6 862</i>	<i>6 735</i>
Farm NVA (excl. subsidies)	12 086	13 830	10 974	12 837	10 726	12 837	10 726
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>3 658</i>	<i>4 191</i>	<i>3 325</i>	<i>3 890</i>	<i>3 250</i>	<i>3 890</i>	<i>3 250</i>
Economic size	12,5						
No of farms	489						

Field crops

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	19 911	20 397	20 281	20 357	20 271	20 357	20 271
Crop production	15 864	16 155	16 155	16 155	16 155	16 155	16 155
Livestock production	2 677	2 872	2 756	2 832	2 746	2 832	2 746
Other output	1 370	1 370	1 370	1 370	1 370	1 370	1 370
Input	14 288	15 293	15 293	15 293	15 293	15 293	15 293
Subsidies	1 100	4 448	4 987	6 568	7 359	6 568	7 216
-DP							
-RD							
-Additional payment							
Total labour input	2,0	2,0	2,0	2,0	2,0	2,0	2,0
Farm NVA	7 863	10 691	11 114	12 771	13 476	12 771	13 333
<i>Farm NVA / AWU</i>	<i>3 893</i>	<i>5 294</i>	<i>5 503</i>	<i>6 323</i>	<i>6 673</i>	<i>6 323</i>	<i>6 602</i>
Farm NVA (excl. subsidies)	6 763	6 243	6 127	6 203	6 117	6 203	6 117
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>3 348</i>	<i>3 122</i>	<i>3 064</i>	<i>3 102</i>	<i>3 059</i>	<i>3 102</i>	<i>3 059</i>
Economic size	6,5						
No of farms	192						

Grazing livestock

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	55 553	73 324	65 108	70 466	64 393	70 466	64 393
Crop production	7 660	7 725	7 725	7 725	7 725	7 725	7 725
Livestock production	46 479	64 185	55 969	61 327	55 254	61 327	55 254
Other output	1 414	1 414	1 414	1 414	1 414	1 414	1 414
Input	48 631	53 521	53 521	53 521	53 521	53 521	53 521
Subsidies	4 005	8 515	13 626	13 860	19 980	13 860	19 297
-DP							
-RD							
-Additional payment							
Total labour input	5,2	5,2	5,2	5,2	5,2	5,2	5,2
Farm NVA	22 103	39 494	36 389	41 982	42 029	41 982	41 345
<i>Farm NVA / AWU</i>	<i>4 244</i>	<i>7 584</i>	<i>6 987</i>	<i>8 061</i>	<i>8 070</i>	<i>8 061</i>	<i>7 939</i>
Farm NVA (excl. subsidies)	18 098	30 979	22 763	28 122	22 049	28 122	22 048
<i>Farm NVA (excl.subsidies)/ AWU</i>	<i>3 475</i>	<i>5 958</i>	<i>4 378</i>	<i>5 408</i>	<i>4 240</i>	<i>5 408</i>	<i>4 240</i>
Economic size	19,7						
No of farms	175						

Mixed

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	40 282	45 506	42 859	44 586	42 629	44 586	42 629
Crop production	11 834	11 996	11 996	11 996	11 996	11 996	11 996
Livestock production	26 947	32 010	29 363	31 089	29 133	31 089	29 133
Other output	1 501	1 501	1 501	1 501	1 501	1 501	1 501
Input	34 567	37 863	37 863	37 863	37 863	37 863	37 863
Subsidies	2 324	7 303	8 245	11 214	12 102	11 214	11 749
-DP							
-RD							
-Additional payment							
Total labour input	3,2	3,2	3,2	3,2	3,2	3,2	3,2
Farm NVA	13 122	20 030	18 326	23 020	21 952	23 020	21 599
<i>Farm NVA / AWU</i>	<i>4 101</i>	<i>6 260</i>	<i>5 728</i>	<i>7 195</i>	<i>6 861</i>	<i>7 195</i>	<i>6 751</i>
Farm NVA (excl. subsidies)	10 798	12 727	10 081	11 806	9 850	11 806	9 850
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>3 375</i>	<i>3 977</i>	<i>3 150</i>	<i>3 689</i>	<i>3 078</i>	<i>3 689</i>	<i>3 078</i>
Economic size	12,2						
No of farms	113						

Territories outside LFA

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	56 154	63 289	59 277	61 894	58 929	61 894	58 929

Crop production	17 006	17 247	17 247	17 247	17 247	17 247	17 247
Livestock production	37 599	44 494	40 482	43 099	40 133	43 099	40 133
Other output	1 549	1 549	1 549	1 549	1 549	1 549	1 549
Input	47 153	52 039	52 039	52 039	52 039	52 039	52 039
Subsidies	2 842	7 018	8 654	11 562	13 254	11 562	12 800
-DP							
-RD							
-Additional payment							
Total labour input	4,0	4,0	4,0	4,0	4,0	4,0	4,0
Farm NVA	20 213	26 638	24 262	29 787	28 514	29 787	28 060
<i>Farm NVA / AWU</i>	<i>5 018</i>	<i>6 614</i>	<i>6 024</i>	<i>7 395</i>	<i>7 079</i>	<i>7 395</i>	<i>6 967</i>
Farm NVA (excl. subsidies)	17 371	19 620	15 608	18 225	15 260	18 225	15 260
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>4 343</i>	<i>4 905</i>	<i>3 902</i>	<i>4 556</i>	<i>3 815</i>	<i>4 556</i>	<i>3 815</i>
Economic size	16,9						
No of farms	272						

