

Analysis of agricultural policy scenario impacts on Lithuanian agriculture

Irena Kriščiukaitienė,

Aistė Galnaitytė,

Andrej Jedik

*Lithuanian Institute
of Agrarian Economics,
V. Kudirkos 18,
LT-03105 Vilnius, Lithuania
E-mail: irena@laei.lt,
aiste@laei.lt,*

William H. Meyers

*University of Missouri-Columbia,
Columbia, MO 65203, USA
E-mail: meyers@Missouri.edu*

The article is prepared according to a unified methodology, based on the model AGMEMOD of the EU-27 countries. With the help of this model, the influence of the situation in macroeconomics, policy and other factors (prices and productivity) on the production and consumption of the main agricultural and food products is estimated. Four agricultural policy scenarios and their influence on the plant (cereals, rapeseed and potatoes) and animal sectors (beef and veal, pork, sheep meat and poultry) are presented. Prognoses of the aggregate balance of the mentioned products are presented for the year 2020. In conclusion, the results of four agricultural policy scenarios and future research questions related to the current time period are introduced.

Key words: agricultural products, agricultural procurement prices, “Health Check” reforms, GDP, exchange rate, inflation

INTRODUCTION

Lithuanian agriculture is being buffeted by economic crisis just after it has had a few years of growing prosperity after EU accession in 2004 (Chantreuil et al., 2005; Leeuwen et al., 2008). Though the current turbulence is very difficult for farmers and agribusiness in general, this paper steps back from the near-term economic crisis to look ahead at the likely consequences of the recent Health Check reforms and two alternative reforms (Moss, 2008) that have been discussed but not adopted.

We begin with the baseline to 2020 that was conducted by the Lithuanian AGMEMOD team in collaboration with European partners from all 27 member countries.

The baseline is presented, then scenario assumptions are discussed, and finally the scenario results are compared and evaluated in comparison to the baseline, which assumes the pre-Health Check policies.

Macroeconomic situation and baseline assumptions

Real GDP during the period from 2005 until 2020 is expected to increase: different years show different levels of real GDP growth (Table 1). The GDP growth rate started to be slower in 2008, and this tendency is expected to be the same until 2010. The main reasons are the decline in property market turnover, the onset of stricter conditions for borrowing and lower levels of activity in the main branches of Lithuanian industry. However, there are factors which are expected to encourage

Table 1. Macroeconomic assumptions used in the Lithuanian model

Population	Unit	2005	2010	2012	2014	2016	2018	2020
	Million	3.43	3.34	3.31	3.29	3.26	3.24	3.22
Real GDP	bil. €'00	18007	18690	19806	21128	22667	24438	26459
Real GDP p. c.	€'00	5257	5601	5982	6429	6944	7537	8217
GDP Deflator	2000 = 1	1.16	1.50	1.63	1.76	1.89	2.03	2.16

Source: National Accounts (Lithuanian Department of Statistics), 2008; Eurostat data, 2008.

[illegible]

Table 5. Direct support from budgetary national ceilings (million euros) in Scenario 2b compared to the Baseline

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
National ceiling for direct payments	230,560	267,260	303,960	340,660	377,360	688,825	688,825	688,825	688,825	688,825	688,825	688,825
– coupled payments	0	0	0	0	0	0	0	0	0	0	0	0
– historical payments	10,260	10,260	0	0	0	0	0	0	0	0	0	0
– regional payments	220,300	257,000	303,960	340,660	377,360	688,825	688,825	688,825	688,825	688,825	688,825	688,825
Modulation rate	0	0	0	0.009	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Flat rate euro/ha	82.6	95.7	108.9	122.0	135.2	246.7	246.7	246.7	246.7	246.7	246.7	246.7

Table 6. Direct support from budgetary national ceilings (million euros) in Scenario 3a compared to the Baseline

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
National ceiling for direct payments	230,560	267,260	303,960	340,660	377,360	377,360	377,360	377,360	377,360	377,360	377,360	377,360
– coupled payments	0	0	0	0	0	0	0	0	0	0	0	0
– historical payments	7107	3554	0	0	0	0	0	0	0	0	0	0
– regional payments	223,453	263,707	303,960	340,660	377,360	377,360	377,360	377,360	377,360	377,360	377,360	377,360
Modulation rate	0	0	0	0.018	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
Flat rate euro/ha	82.6	95.7	108.9	122.0	135.2	135.2	135.2	135.2	135.2	135.2	135.2	135.2

Table 7. Direct support from budgetary national ceilings (million euros) in Scenario 3b compared to the Baseline