LFA territories

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	24 916	28 269	26 581	27 682	26 434	27 682	26 434
Crop production	7 880	8 020	8 020	8 020	8 020	8 020	8 020
Livestock production	15 626	18 838	17 150	18 251	17 003	18 251	17 003
Other output	1 411	1 411	1 411	1 411	1 411	1 411	1 411
Input	20 591	22 710	22 710	22 710	22 710	22 710	22 710
Subsidies	1 528	5 690	7 492	8 088	10 465	8 088	10 240
-DP							
-RD							
-Additional payment							
Total labour input	2,6	2,6	2,6	2,6	2,6	2,6	2,6
Farm NVA	8 279	13 675	13 789	15 487	16 615	15 487	16 391
<i>Farm NVA / AWU</i>	<i>3 217</i>	<i>5 314</i>	<i>5 359</i>	<i>6 018</i>	<i>6 457</i>	<i>6 018</i>	<i>6 370</i>
Farm NVA (excl. subsidies)	6 751	7 985	6 297	7 399	6 150	7 399	6 151
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>2 597</i>	<i>3 071</i>	<i>2 422</i>	<i>2 846</i>	<i>2 365</i>	<i>2 846</i>	<i>2 366</i>
Economic size	8,1						
No of farms	217						

Source: JTAC calculations

Table 13. Summary results by type of farming in Latvia, average per holding, EUR**All types**

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	12 753	16 271	15 501	15 977	15 416	15 977	15 416
Crop production	6 171	6 843	6 843	6 843	6 843	6 843	6 843
Livestock production	5 402	8 248	7 478	7 954	7 393	7 954	7 393
Other output	1 180	1 180	1 180	1 180	1 180	1 180	1 180
Input	11 315	12 185	12 185	12 185	12 185	12 185	12 185
Subsidies	908	4 783	4 786	5 957	5 887	5 958	5 844
-DP	0	2 012	2 016	3 191	3 120	3 191	3 077
-RD	0	2 470	2 470	2 470	2 470	2 470	2 470
-Additional payment	908	300	300	297	297	297	297
Total labour input	1,9	1,9	1,9	1,9	1,9	1,9	1,9
Farm NVA	2 858	9 380	8 614	10 262	9 630	10 262	9 587
<i>Farm NVA / AWU</i>	<i>1 500</i>	<i>4 923</i>	<i>4 521</i>	<i>5 385</i>	<i>5 054</i>	<i>5 385</i>	<i>5 031</i>
Farm NVA (excl. subsidies)	1 950	4 598	3 827	4 304	3 743	4 304	3 743
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>1 023</i>	<i>2 413</i>	<i>2 009</i>	<i>2 259</i>	<i>1 964</i>	<i>2 259</i>	<i>1 964</i>
Economic size	4,3						
No of farms	349						

Field crops

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	12 055	14 306	14 027	14 199	13 996	14 199	13 996
Crop production	7 880	9 005	9 005	9 005	9 005	9 005	9 005
Livestock production	2 478	3 604	3 325	3 498	3 295	3 498	3 295
Other output	1 697	1 697	1 697	1 697	1 697	1 697	1 697
Input	11 697	12 379	12 379	12 379	12 379	12 379	12 379
Subsidies	1 031	5 274	5 335	6 451	6 546	6 451	6 486
-DP	0	2 150	2 212	3 328	3 423	3 328	3 363
-RD	0	2 734	2 734	2 734	2 734	2 734	2 734
-Additional payment	1 031	390	390	389	389	389	389
Total labour input	1,7	1,7	1,7	1,7	1,7	1,7	1,7
Farm NVA	1 933	7 746	7 528	8 816	8 708	8 816	8 648
<i>Farm NVA / AWU</i>	<i>1 133</i>	<i>4 541</i>	<i>4 413</i>	<i>5 168</i>	<i>5 105</i>	<i>5 168</i>	<i>5 069</i>
Farm NVA (excl. subsidies)	903	2 471	2 193	2 365	2 162	2 365	2 162
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>529</i>	<i>1 449</i>	<i>1 285</i>	<i>1 386</i>	<i>1 267</i>	<i>1 386</i>	<i>1 267</i>
Economic size	4,5						
No of farms	137						

Grazing livestock

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	21 278	32 254	29 146	31 069	28 804	31 069	28 804
Crop production	6 690	6 910	6 910	6 910	6 910	6 910	6 910
Livestock production	12 886	23 642	20 533	22 456	20 191	22 456	20 191
Other output	1 702	1 702	1 702	1 702	1 702	1 702	1 702
Input	18 922	20 682	20 682	20 682	20 682	20 682	20 682
Subsidies	2 089	8 573	8 086	10 936	9 812	10 936	9 705
-DP	0	3 639	3 152	6 003	4 878	6 003	4 771
-RD	0	4 404	4 404	4 404	4 404	4 404	4 404
-Additional payment	2 089	530	530	530	530	530	530
Total labour input	2,4	2,4	2,4	2,4	2,4	2,4	2,4
Farm NVA	5 877	21 578	17 983	22 756	19 367	22 756	19 260
<i>Farm NVA / AWU</i>	<i>2 456</i>	<i>9 017</i>	<i>7 515</i>	<i>9 509</i>	<i>8 093</i>	<i>9 509</i>	<i>8 048</i>
Farm NVA (excl. subsidies)	3 789	13 005	9 897	11 820	9 555	11 820	9 555
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>1 583</i>	<i>5 435</i>	<i>4 136</i>	<i>4 939</i>	<i>3 993</i>	<i>4 939</i>	<i>3 993</i>
Economic size	5,9						
No of farms	75						

Mixed

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	10 816	15 005	13 963	14 608	13 848	14 608	13 848
Crop production	4 737	5 065	5 065	5 065	5 065	5 065	5 065
Livestock production	5 663	9 523	8 481	9 126	8 366	9 126	8 366
Other output	416	416	416	416	416	416	416
Input	8 888	9 628	9 628	9 628	9 628	9 628	9 628
Subsidies	713	4 697	4 680	5 811	5 661	5 811	5 635
-DP	0	1 812	1 794	2 926	2 776	2 926	2 750
-RD	0	2 677	2 677	2 677	2 677	2 677	2 677
-Additional payment	713	209	209	208	208	208	208
Total labour input	2,0	2,0	2,0	2,0	2,0	2,0	2,0
Farm NVA	2 800	10 234	9 174	10 950	10 041	10 950	10 015
<i>Farm NVA / AWU</i>	<i>1 411</i>	<i>5 159</i>	<i>4 624</i>	<i>5 520</i>	<i>5 061</i>	<i>5 520</i>	<i>5 048</i>
Farm NVA (excl. subsidies)	2087	5 536	4 494	5 139	4 380	5 139	4 380
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>1 052</i>	<i>2 791</i>	<i>2 265</i>	<i>2 590</i>	<i>2 208</i>	<i>2 590</i>	<i>2 208</i>
Economic size	3,6						
No of farms	119						

Territories outside LFA

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
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Total output	38 057	44 934	44 168	44 642	44 084	44 642	44 084
Crop production	22 597	26 844	26 844	26 844	26 844	26 844	26 844
Livestock production	12 323	14 953	14 187	14 661	14 103	14 661	14 103
Other output	3 137	3 137	3 137	3 137	3 137	3 137	3 137
Input	35 764	38 301	38 301	38 301	38 301	38 301	38 301
Subsidies	2 696	5 151	4 457	7 590	6 450	7 590	6 281
-DP	0	4 343	3 649	6 786	5 646	6 786	5 478
-RD	0	0	0	0	0	0	0
-Additional payment	2 696	808	808	803	803	803	803
Total labour input	2,4	2,4	2,4	2,4	2,4	2,4	2,4
Farm NVA	9 261	16 056	14 596	18 203	16 505	18 203	16 336
<i>Farm NVA / AWU</i>	<i>3 794</i>	<i>6 578</i>	<i>5 980</i>	<i>7 458</i>	<i>6 762</i>	<i>7 458</i>	<i>6 693</i>
Farm NVA (excl. subsidies)	6565	10 905	10 139	10 613	10 055	10 613	10 055
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>2 690</i>	<i>4 468</i>	<i>4 154</i>	<i>4 348</i>	<i>4 120</i>	<i>4 348</i>	<i>4 120</i>
Economic size	13,3						
No of farms	76						

LFA territories

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	11 148	14 429	13 658	14 135	13 574	14 135	13 574
Crop production	5 010	5 430	5 430	5 430	5 430	5 430	5 430
Livestock production	4 913	7 774	7 003	7 480	6 919	7 480	6 919
Other output	1 225	1 225	1 225	1 225	1 225	1 225	1 225
Input	9 587	10 339	10 339	10 339	10 339	10 339	10 339
Subsidies	782	4 723	4 776	5 809	5 814	5 809	5 779
-DP	0	1 848	1 901	2 937	2 942	2 937	2 907
-RD	0	2 611	2 611	2 611	2 611	2 611	2 611
-Additional payment	782	264	264	261	261	261	261
Total labour input	1,9	1,9	1,9	1,9	1,9	1,9	1,9
Farm NVA	2 589	9 058	8 341	9 850	9 294	9 850	9 260
<i>Farm NVA / AWU</i>	<i>1 386</i>	<i>4 850</i>	<i>4 466</i>	<i>5 274</i>	<i>4 976</i>	<i>5 274</i>	<i>4 958</i>
Farm NVA (excl. subsidies)	1 807	4 335	3 565	4 042	3 480	4 042	3 480
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>968</i>	<i>2 321</i>	<i>1 909</i>	<i>2 164</i>	<i>1 863</i>	<i>2 164</i>	<i>1 863</i>
Economic size	3,6						
No of farms	273						

Source: LSIAE calculations

Table 14. Summary results by type of farming in Lithuania, average per holding, EUR**All types**

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	36 101	46 263	44 449	45 582	44 279	45 582	44 279
Crop production	25 940	26 957	26 957	26 957	26 957	26 957	26 957
Livestock production	9 517	18 637	16 824	17 957	16 654	17 957	16 654
Other output	645	668	668	668	668	668	668
Input	29 206	32 559	32 559	32 559	32 559	32 559	32 559
Subsidies	2 279	9 659	12 997	11 692	16 981	11 692	16 665
-DP	0	3 988	7 326	6 021	11 310	6 021	10 994
-RD	0	5 671	5 671	5 671	5 671	5 671	5 671
-Additional payment	0	0	0	0	0	0	0
Total labour input	2,7	2,7	2,7	2,7	2,7	2,7	2,7
Farm NVA	11 799	26 356	27 880	27 709	31 694	27 709	31 378
<i>Farm NVA / AWU</i>	<i>4 370</i>	<i>9 761</i>	<i>10 326</i>	<i>10 263</i>	<i>11 739</i>	<i>10 263</i>	<i>11 621</i>
Farm NVA (excl. subsidies)	9 520	16 697	14 883	16 017	14 713	16 017	14 713
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>3 526</i>	<i>6 184</i>	<i>5 512</i>	<i>5 932</i>	<i>5 449</i>	<i>5 932</i>	<i>5 449</i>
Economic size	16,7						
No of farms	1120						

Field crops

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	35 934	40 708	40 080	40 472	40 021	40 472	40 021
Crop production	30 992	32 205	32 205	32 205	32 205	32 205	32 205
Livestock production	4 183	7 716	7 087	7 480	7 028	7 480	7 028
Other output	759	787	787	787	787	787	787
Input	30 982	34 333	34 333	34 333	34 333	34 333	34 333
Subsidies	2 802	8 794	14 701	9 916	19 194	9 916	18 804
-DP	0	2 384	8 291	3 506	12 784	3 506	12 394
-RD	0	6 410	6 410	6 410	6 410	6 410	6 410
-Additional payment	0	0	0	0	0	0	0
Total labour input	2,6	2,6	2,6	2,6	2,6	2,6	2,6
Farm NVA	10 806	18 648	23 927	19 534	28 361	19 534	27 971
<i>Farm NVA / AWU</i>	<i>4 156</i>	<i>7 172</i>	<i>9 203</i>	<i>7 513</i>	<i>10 908</i>	<i>7 513</i>	<i>10 758</i>
Farm NVA (excl. subsidies)	8 004	9 854	9 226	9 618	9 167	9 618	9 167
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>3 078</i>	<i>3 790</i>	<i>3 548</i>	<i>3 699</i>	<i>3 526</i>	<i>3 699</i>	<i>3 526</i>
Economic size	18,8						
No of farms	787						