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
National ceiling for direct payments	230,560	267,260	303,960	340,660	377,360	279,070	279,070	279,070	279,070	279,070	279,070	279,070
– coupled payments	0	0	0	0	0	0	0	0	0	0	0	0
– historical payments	10,260	10,260	10,260	10,260	10,260	10,260	10,260	10,260	10,260	10,260	10,260	10,260
– regional payments	220,300	257,000	293,700	330,400	367,100	268,810	268,810	268,810	268,810	268,810	268,810	268,810
Modulation rate	0	0	0	0.009	0.04	0	0	0	0	0	0	0
EU Flat rate euro/ha	82.6	95.7	108.9	122.0	135.2	99.9	99.9	99.9	99.9	99.9	99.9	99.9

Sources: Council Regulation (EC) No 1782 / 2003 of 29 September 2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers and amending Regulations (EEC) No 1919 / 93, (EC) No 1452 / 2001, (EC) No 1453/2001, (EC) No 1454 / 2001, (EC) 1868 / 94, (EC) No 1251 / 1999, (EC) No 1254 / 1999, (EC) No 1673 / 2000, (EEC) No 2358 / 71 and (EC) No 2529 / 2001; The Ministry of Agriculture the Republic of Lithuania, 2008; AGMEMOD combined model (2008 – version 3.0).

export refund payments (62.6 mill. euros) were paid in 2006. After implementing the new rules of the market regulation measures, the export refund payments started to decrease and reached 28.4 and 8.4 mill. euros respectively in 2007 and 2008.

The second important market regulation area in Lithuania is intervention purchases. Funds for intervention purchase are as follows: in 2004 – 1.7, 2005 – 5.2, 2006 – 9.1, 2007 – 3.4 and in 2008 – 4.4 mill. euros. The third area is the supply of food from intervention stocks for the benefit of economically deprived persons in the community; 2.5 mill. euros in 2006 and 3.3 mill. euros in 2007 and 2008 were given for this purpose.

The other aid schemes used are production refund for skimmed milk used in casein and caseinates, aid for consumption of milk and milk products in educational establishments, and others.

Key prices

Lithuanian prices are determined by linkages to key prices in the EU market. In the simulations, these key prices are influenced by world market prices, thus Lithuanian prices are linked to world markets (Binfield, 2005; Salamon et al., 2008). Concerning the Lithuanian price level, we have introduced a large price adjustment for beef, poultry and dairy (butter and cheese) prices (Kriščiukaitienė, 2008). Under the Baseline, these prices will not reach the key price level (dominant price in the EU market for different products) until 2020 due to differences in the quality between products produced and sold in Lithuania and those sold and produced on the AGMEMOD key price market (Chantreuil et al., 2005; Bartova, M'barek, 2008).

Pork price is expected to exceed the key price level. The reason to be higher than the key price is that it is an imported good.

Lithuanian wheat, barley, rye, potatoes, SMP and WMP prices are linked to key prices with estimated linear equations.

The Lithuanian sugar beet price is based on planned prices which include support, and these prices have a clear regulatory character.

Beef price is projected to gradually reach 85% of the key price by 2010, and thereafter its value is projected to remain stable relative to the key price. This difference between the Lithuanian beef price and that in the key price market (Germany) is due to the dominance of lower quality milk breed cattle in the Lithuanian beef supply.

The Lithuanian poultry price is projected to gradually reach 80% of the key price by 2009 and is expected to be related with the key price at this level for the remainder of the Baseline projection period. Poultry price will remain 20% lower than the key price because of its lower quality.

The Lithuanian prices of dairy products such as butter and cheese are projected to reach the key price level in 2012 and 2013 respectively. The Lithuanian butter price fully converges with the key price, while the Lithuanian cheese price is projected by 2020 to be equivalent to 90% of the key price. The persistence of a difference between the Lithuanian and the key price of cheese is due to differences in the varieties of cheese considered.

Baseline

The CAP as defined by the most recent reform of the CAP, i. e. the CAP Health Check agreement of November 20, 2008, is not the basis of the Baseline reported here. The CAP as it stood prior to the CAP Health Check agreement is used in defining the baseline in this report. While this choice means that, strictly speaking, the baseline is not the “policy as currently defined”, the choice allows us to present an analysis of the impact of the CAP Health Check agreement relative to the world where the *status quo ante* in terms of agricultural policy is assumed to continue for the Baseline projection period (until 2020).