Grazing livestock

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	49 072	93 294	84 132	89 858	83 273	89 858	83 273
Crop production	11 542	11 964	11 964	11 964	11 964	11 964	11 964
Livestock production	37 168	80 955	71 793	77 519	70 934	77 519	70 934
Other output	361	374	374	374	374	374	374
Input	33 587	38 350	38 350	38 350	38 350	38 350	38 350
Subsidies	679	6 916	8 465	8 661	11 046	8 661	10 928
-DP	0	3 227	4 776	4 972	7 357	4 972	7 239
-RD	0	3 689	3 689	3 689	3 689	3 689	3 689
-Additional payment	0	0	0	0	0	0	0
Total labour input	3,0	3,0	3,0	3,0	3,0	3,0	3,0
Farm NVA	18 744	64 801	57 188	63 110	58 910	63 110	58 792
<i>Farm NVA / AWU</i>	<i>6 248</i>	<i>21 600</i>	<i>19 063</i>	<i>21 037</i>	<i>19 637</i>	<i>21 037</i>	<i>19 597</i>
Farm NVA (excl. subsidies)	18 065	57 885	48 723	54 449	47 864	54 449	47 864
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>6 022</i>	<i>19 295</i>	<i>16 241</i>	<i>18 150</i>	<i>15 955</i>	<i>18 150</i>	<i>15 955</i>
Economic size	13						
No of farms	38						

Mixed

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	34 877	55 023	50 995	53 513	50 617	53 513	50 617
Crop production	14 316	14 886	14 886	14 886	14 886	14 886	14 886
Livestock production	20 184	39 746	35 717	38 235	35 340	38 235	35 340
Other output	377	391	391	391	391	391	391
Input	24 534	27 732	27 732	27 732	27 732	27 732	27 732
Subsidies	1 090	12 785	9 439	17 444	12 373	17 444	12 211
-DP	0	8 653	5 307	13 312	8 241	13 312	8 079
-RD	0	4 132	4 132	4 132	4 132	4 132	4 132
-Additional payment	0	0	0	0	0	0	0
Total labour input	2,8	2,8	2,8	2,8	2,8	2,8	2,8
Farm NVA	12 925	41 779	34 404	44 927	36 960	44 927	36 798
<i>Farm NVA / AWU</i>	<i>4 616</i>	<i>14 921</i>	<i>12 287</i>	<i>16 045</i>	<i>13 200</i>	<i>16 045</i>	<i>13 142</i>
Farm NVA (excl. subsidies)	11 835	28 994	24 965	27 483	24 587	27 483	24 587
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>4 227</i>	<i>10 355</i>	<i>8 916</i>	<i>9 815</i>	<i>8 781</i>	<i>9 815</i>	<i>8 781</i>
Economic size	11,8						
No of farms	295						

Territories outside LFA

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
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Total output	43 220	52 595	51 075	52 025	50 932	52 025	50 932
Crop production	33 538	34 762	34 762	34 762	34 762	34 762	34 762
Livestock production	8 952	17 077	15 557	16 507	15 414	16 507	15 414
Other output	729	756	756	756	756	756	756
Input	34 218	37 825	37 825	37 825	37 825	37 825	37 825
Subsidies	2 649	9 312	15 156	10 659	19 798	10 659	19 388
-DP	0	2 700	8 544	4 047	13 186	4 047	12 776
-RD	0	6 612	6 612	6 612	6 612	6 612	6 612
-Additional payment	0	0	0	0	0	0	0
Total labour input	2,8	2,8	2,8	2,8	2,8	2,8	2,8
Farm NVA	14 872	27 755	32 079	28 532	36 578	28 532	36 168
<i>Farm NVA / AWU</i>	<i>5 311</i>	<i>9 913</i>	<i>11 457</i>	<i>10 190</i>	<i>13 064</i>	<i>10 190</i>	<i>12 917</i>
Farm NVA (excl. subsidies)	12 223	18 443	16 923	17 873	16 780	17 873	16 780
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>4 365</i>	<i>6 587</i>	<i>6 044</i>	<i>6 383</i>	<i>5 993</i>	<i>6 383</i>	<i>5 993</i>
Economic size	20,6						
No of farms	653						

LFA territories

Indicator	2001	2006 A	2006 R	2010 A	2010 R	2013 A	2013 R
Total output	26 148	37 409	35 185	36 575	34 977	36 575	34 977
Crop production	15 315	16 043	16 043	16 043	16 043	16 043	16 043
Livestock production	10 307	20 819	18 596	19 985	18 387	19 985	18 387
Other output	527	546	546	546	546	546	546
Input	19 454	21 569	21 569	21 569	21 569	21 569	21 569
Subsidies	1 762	10 006	9 302	13 076	12 172	13 076	12 017
-DP	0	5 941	5 237	9 011	8 107	9 011	7 952
-RD	0	4 065	4 065	4 065	4 065	4 065	4 065
-Additional payment	0	0	0	0	0	0	0
Total labour input	2,5	2,5	2,5	2,5	2,5	2,5	2,5
Farm NVA	9 854	27 440	24 513	29 676	27 174	29 676	27 019
<i>Farm NVA / AWU</i>	<i>3 942</i>	<i>10 976</i>	<i>9 805</i>	<i>11 870</i>	<i>10 870</i>	<i>11 870</i>	<i>10 808</i>
Farm NVA (excl. subsidies)	8 092	17 434	15 211	16 600	15 002	16 600	15 002
<i>Farm NVA (excl. subsidies)/ AWU</i>	<i>3 237</i>	<i>6 974</i>	<i>6 084</i>	<i>6 640</i>	<i>6 001</i>	<i>6 640</i>	<i>6 001</i>
Economic size	11,3						
No of farms	467						

Source: LAEI

Table 15. The calculated level of incentive prices and production quantities in Estonia for the years 2006 and 2010

Products	The level of incentive prices, EUR/t					The level of product supply, thsd.t.				
	2001	2006		2010		2001	2006		2010	
		A	R	A	R		A	R	A	R
WHEAT	114,9	142,9	142,9	152,3	135,0	123,0	137,5	137,6	150,5	147,6
CGRAIN	101,5	144,1	144,1	158,4	133,9	366,7	431,9	431,5	478,8	462,4
OTHGR	125,9	153,5	155,9	171,5	144,7	24,8	24,5	24,6	26,0	26,9
RAPE	255,1	275,1	275,1	305,8	277,7	41,1	38,7	38,7	39,8	41,5
FLAX	322,0	353,9	353,9	375,8	338,0	0,1	0,2	0,2	0,3	0,2
MILK	206,2	280,8	243,5	272,1	236,3	564,3	624,5	624,5	646,4	646,4
BEEF	1 447,3	3 148,8	3 148,8	3 322,3	2 952,3	14,2	16,7	16,7	16,3	16,3
PORK	1 844,7	1 538,8	1 538,8	1 538,8	1 538,8	33,6	34,7	34,7	39,0	39,5
MUTT	2 141,5	3 843,2	3 843,2	4 412,5	3 596,1	0,3	0,3	0,3	0,3	0,3
POUL	1 366,2	1 704,0	1 704,0	1 704,0	1 704,0	9,2	10,8	10,8	12,2	12,1
RAO	1 000,0	1 000,0	1 000,0	1 000,0	1 000,0	254,0	254,8	254,8	259,0	260,1
FWHEAT	78,7	83,8	83,8	83,8	83,8	54,9	59,0	59,0	56,0	52,4
FCGRAIN	67,7	76,1	76,1	76,1	76,1	237,5	217,1	217,1	202,0	206,5
FOTHGR	82,5	78,9	78,9	78,9	78,9	13,0	14,7	14,6	15,8	15,2
RVI	1 000,0	1 100,0	1 100,0	1 100,0	1 100,0	195,2	171,3	171,3	151,1	151,1
LAB	2 525,5	2 525,5	2 525,5	2 525,5	2 525,5	64,6	68,6	68,6	71,3	71,2
FERT	330,0	330,0	330,0	330,0	330,0	29,7	31,4	31,4	28,4	27,3

Source: LSIAE calculations

Table 16. The calculated level of retail prices and consumption quantities in Estonia for the years 2006 and 2010

Products	The level of retail prices, EUR/t					The level of product demand, thsd.t.				
	2001	2006		2010		2001	2006		2010	
		A	R	A	R		A	R	A	R
WHEAT	285,4	292,2	292,2	292,2	292,2	71,7	71,7	72,1	71,6	71,8
CGRAIN	504,3	515,5	515,5	515,5	515,5	53,6	53,8	53,8	53,7	53,7
OTHGR	394,8	389,8	389,8	389,8	389,8	5,0	5,0	5,1	5,0	5,1
RAPE	337,3	325,6	325,6	339,6	339,6	2,5	2,5	2,5	2,5	2,5
FLAX	1 294,7	1 300,3	1 300,3	1 300,3	1 300,3	0,1	0,1	0,1	0,1	0,1
MILK	414,3	491,8	446,9	474,4	441,9	443,0	435,2	442,0	437,7	442,6
BEEF	3 856,9	4 884,3	4 884,3	4 884,3	4 884,3	16,1	15,2	15,3	15,2	15,2
PORK	4 083,3	3 770,1	3 770,1	3 770,1	3 770,1	38,9	39,6	39,9	39,3	39,6
MUTT	5 348,0	6 411,4	6 411,4	6 411,4	6 411,4	0,4	0,5	0,5	0,4	0,4
POUL	2 100,4	2 422,7	2 422,7	2 422,7	2 422,7	29,2	28,8	29,5	28,1	28,6
ROSP	1 000,0	1 000,0	1 000,0	1 000,0	1 000,0	251,2	263,0	276,2	252,4	262,0

Source: LSIAE calculations

Table 17. The calculated level of net export in Estonia for the years 2006 and 2010, thousands of tonnes

Products	2001	2006		2010	
		A	R	A	R
WHEAT	-3,6	6,8	6,5	23,0	23,4
CGRAIN	75,6	161,0	160,7	223,2	202,2
OTHGR	6,7	4,8	5,0	5,1	6,6
RAPE	38,6	36,2	36,2	37,3	39,0
FLAX	-0,2	0,1	0,1	0,2	0,1
MILK	121,3	189,2	182,4	208,7	203,7
BEEF	-1,9	1,5	1,4	1,2	1,1
PORK	-5,2	-4,8	-5,1	-0,3	0,0
MUTT	-0,1	-0,2	-0,2	-0,1	-0,1
POUL	-20,0	-18,0	-18,7	-15,9	-16,5