Member States cannot change their chosen model of decoupling under the assumptions that define the Baseline, where the current mix of historic, static and dynamic hybrid regional SPS and SAPS models will continue for the complete projection period to 2020. The CAP budget and associated national ceilings remain at their current levels. Milk quotas are not increased (except for the quota increases agreed for the 2008 / 09 quota year). Milk quotas remain in place for the entire projection period. Set aside restrictions continue to apply. In the EU-12 Member States, other than Malta and Slovenia, the SAPS is assumed to continue to apply until 2013, and from then on the SPS will apply. Those coupled direct payments allowed under the CAP remain for the duration of the Baseline projection period, but only in those Member States that have chosen to retain them. The modulation rates agreed in the 2003 CAP Reform are also assumed to prevail for the entire Baseline projection period. Voluntary modulation,

permitted under the 2003 CAP reform, is implemented as per EU regulations for Portugal and the UK (the only Member States that chose to utilise this measure).

BASELINE RESULTS

Grain, oilseeds and potato markets

Soft wheat, barley and rye are the three main cereals produced in Lithuania (Table 8). There are also areas covered by triticale, oats, maize and other grains. These other grains jointly occupy about 15% of the total grain area, each individual grain accounting for less than 5% of arable area when considered individually.

The largest average annual growth rate of **domestic use** is observed in soft wheat (6.1%) because of the slightly increasing per capita consumption and a more remarkable demand increase for feed. In particular, this indicator is influenced by increasing soft wheat use for ethanol production.

Comparing the projected growth rate of domestic consumption of rye and barley, it is clear that barley has a higher projected rate of growth than rye. This higher rate of growth is due to the higher growth in the price of rye under the Baseline. A second reason is connected with the growing demand for malting barley in Lithuania. The malt industry's capacity is expected to grow continually over the Baseline projection period. It is expected that by 2020 the Lithuanian malt industry's capacity will reach 330–350 thousand tonnes; already in 2009 it will have reached 125–130 thousand tonnes, and by 2011 it is expected to reach 250 thousand tonnes.

Comparing production indicators, it is clear that rye has the highest projected annual average growth rate among modelled cereals. The main reason for this is that the average annual rye price growth rates are higher than others. The increasing price induces farmers to produce more rye. The second reason for the projected increase in Lithuanian rye production is the highest rate of growth in **yield** per hectare compared to that expected for other cereals. There are relatively low yields per hectare in Lithuania – more than 50% lower than in some other EU countries (such as Ireland, the Netherlands, and United Kingdom). According to the Lithuanian Institute of Agriculture estimates, the yield of 10 tonnes / hectare in soft wheat and rye and 7 tonnes / hectare for barley can be achieved on Lithuania's best soils.

Soft wheat, barley and rye **area harvested** is expected to increase slightly under the Baseline. The main reason for the projected increase is the expected increase in prices. The biggest average annual growth rate is observed in rye area harvested, but in terms of absolute area expansion (i. e. in hectares) the barley area is projected to increase most significantly. The Lithuanian barley area is projected to increase due to its high profitability when compared with soft wheat and rye. With the expected favourable economic conditions (high prices and support), Lithuania can increase cultivated areas because of the availability of previously abandoned land.

Table 8. Baseline projections for grain markets

			2005	2010	2015	2020	2005–2020 % growth per year
Total grains							
Production	1,000 ton		2811	3004	3365	3800	2.0
Area harvested	1,000 ha		938	1025	1049	1088	1.0
Domestic Use	1,000 ton		1674	2224	2402	2570	2.9
Soft wheat							
Production	1,000 ton		1379	1494	1660	1865	2.0
Area harvested	1,000 ha		370	370	381	398	0.5
Yield per hectare	ton / ha		3.7	4.0	4.4	4.7	1.5
Domestic Use	1,000 ton		452	944	1036	1099	6.1
Price	euro / 100 kg		8.4	18.8	18.4	17.7	5.1
Barley							
Production	1,000 ton		948	1105	1280	1487	3.0
Area harvested	1,000 ha		349	395	406	425	1.3
Yield per hectare	ton / ha		2.7	2.8	3.2	3.5	1.7
Domestic Use	1,000 ton		672	810	892	991	2.6
Price	euro / 100 kg		9.2	15.9	16.5	16.5	4.0
Rye							
Production	1,000 ton		108	191	211	234	5.3
Area harvested	1,000 ha		51	75	77	81	3.1
Yield per hectare	ton / ha		2.1	2.5	2.7	2.9	2.1
Domestic Use	1,000 ton		125	159	163	169	2.0
Price	euro / 100 kg		7.2	15.3	16.3	16.1	5.5

Source: AGMEMOD combined model (2008 – version 3.0).