Source: LSIAE calculation

Table 18. The calibrated set of price elasticities for supply side

	WHEAT	CGRAIN	OTHGR	RAPE	FLAX	MILK	BEEF	PORK	MUTT	POUL	RAO	FWHEAT	FBARLEY	FPOTAT	RVI	LAB	FERT
WHEAT	0,402	-0,176	0,036	0,019	-0,009	-0,120	-0,078	-0,080	-0,002	0,040	-0,090	-0,014	0,181	-0,010	0,031	-0,030	0,030
CGRAIN	-0,213	0,401	-0,095	-0,035	0,008	-0,030	-0,030	-0,030	0,002	0,010	-0,030	-0,079	-0,027	0,020	0,065	-0,030	0,030
OTHGR	0,26	-0,56	0,40	-0,05	-0,01	-0,02	0,00	-0,06	0,00	0,01	-0,06	-0,02	0,03	-0,01	-0,04	-0,04	0,03
RAPE	0,292	-0,452	-0,101	0,3007079	0,020	0,105	0,017	-0,002	-0,004	-0,004	-0,007	-0,010	0,007	-0,010	-0,091	-0,009	-0,042
FLAX	-0,480	0,356	-0,111	0,071	0,300	0,009	0,010	0,010	-0,009	-0,007	-0,017	-0,011	0,020	0,010	-0,095	-0,024	-0,015
MILK	-0,043	-0,009	-0,001	0,002	0,000	0,496	0,025	-0,180	0,001	-0,118	-0,150	0,061	-0,069	-0,028	-0,013	-0,040	0,046
BEEF	-0,139	-0,044	-0,001	0,002	0,000	0,127	0,349	-0,273	-0,002	-0,016	-0,184	0,012	-0,172	0,042	-0,076	-0,010	0,297
PORK	-0,063	-0,020	-0,007	0,000	0,000	-0,399	-0,121	0,601	-0,002	0,151	-0,063	0,070	-0,009	-0,054	0,028	-0,020	-0,069
MUTT	-0,097	0,086	-0,029	-0,018	-0,011	0,140	-0,069	-0,192	0,300	0,107	-0,012	0,148	-0,168	-0,037	-0,093	-0,108	-0,027
POUL	0,129	0,027	0,005	-0,001	0,000	-1,073	-0,030	0,618	0,005	0,601	-0,040	0,072	-0,062	-0,005	0,041	-0,292	0,008
RAO	-0,013	-0,004	-0,001	0,000	0,000	-0,063	-0,015	-0,012	0,000	-0,002	0,259	-0,010	0,020	-0,011	-0,002	-0,050	-0,105
FWHEAT	0,061	0,279	0,012	0,003	0,001	-0,738	-0,028	-0,384	-0,010	-0,096	0,291	-0,517	0,307	0,000	0,065	0,259	0,182
FCGRAIN	-0,148	-0,209	-0,002	0,000	0,000	0,562	0,040	0,440	0,004	0,066	-0,371	0,399	-0,335	0,040	-0,050	-0,200	-0,045
FOTHGR	0,330	0,688	-0,555	0,014	-0,004	0,446	0,223	-1,209	0,010	-0,053	0,183	0,011	0,034	-0,299	0,027	0,117	-0,026
RVI	-0,087	-0,149	0,015	0,016	0,005	0,105	0,119	-0,098	0,004	-0,035	0,035	0,042	-0,003	-0,003	-0,104	0,209	-0,030
LAB	0,005	0,004	0,001	0,000	0,000	0,017	0,001	0,004	0,000	0,014	0,051	0,009	-0,001	-0,001	0,011	-0,139	0,033
FERT	-0,024	-0,020	-0,003	0,002	0,000	-0,105	-0,134	0,071	0,000	-0,002	0,563	0,034	-0,210	0,012	-0,009	0,172	-0,531

Source: LSIAE calculations

Table 19. The calibrated set of price and income elasticities for demand side

	WHEAT	CGRAIN	OTHGR	RAPE	FLAX	MILK	BEEF	PORK	MUTT	POUL	ROSP	Income
WHEAT	-0,110	-0,048	0,000	-0,005	-0,012	-0,029	-0,007	-0,006	-0,006	-0,012	0,008	0,23
CGRAIN	-0,119	-0,100	0,060	-0,002	-0,008	0,047	-0,005	-0,005	-0,006	-0,011	0,010	0,20
OTHGR	0,01	0,00	-0,05	0,00	0,00	-0,05	0,00	-0,01	0,00	-0,01	0,01	0,10
RAPE	-0,390	-0,055	-0,035	-0,103	0,009	0,025	0,005	0,005	0,010	0,016	0,009	0,51
FLAX	-0,322	-0,085	0,004	0,003	-0,160	-0,081	-0,010	0,020	0,008	0,014	0,009	0,60
MILK	0,000	0,006	-0,004	0,000	0,000	-0,109	0,001	0,000	-0,002	0,002	0,010	0,09
BEEF	-0,010	-0,004	-0,002	0,000	0,000	-0,038	-0,175	0,004	0,005	-0,088	0,010	0,30
PORK	-0,004	-0,002	-0,003	0,000	0,001	-0,034	0,004	-0,148	-0,001	-0,072	0,005	0,25
MUTT	-0,248	-0,091	0,030	0,004	0,012	-0,405	0,150	-0,108	-0,081	0,041	0,010	0,69
POUL	-0,035	-0,014	-0,014	0,000	0,000	-0,124	-0,108	-0,236	0,001	-0,177	0,005	0,70
ROSP	-0,082	-0,033	-0,028	-0,001	-0,003	-0,383	-0,082	-0,211	-0,002	-0,062	-1,009	1,90

Source: LSIAE calculations

Table 20. The calculated level of incentive prices and production quantities in Latvia for the years 2006 and 2010

Products	The level of incentive prices, EUR/t					Product supply, thou t				
	2001	Scenarios in 2006		Scenarios in 2010		2001	Scenarios in 2006		Scenarios in 2010	
		A	R	A	R		A	R	A	R
WHEAT	99,8	146,5	146,5	166,9	149,4	416,7	485,0	485,0	512,0	517,8
CGRAIN	93,0	154,0	154,1	185,8	159,0	368,8	464,6	464,5	504,3	496,0
OTHGR	113,5	163,1	163,8	200,0	170,4	51,2	47,5	47,6	50,6	51,5
RAPE	210,4	285,8	285,8	333,9	304,5	12,6	10,3	10,3	10,3	10,9
FLAX	416,6	362,8	362,8	396,9	361,1	1,8	1,6	1,6	1,8	1,7
MILK	157,0	282,9	245,5	277,0	241,2	746,6	695,4	695,4	728,0	728,0
BEEF	1328,7	3150,1	3150,1	4320,7	3617,0	17,6	19,2	19,2	23,8	21,6
PORK	1700,6	1592,0	1592,0	1625,6	1625,6	31,0	32,6	32,6	33,4	35,7
MUTT	1825,2	3189,6	3189,6	3547,0	3198,0	0,4	0,4	0,4	0,4	0,4
POUL	1444,4	1782,1	1782,1	1907,0	1907,0	8,9	13,2	13,2	14,9	14,9
RAO	1000,0	1000,0	1000,0	1000,0	1000,0	277,8	291,2	291,2	289,0	293,3
FWHEAT	68,9	83,8	83,8	83,8	83,8	140,0	174,5	174,5	179,1	169,0
FCGRAIN	63,5	76,2	76,2	76,2	76,2	235,8	144,2	144,2	115,8	127,8
FOTHGR	77,4	78,9	78,9	78,9	78,9	22,5	38,6	38,5	43,4	39,1
RVI	1000,0	1100,0	1100,0	1100,0	1100,0	37,4	28,1	28,1	25,8	25,2
LAB	2277,5	2277,5	2277,5	2277,5	2277,5	120,0	128,9	128,9	135,3	134,6
FERT	402,3	402,3	402,3	402,3	402,3	51,7	52,0	52,0	41,3	45,0

Source: LSIAE calculations

Table 21. The calculated level of retail prices and consumption quantities in Latvia for year 2006 and 2010

Products	Level of retail prices, EUR/t					The product demand, thou t				
	2001	Scenarios in 2006		Scenarios in 2010		2001	Scenarios in 2006		Scenarios in 2010	
		A	R	A	R		A	R	A	R
WHEAT	358,6	378,35	378,35	378,35	378,35	160,8	159,05	159,54	158,89	159,25
CGRAIN	419,8	436,77	436,77	436,77	436,77	54,4	54,96	54,70	54,78	54,59
OTHGR	553,3	555,03	555,03	555,03	555,03	33,2	32,88	33,05	33,00	33,13
RAPE	384,9	416,71	416,71	430,71	430,71	2,0	2,02	2,02	1,99	1,99
FLAX	1156,3	1348,25	1348,25	1348,25	1348,25	2,0	1,98	2,00	1,96	1,98
MILK	360,2	484,68	439,77	467,25	434,72	692,1	671,63	679,28	676,31	681,88
BEEF	2569,1	3745,01	3745,01	3745,01	3745,01	23,4	21,67	21,69	21,62	21,64
PORK	2817,7	2682,20	2682,20	2682,20	2682,20	53,3	53,58	53,82	53,50	53,68
MUTT	4306,2	5177,77	5177,77	5177,77	5177,77	0,4	0,36	0,37	0,36	0,37
POUL	2380,4	2628,44	2628,44	2628,44	2628,44	25,5	24,38	24,71	24,10	24,34
ROSP	1000,0	1000,00	1000,00	1000,00	1000,00	535,7	520,87	545,78	501,45	519,63

Source: LSIAE calculations

Table 22. The calculated level of net export in Latvia for year 2006 and 2010, thou t

Products	2001	Scenarios in 2006		Scenarios in 2010	
		A	R	A	R
WHEAT	115,94	151,43	150,95	173,96	189,52
CGRAIN	78,58	265,43	265,62	333,78	313,59
OTHGR	-4,52	-23,90	-23,92	-25,83	-20,68
RAPE	10,61	8,31	8,30	8,32	8,93
FLAX	-0,24752	-0,40	-0,42	-0,19	-0,25
MILK	54,5	23,77	16,12	51,69	46,12
BEEF	-5,79	-2,43	-2,46	2,16	-0,07
PORK	-22,34	-20,95	-21,19	-20,09	-17,97
MUTT	-0,011656	0,02	0,00	0,03	0,01
POUL	-16,64	-11,17	-11,51	-9,17	-9,48

Source: LSIAE calculations

Table 23. The calculated level of production quantities in Lithuania for years 2006 and 2010, thou tons

Products	Production quantities, thou tons				
	2001	Scenarios in 2006		Scenarios in 2010	
		A	R	A	R
Wheat	952,9	959,2	959,6	1028,7	1047,8
Coarse grain	903,0	963,9	962,4	1045,8	1035,7
Other grain	188,1	212,9	214,2	234,4	228,9
Rape	63,8	69,8	69,8	74,8	74,0
Flax	4,0	3,5	3,4	3,7	3,7
Milk	1519,6	1646,9	1646,9	1704,8	1704,8
Beef	49,6	63,9	63,9	66,4	63,7
Pork	81,2	101,2	101,1	107,8	107,9
Sheep meat	0,8	0,47	0,47	0,39	0,46
Poultry	30,1	27,04	27,04	28,00	29,76
Rest of agricultural output	520,3	505,6	505,6	509,2	515,5
Feed wheat	366,6	462,0	462,0	451,1	411,0
Feed coarse grain	738,6	693,3	693,4	621,7	642,2
Feed other grain	141,5	156,2	154,9	166,3	165,5
Rest of variable input	316,1	257,0	257,0	217,6	220,9
Labour	200,8	213,8	213,8	223,1	222,4
Fertilisers	51,7	65,1	65,1	51,5	51,2

Source: LSIAE calculations

Table 24. The calculated level of consumption quantities in Lithuania for years 2006 and 2010, thou tons

Products	Demand quantities, thou tons				
	2001	Scenarios in 2006		Scenarios in 2010	
		A	R	A	R
Wheat	352,1	350,96	352,31	350,63	351,62
Coarse grain	78,2	79,69	79,46	79,46	79,30
Other grain	24,5	24,25	24,37	24,31	24,40
Rape	2,0	2,10	2,10	2,06	2,06
Flax	4,2	4,25	4,29	4,21	4,24
Milk	978,2	949,51	959,02	955,61	962,50
Beef	48,9	45,79	45,83	45,72	45,75
Pork	121,9	120,27	120,60	120,12	120,37
Sheep meat	2,4	2,28	2,33	2,26	2,30
Poultry	36,9	33,96	34,38	33,49	33,80
Rest of spending	841,1	783,72	818,58	350,63	351,62

Source: LSIAE calculations

Table 25. The calculated level of incentive prices in Lithuania for years 2006 and 2010, EUR/t