Lithuanian soft wheat, barley and rye prices are all linked to key prices using estimated linear equations. Annual average growth rates for soft wheat and rye are similar, with the growth rate of barley price somewhat lower under the Baseline.

Rapeseed is the main oilseed produced in Lithuania (Table 9). The significance of rapeseed as an agricultural activity is projected to increase in Lithuania because of the increased demand for feedstocks by biofuel producers. All the agricultural activity and supply and use indicators associated with rapeseed (production, area harvested, yield

per hectare and domestic use) are expected to increase due to the high prices of rapeseed and its products and the dramatic growth in demand for the product originating from the biodiesel industry. Growing direct payments also have an influence on the primary rapeseed sector.

In contrast, the domestic use of potatoes in Lithuania is expected to have only slightly increase over the Baseline projection period because of stable human consumption per capita and lower use of potatoes as an animal feed. In Lithuania, yields of potatoes are relatively low. This is because changes in production technology are very slow

Table 9. Baseline projections for oilseed and potato markets

			2005	2010	2015	2020	2005–2020 % growth per year
Total oilseeds							
Production	1,000 ton		201	426	537	685	8.5
Area harvested	1,000 ha		109	201	232	273	6.3
Domestic Use	1,000 ton		56	365	501	603	17.2
Rapeseeds							
Production	1,000 ton		201	426	536.8	685.0	8.5
Area harvested	1,000 ha		109	201	232	273	6.3
Yield per hectare	ton / ha		1.8	2.1	2.3	2.5	2.1
Domestic Use	1,000 ton		32	361	497	599	21.6
Price	euro / 100 kg		18.1	37.7	38.0	37.4	5.0

Table 9 (continued)

		2005	2010	2015	2020	2005–2020 % growth per year
Potatoes						
Production	1,000 ton	895	873	914	943	0.3
Area harvested	1,000 ha	74	68	68	68	–0.6
Yield per hectare	ton / ha	12.1	12.9	13.4	13.9	0.9
Domestic Use	1,000 ton	915	984	997	1023	0.7
Price	euro / 100 kg	13.7	10.7	8.1	7.7	–3.8

Source: AGMEMOD combined model (2008 – version 3.0).

on most potatoes farms. Another reason for the slow rate of yield growth is related to potato diseases, which are difficult to overcome and have a negative impact on yield and production. Production amounts are also influenced by the projected decrease of prices over the Baseline projection period. Lithuanian potato prices are linked to key prices with estimated linear equations. Because of a comparatively low profitability of potato production, the area harvested is projected to decrease in the initial years of the Baseline projection period and to remain more or less stable thereafter.

Livestock and dairy markets

Traditionally, in Lithuania pig meat is the preferred meat in terms of human **consumption** per head (Table 10). Pig meat human consumption per head in Lithuania is more than twice as large as that of poultry meat and almost five times larger than beef and veal consumption per capita. As a consequence, pig meat production occupies by far the largest share of Lithuanian meat production. It is projected that under the Baseline the structure of Lithuanian meat consumption per head will remain more or less unchanged over

Table 10. Baseline projections for livestock product markets

		2005	2010	2015	2020	2005–2020 % growth per year
Beef and veal						
Production	1,000 ton	53	69	66	69	1.8
Beef cows ending stock	1,000 head	5	22	21	25	12.0
Slaughtering weight	kg / animal	169.4	236.4	248.5	287.0	3.6
Domestic Use	1,000 ton	29	25	29	32	0.5
Consumption / head	kg / head	8.6	7.6	8.9	10.1	1.0
Price	euro / 100 kg	174.7	247.3	261.2	269.8	2.9
Pig meat						
Production	1,000 ton	106	87	111	134	1.6
Sows ending stock	1,000 head	99	77	84	89	–0.7
Slaughtering weight	kg / animal	78.0	84.3	97.0	107	2.1
Domestic Use	1,000 ton	139	156	158	164	1.1
Consumption / head	kg / head	40.6	47.0	48.7	51.7	1.6
Price	euro / 100 kg	144.1	155.6	175.5	191.5	1.9
Sheep meat						
Production	1,000 ton	0	1	1	2	11.5
Ewes ending stock	1,000 head	19	31	40	47	6.4
Slaughtering weight	kg / animal	28.8	29.0	29.6	29.8	0.2
Domestic use	1,000 ton	0	0	1	1	6.1
Consumption / head	kg / head	0.1	0.1	0.2	0.2	6.6
Price	euro / 100 kg	104.7	195.8	199.1	204.1	4.5
Poultry meat						
Production	1,000 ton	57	66	66	66	1.0
Domestic use	1,000 ton	74	83	83	83	0.7
Consumption / head	kg / head	21.6	24.3	24.3	24.3	0.8
Price	euro / 100 kg	109.7	134.0	138.2	137.5	1.5

Source: AGMEMOD combined model (2008 – version 3.0).

the period to 2020; however, meat consumption in total is projected to increase because of the growing purchasing power, with sheep meat average annual consumption per head growth rate increasing the most, though it should be noted that this increase is of a very low base. This improvement in per capita sheep meat consumption is driven by improvements in meat quality. Detailed research shows that in Lithuania meat consumption per head is lower in comparison with some other EU countries; it shows that there is a capacity for meat consumption growth.

The biggest percentage increase in meat production occurs in sheep meat, and these increases are based on new technologies such as new breeds which have more lambs per ewe. Lithuanian production of beef and veal is also projected to increase. This increase is related to increases in the number of beef cows. The main drivers for this growth are coupled direct payments for suckle cows and bulls and increases in the price of beef that are projected under the Baseline. It is assumed that coupled direct payments for suckle cows and bulls will be paid until 2012 and during the rest of the period that the same policy will be continued. The increase of beef and veal production is conditioned by the second highest average annual price growth rate increase comparing

with other kinds of meats. Poultry meat production during the period will increase slightly because of the relatively slow average annual price growth rate increase over the Baseline projection period.

Of the meats, beef and veal are affected most by the projected key price developments. In previous years, the Lithuanian beef and veal price was relatively low; links to the key price have driven the quite high average annual price growth rate that is projected under the Baseline. The Lithuanian pork price is expected to exceed the key price level. The reason to be higher than the key price is that it is an imported good.

Poultry price is projected to gradually increase and reach 80% of the key price by 2009 and thereafter to remain at this level relative to the key price. The Lithuanian poultry price will remain 20% lower than the key price because of its lower quality.

Sheep meat price has the highest average annual price growth rate among other kinds of meats. High quality sheep meat demand is increasing over the period, and this is the main driver of price increase.

The largest projected changes in consumption per head under the Baseline are expected in cream and cheese (Table 11). These increases are expected because of a slightly

Table 11. Baseline projections for milk and dairy product markets

		2005	2010	2015	2020	2005–2020 % growth per year
Cow milk						
Production	1,000 ton	1854	1980	1986	2002	0.5
Dairy cows ending stock	1,000 head	417	395	357	325	–1.6
Yield / cow	kg / cow	4450	5008	5561	6157	2.2
Consumption / head	kg / head	96.1	102.3	111.2	121.3	1.6
Price	euro / 100 kg	17.6	24.6	26.6	28.2	3.2
Butter						
Production	1,000 ton	18	17	17	17	–0.4
Domestic use	1,000 ton	10	8	8	9	–0.3
Consumption / head	kg / head	2.8	2.5	2.6	2.9	0.2
Price	euro / 100 kg	242.6	292.2	306.8	322.3	1.9
SMP						
Production	1,000 ton	11	8	8	8	–2.7
Domestic use	1,000 ton	1	1	1	1	–1.1
Consumption / head	kg / head	0.4	0.4	0.4	0.4	–0.6
Price	euro / 100 kg	193.6	231.0	234.5	229.8	1.1
WMP						
Production	1,000 ton	4	3	2	2	–4.3
Domestic use	1,000 ton	1	1	1	1	2.5
Consumption / head	kg / head	0.3	0.4	0.4	0.4	3.0
Price	euro / 100 kg	204.2	266.4	273.5	278.5	2.1
Cheese						
Production	1,000 ton	95	112	121	131	2.2
Domestic use	1,000 ton	44	44	50	58	1.9
Consumption / head	kg / head	12.8	13.3	15.5	18.3	2.4
Price	euro / 100 kg	287.2	396.7	438.7	466.5	3.3

Table 11 (continued)

		2005	2010	2015	2020	2005–2020 % growth per year
Cream						
Production	1,000 ton	44	56	59	62	2.3
Domestic use	1,000 ton	13	20	23	25	4.4
Consumption / head	kg / head	3.9	6.1	7.0	8.0	4.9
Price	euro / 100 kg	116.7	116.7	116.7	116.7	0.0
Other fresh products						
Production	1,000 ton	44	47	48	50	0.9
Domestic use	1,000 ton	16	21	23	25	2.8
Consumption / head	kg / head	4.8	6.2	7.0	7.8	3.3
Price	euro / 100 kg					

Source: AGMEMOD combined model (2008 – version 3.0).

lower consumption per head compared with some other EU countries and because of the increasing purchasing power in Lithuania. It is important to remark that SMP consumption per head is projected to decrease slightly because the consumption of “other fresh” dairy products is projected to increase. Similar changes are observed in domestic use: the biggest average annual price growth rates occur in the prices of cream, other fresh products, WMP and cheese. Cream and other fresh products have a higher domestic use and the average annual price growth rates when compared with the other dairy commodities. SMP and butter domestic use are projected to decrease slightly.