	2001	Scenarios in 2006		Scenarios in 2010	
		A	R	A	R
	Wheat	117,1	139,3	139,3	148,1
Coarse grain	111,3	140,0	140,0	152,9	131,7
Other grain	110,4	159,8	161,8	182,1	151,6
Rape	227,9	282,3	282,3	317,2	285,2
Flax	613,0	394,1	394,1	442,3	377,5
Milk	138,6	284,0	246,6	275,2	239,4
Beef	1244,1	3333,9	3333,9	3974,6	3340,8
Pork	1256,8	1532,7	1532,7	1532,7	1532,7
Sheep meat	2911,0	2639,5	2639,5	2660,4	2616,5
Poultry	1391,6	1688,6	1688,6	1688,6	1688,6
Rest of agricultural output	1000,0	1000,0	1000,0	1000,0	1000,0
Feed wheat	84,9	83,8	83,8	83,8	83,8
Feed coarse grain	79,5	76,2	76,2	76,2	76,2
Feed other grain	79,5	78,9	78,9	78,9	78,9
Rest of variable input	1000,0	1100,0	1100,0	1100,0	1100,0
Labour	2507,1	2507,1	2507,1	2507,1	2507,1
Fertilisers	122,8	122,8	122,8	122,8	122,8

Source: LSIAE calculations

Table 26. The calculated level of retail prices in Lithuania for years 2006 and 2010, EUR/t

	2001	Scenarios in 2006		Scenarios in 2010	
		A	R	A	R
Wheat	291,7	290,19	290,19	290,19	290,19
Coarse grain	427,2	422,90	422,90	422,90	422,90
Other grain	556,9	555,96	555,96	555,96	555,96
Rape	417,1	427,29	427,29	441,29	441,29
Flax	1132,4	1162,50	1162,50	1162,50	1162,50
Milk	402,6	543,94	499,00	526,51	493,98
Beef	3009,2	4259,84	4259,84	4259,84	4259,84
Pork	2751,4	3022,62	3022,62	3022,62	3022,62
Sheep meat	4199,5	4429,88	4429,88	4429,88	4429,88
Poultry	2771,7	3064,71	3064,71	3064,71	3064,71
Rest of spending	1000,0	1000,00	1000,00	1000,00	1000,00

Source: LSIAE calculations

Table 27. The calculated level on net export in Lithuania for years 2006 and 2010, thou tons

Products	2001	Scenarios in 2006		Scenarios in 2010	
		A	R	A	R
Wheat	234,2	146,27	145,39	227,00	285,17
Coarse grain	86,2	190,83	189,62	344,69	314,23
Other grain	22,1	32,49	34,96	43,83	39,06
Rape	61,8	67,68	67,66	72,76	71,91
Flax	-0,2	-0,79	-0,85	-0,53	-0,57
Milk	541,4	697,43	687,92	749,19	742,30
Beef	0,7	18,07	18,03	20,65	17,94
Pork	-40,7	-19,10	-19,46	-12,37	-12,46
Sheep meat	-1,6	-1,81	-1,86	-1,88	-1,84
Poultry	-6,8	-6,92	-7,34	-5,49	-4,03

Source: LSIAE calculations

Table 28. The forecast of incentive price level in Baltic States according to the different policy scenarios for years 2006 and 2010, EUR/t

Products	Estonia				Latvia				Lithuania			
	Scenarios in 2006		Scenarios in 2010		Scenarios in 2006		Scenarios in 2010		Scenarios in 2006		Scenarios in 2010	
	A	R	A	R	A	R	A	R	A	R	A	R
WHEAT	142,9	142,9	152,3	135,0	146,5	146,5	166,9	149,4	139,3	139,3	148,1	133,2
CGRAIN	144,1	144,1	158,4	133,9	154,0	154,1	185,8	159,0	140,0	140,0	152,9	131,7
OTHGR	153,5	155,9	171,5	144,7	163,1	163,8	200,0	170,4	159,8	161,8	182,1	151,6
RAPE	275,1	275,1	305,8	277,7	285,8	285,8	333,9	304,5	282,3	282,3	317,2	285,2
FLAX	353,9	353,9	375,8	338,0	362,8	362,8	396,9	361,1	394,1	394,1	442,3	377,5
MILK	280,8	243,5	272,1	236,3	282,9	245,5	277,0	241,2	284,0	246,6	275,2	239,4
BEEF	3148,8	3148,8	3322,3	2952,3	3150,1	3150,1	4320,7	3617,0	3333,9	3333,9	3974,6	3340,8
PORK	1538,8	1538,8	1538,8	1538,8	1592,0	1592,0	1625,6	1625,6	1532,7	1532,7	1532,7	1532,7
MUTT	3843,2	3843,2	4412,5	3596,1	3189,6	3189,6	3547,0	3198,0	2639,5	2639,5	2660,4	2616,5
POUL	1704,0	1704,0	1704,0	1704,0	1782,1	1782,1	1907,0	1907,0	1688,6	1688,6	1688,6	1688,6
RAO	1000,0	1000,0	1000,0	1000,0	1000,0	1000,0	1000,0	1000,0	1000,0	1000,0	1000,0	1000,0
FWHEAT	83,8	83,8	83,8	83,8	83,8	83,8	83,8	83,8	83,8	83,8	83,8	83,8
FCGRAIN	76,1	76,1	76,1	76,1	76,2	76,2	76,2	76,2	76,2	76,2	76,2	76,2
FOTHGR	78,9	78,9	78,9	78,9	78,9	78,9	78,9	78,9	78,9	78,9	78,9	78,9
RVI	1100,0	1100,0	1100,0	1100,0	1100,0	1100,0	1100,0	1100,0	1100,0	1100,0	1100,0	1100,0
LAB	2525,5	2525,5	2525,5	2525,5	2277,5	2277,5	2277,5	2277,5	2507,1	2507,1	2507,1	2507,1
FERT	330,0	330,0	330,0	330,0	402,3	402,3	402,3	402,3	122,8	122,8	122,8	122,8

Source: LSIAE calculations