The production of cream, cheese and other fresh dairy products is projected to increase over the period, while the production of other dairy commodities such as WMP, SMP and butter is projected to decrease. Such changes are determined by relative price developments under the Baseline.

Since the projected Lithuanian cow milk production exceeds the domestic use by a factor of almost two, its price is expected to remain comparatively low compared to some other EU countries. Low prices under the Baseline influence the projected evolution of dairy cows ending stocks which decrease. Despite this declining indicator, production has a tendency to increase slightly because of the fast growing yield per cow.

The problems faced are the following: essentially other fresh product balances data were not reliable for Lithuania. This problem was solved through consultations with the Department of Statistics to the Government of the Republic of Lithuania.

HEALTH CHECK SCENARIO RESULTS

In each of the alternative policy scenarios analysed, the agricultural policy data set is different from that used under the Baseline. The implementation of the policy harmonization method within the combined AGMEMOD 2020 model allows for a transparent and homogeneous implementation of each of the proposed policy change scenarios across the

different Member State models that together form the combined AGMEMOD 2020 model. The impact of the policy changes analysed by the AGMEMOD model is measured as the difference between the projections under the particular scenario and the Baseline run.

The AGMEMOD Partnership has analysed five alternate policy scenarios in addition to the Health Check Reforms, but we are focusing on two of them that can be considered extensions of the Health Check Reform.

The first alternate policy scenario (Scenario 1a) analysed is now based on the CAP Health Check political agreement reached by the Council of Ministers on November 20, 2008. The agreement differs in some important aspects from the Commission's proposals. The most significant changes to the definition of the Health Check scenario relate to the increases in modulation rates that were agreed as part of the Health Check and the limits on the percentage of national budgetary envelopes that can be devoted to potentially production distorting supports under Article 68 of the agreement. The agreed expansion of the milk quota, termed by the Commission as the “soft landing”, is incorporated in Scenario 1b and differs little from that originally proposed by the Commission. The Commission's proposals to extend decoupling remain in the actual Health Check agreement. Finally, the Health Check agreement proposed that those MS applying the historical model move towards applying a regional flat area payments system. Since this element of the Health Check agreement was not made mandatory, we have assumed that over the entire projection period the EU-15 MS continue to use the SPS model that they currently utilise.

The other two scenarios in the Health Check Scenario alternate policy set relate to alternate policy outcomes that could conceivably have emerged from the Health Check negotiations. Under the first of these scenarios, in addition to the decoupling, modulation and CMO reforms in the Health Check Agreement (scenario 2a), all Member States move to a national flat area payment. Thus; this scenario interprets the optional element of the Health Check agreement on the SPS model as mandatory for all Member States. For the Member

States that have already, in their current implementation of the CAP, chosen a regional flat area payment or a hybrid model, this dimension of policy change is largely already incorporated in the Baseline and Health Check Scenario. This scenario can be expected to have more significant impacts in those Member States that have chosen to implement the historical payment model under the 2003 CAP reform.

Under the final alternate Health Check scenario (Scenario 2b) we examine the impact of the introduction of an EU flat area payment. This scenario is budget-neutral at the EU level but leads to a large reallocation of Pillar I resources among the EU Member States.

To conduct policy scenarios with the model, we need first to specify the different assumptions in each of the scenarios. We report on three scenarios: Health Check as agreed in November 2008 and two alternative reforms that were discussed but not adopted. The different assumptions are detailed in Table 12.

The greatest impact on grain, oilseed and potato production occurs under Scenario 2b where an EU-wide flat is introduced. Under this scenario, grain and oilseed production increases and almost all net export amounts increase, because the payments per hectare are much larger.

Soft wheat as well as barley and rye production in Lithuania increase under the EU-wide flat rate scenario (Table 13). This change occurs because of relatively low direct payment amounts in Lithuania comparing with some other EU countries. The EU-wide flat rate scenario has a positive influence on Lithuanian soft wheat and rye net trade quantities increase also, but the highest level of net trade in barley is observed under the Baseline.

Grain, oilseed and potato markets

Rapeseed production only increases relative to the Baseline under the EU-wide flat rate scenario (and is lower relative to the Baseline under all the other alternative policy scenarios).

Table 12. Assumptions for Alternative Scenarios

Option	Name	SPS model	Description
1a	Baseline	Status quo	<ul style="list-style-type: none"> – Both historic and hybrid / regional models continue as present – Other elements according to AGMEMOD Outlook (prices, macro ...) – Budget remains at the level as before Health Check
1b	Health Check	Health Check Agreement	<ul style="list-style-type: none"> – Modulation, Abolishment of some coupled measures, remaining allowed measures – Milk quota abolishment – Intervention prices reduced / abolished – Other elements as 1a
2a	National flat rate	National flat rate per hectare	<ul style="list-style-type: none"> – Move towards national flat rate entitlements applied to all eligible area – No coupled measures at all – Other elements as 1b
2b	EU-wide flat rate	EU-wide flat rate per eligible hectare	<ul style="list-style-type: none"> – The same flat rate payment entitlement per eligible hectare applies to all EU MS – No coupled measures at all – Other elements as 1b

Table 13. Grain, oilseed and potato markets scenario analysis – results in 2020

		1a Baseline	1b Health Check	2a RSAP	2b +EUFR
Total grains					
Production	% change	0	0.1%	0.2%	0.8%
Net trade	1,000 ton				
Soft wheat					
Production	% change	0	0.1%	0.3%	0.9%
Net trade	1,000 ton	765.6	766.5	770.3	780.5
Barley					
Production	% change	0	0.1%	0.3%	0.9%
Net trade	1,000 ton	495.0	485.5	490.9	490.8
Rye					
Production	% change	0	0.0%	0.1%	0.8%
Net trade	1,000 ton	65.3	65.3	65.3	66.9
Total oilseeds					
Production	% change	0	–0.2%	0.0%	1.3%
Net trade	1,000 ton	86.2	85.1	86.0	94.9

Table 13 (continued)

		1a Baseline	1b Health Check	2a RSAP	2b +EUFR
Rapeseeds					
Production	% change	0	-0.2%	0.0%	1.3%
Net trade	1,000 ton	86.2	85.1	86.0	94.9
Potatoes					
Production	% change	0	0.1%	-0.3%	-1.0%
Net trade	1,000 ton	-7.7	-7.9	-7.8	-8.2

Source: AGMEMOD combined model (2008 – version 3.0).

Under all scenarios, the Lithuanian potato net trade is projected to be negative. The biggest potato foreign trade balance deficit appears when the EU-wide flat rate scenario is applied.

Implementation of the scenarios for grain, rapeseed and potato markets have influenced changes as expected.

Livestock and dairy markets

Of the scenarios analysed, the EU-wide flat rate scenario (2b) has the largest positive impact on most of the livestock and dairy sector products (Table 14). Under this scenario, an increase is projected in the production of beef and veal,

sheep meat and other poultry meat, cow's milk, butter, WMP, cheese, cream and other fresh products in Lithuania. Under this scenario, net exports of beef and veal, sheep meat, butter, cheese and other fresh products are larger than under any of the other alternative policy scenarios analysed.

For some commodities, all of the alternative scenarios lead to projected reductions in production. This is the case for pig meat and SMP production because of the lower key prices compared to domestic prices and huge surplus.

There are some instances where the net trade declines in all of the alternative policy scenarios when compared with the Baseline. This is the case for pig meat, SMP and cream.

Table 14. Livestock and dairy markets scenario analysis – results in 2020

		1a Baseline	1b Health Check	2a RSAP	2b +EUFR
Beef and veal					
Production	% change	0	3.6%	2.0%	6.3%
Net trade	1,000 ton	37.8	38.4	37.1	40.5
Pig meat					
Production	% change	0	-2.0%	-2.2%	-1.9%
Net trade	1,000 ton	-29.1	-30.1	-30.3	-30.2
Sheep meat					
Production	% change	0	3.1%	-0.1%	13.8%
Net trade	1,000 ton	0.9	0.9	0.9	0.9
Poultry meat					
Production	% change	0	0.0%	0.0%	0.0%
Net trade	1,000 ton	-9.6	-8.2	-8.1	-8.4
Cow milk					
Production	% change	0	6.7%	6.1%	7.8%
Net trade	1,000 ton	746.3	747.4	747.8	747.1
Butter					
Production	% change	0	2.1%	1.6%	2.5%
Net trade	1,000 ton	7.4	8.2	8.2	8.2
SMP					
Production	% change	0	-5.1%	-4.3%	-6.1%
Net trade	1,000 ton	6.4	6.0	6.1	6.0
WMP					
Production	% change	0	0.1%	0.0%	0.2%
Net trade	1,000 ton	0.7	0.7	0.7	0.7

Table 14 (continued)

		1a Baseline	1b Health Check	2a RSAP	2b +EUFR
Cheese					
Production	% change	0	1.6%	1.6%	1.9%
Net trade	1,000 ton	73.5	73.7	73.9	74.3
Cream					
Production	% change	0	0.8%	0.5%	1.1%
Net trade	1,000 ton	36.8	36.4	36.1	36.6
Other fresh products					
Production	% change	0	6.3%	5.2%	7.5%
Net trade	1,000 ton	24.9	27.2	26.7	27.8

Source: AGMEMOD combined model (2008 – version 3.0)

Net imports of other poultry meat are projected to decrease under Scenario 1b (Health Check scenario) while cow's milk net trade amounts are projected to reach their highest level when the SFP gradual abolishment scenario is implemented.

Production of other poultry meat, cow's milk, butter, WMP, cheese, cream, and other fresh products are expected to be higher under all of the alternative policy scenarios analysed when compared to the levels of production under the Baseline scenario. The milk quota increase implemented under all of the alternative scenarios gives rise to the projected increase. Beef and veal production amounts are higher than under the Baseline in all scenarios.

As regards products that are more competitive, any scenario implemented has a positive influence. For example, the milk sector, which is traditionally competitive, will have a positive influence under any scenario implemented: its production will increase and positive changes in Net trade will appear.

Doubts arise as to the SMP production tendencies development. Its results remain questionable.

CONCLUSIONS

Evaluation of the policy scenario results show which scenario is more preferable for Lithuania and which sector would benefit in each separate case. If we compare the analysed scenarios' influence on the crop and livestock sectors, a bigger impact is observed on the livestock sector. It is because most of the Lithuanian agricultural output is based on arable crops.

One of the scenarios (2b) implemented EU-wide flat rate had the most significant influence on the results obtained. The EU-wide flat rate scenario appears good for most crop, livestock and dairy sector products in Lithuania.

Under all scenarios, the production of grain is expected to be higher than under the Baseline. Milk quota increase and direct payments abolishment give rise to an increase in

the production of dairy products. Beef and veal production amounts are higher than the Baseline levels under all alternative scenarios.

The EU income support policy is indefinite, inconsistent and fragmentary. To our mind, support might be divided among the countries and could be simplified, and more decision power could be submitted to each country.

Future research questions:

- Modelling conventional and organic products.
- More indicators that influence the balances, such as the climate change, costs should be analysed.
- To evaluate the influence of OMS and NMS policy (support and taxation level).
- To create an optimization model which could estimate the rational production structure according to climate, meteorological conditions, one's own input, and the current and future policy in the EU countries.

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**Irena Kriščiukaitienė, Aistė Galnaitytė,
Andrej Jedik, William H. Meyers**

ŽEMĖS ŪKIO POLITIKOS SCENARIJAI IR JŲ ĮTAKA LIETUVOS ŽEMĖS ŪKIUI

S a n t r a u k a

Darbas parengtas pagal vieningą ES šalyse taikomą žemės ir maisto ūkio atskirų šakų plėtros prognozavimui naudojamą metodiką, kurios pagrindas – ES ir Rytų Europos žemės ūkio šalių modelis (AGMEMOD). Jo pagalba nustatoma makroekonominės situacijos, politikos ir kitų veiksnių (kainų, produktyvumo) įtaka pagrindinių žemės ir maisto ūkio produktų gamybos apimtims bei vartojimui. Straipsnyje pateikti keturi politikos scenarijai ir jų įtaka augalininkystės sektoriui pagal svarbiausius augalus (grūdai, rapsai ir bulvės) bei gyvulininkystės sektoriui (jautiena ir veršiena, kiauliena, aviena ir paukštiena). Minėtų produktų balansų sudėtinių dalių prognozės pateiktos iki 2020 metų. Išvados supažindinama su pateiktais politikos scenarijų rezultatais ir tolesniais modeliavimo klausimais, susijusiais su dabartimi.

Raktažodžiai: žemės ūkio produktai, žemės ūkio produktų supirkimo kainos, „Sveikatingumo patikros“ reforma, BVP, valiutų kursas, infliacija