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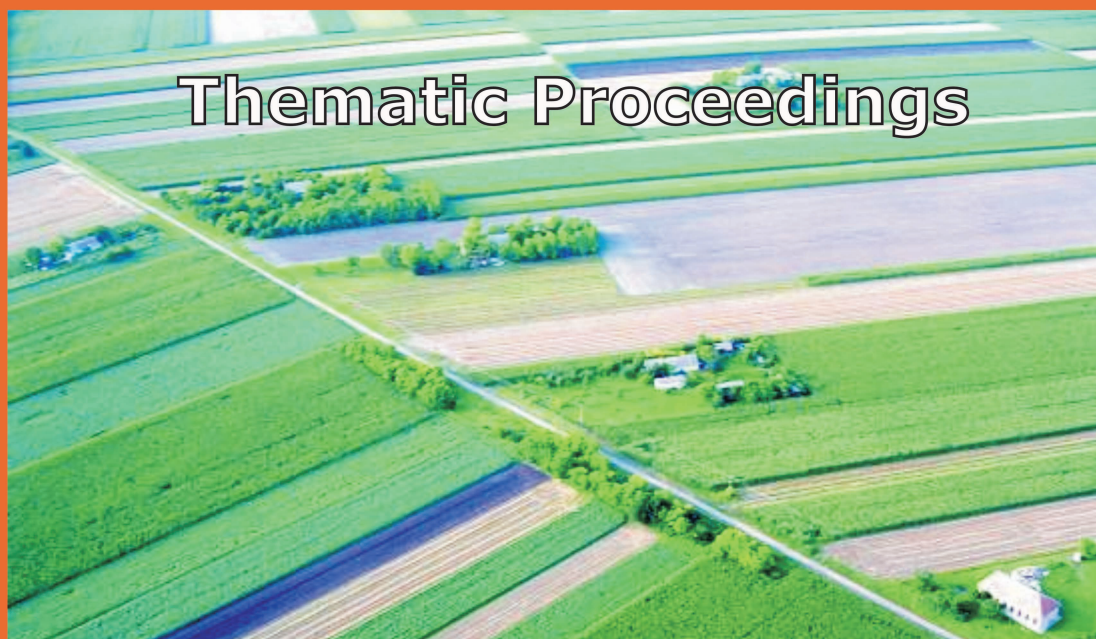
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# DEVELOPMENT OF AGRICULTURE AND RURAL AREAS IN CENTRAL AND EASTERN EUROPE



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## EU AGRICULTURAL MARKETS OUTLOOK – AGMEMOD APPROACH

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### BACKGROUND AND OBJECTIVES

EU agricultural markets have been exposed to significant changes arising from internal and external factors. The most important are the EU enlargements in 2004 and 2007, the ongoing reform of the Common Agricultural Policy (CAP) and liberalisation of trade.

Since the MacSharry reform of the CAP in 1993 agricultural support to EU farmers has shifted from price support measures to direct payments. Direct payments are thought to be more transparent and less distorting than market support and intervention mechanisms. These payments remained in force until the end of 2004 and have been maintained to a lesser extent in some Member States under the Single Farm Payment (SFP) scheme. Adoption of the SFP scheme at national level in the old Member States was envisaged in the relevant regulations decided on in the Luxembourg Agreement. The SFP entered into force on 1 January 2005, but Member States could opt to defer implementation until 2007. Consequently, with the implementation of the SFP, most direct payments under the CAP have been decoupled from agricultural production and linked to agricultural land and made conditional on farmers engaging in good farming practices and satisfying cross-compliance criteria.

After the 2004 enlargement the new Member States (NMS), except Slovenia and Malta, adopted the simplified scheme of direct payments in the form of the Single Area Payment Scheme (SAPS). The SAPS, which has been mostly decoupled from production from 2004 onwards, is based on farm area and a flat-rate aid payment at national level. Direct payments in the NMS are being phased in over the first ten years after accession, starting with 25% in 2004 and reaching 100% of the old Member States' full payments in 2013. The new Member States are under no obligation to apply the cross-compliance criteria before 2009 and are also free to supplement direct payments with national funds up to agreed level. Complementary national direct payments (CNDP) are paid in each Member State as either coupled or decoupled aid.

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The Single Area Payments Scheme for direct payments in NMS has been extended until 2010. In this study, however, the original plan to maintain the SAPS until 2008 and to introduce the SFP scheme from 2009 onwards was modelled.

Several studies have analysed the CAP reform and the implications of enlargement for EU-25 agricultural markets, using approaches based on partial or general equilibrium modelling [e.g. European Commission, 2002, 2006; Fabiosa et al., 2006].

This paper presents results from a study with the AGMEMOD modelling approach. The main goals of this study [AGMEMOD partnership, 2007] were: (i) to provide market projections for the main European agricultural commodities based on the latest developments in agricultural and trade policy and (ii) to assess the impact of further CAP reform (introduction of decoupling and new direct payment schemes) on the main European agricultural commodities.

### **THE MODELLING APPROACH**

The supply, demand, trade and price projections presented in this paper for EU agricultural markets were produced using AGMEMOD – a dynamic, partial, multi-country, multi-market equilibrium modelling system. This approach provides details on the agricultural sector in each EU Member State and on the EU-25 market as a whole.

Unlike the above-mentioned studies, AGMEMOD takes a bottom-up approach based on national models developed in projects under the EU Framework Programme (FP), which take into account the national specifics [Chantreuil – Levert - Hanrahan, 2005; Erjavec – Donnellan, 2005]. The models cover a detailed set of agricultural policy instruments in each country, hence allowing generation of projections and simulations of different national policy scenarios. Key EU prices and other variables relating to other countries are determined exogenously in individual stand-alone models.

The links between national, world and other Member States' agricultural commodity markets are covered by equations reflecting the price influence of those markets. For each commodity, the key market is identified and the EU key-price is set as the price observed in this most important national market for that commodity. Agricultural income is calculated at sector level. Information on world market prices is taken from global models.

The most important differences between the national AGMEMOD models are macroeconomic assumptions, components of agricultural policies and the distribution of direct payments between agricultural activities. The national models

also reflect different assumptions on the impact of direct payments on agricultural production (degree of decoupling).

The EU-15 country models were combined into a composite EU-15 model linking the old Member State models. Some variables that were exogenously determined in stand-alone country models (e.g. self-sufficiency rates and the prices for the key markets) became endogenous variables in the composite EU-15 model. The EU net export variable is used as the closure variable at EU level. The AGMEMOD approach draws no distinction between intra-EU and extra-EU trade at Member State level. Consequently, intra-EU trade disappears at EU level when the supply and use data are added together over countries.

The EU-25 projections were obtained using the EU-25 hybrid model which consists of summation of the results from the EU-15 composite model (with endogenous key price formation) and from the individual stand-alone models for the new Member States (with exogenous key prices delivered by the EU-15 combined model). Projections have been generated for each year to a 10-year horizon up to 2015 for the main agricultural commodity markets:

- soft wheat, durum wheat, barley, maize, rye and other grain;
- rapeseed, sunflower seed, soybeans, vegetable oils and meal;
- milk, butter, skimmed milk powder, cheese and whole milk powder;
- beef and veal, pork, poultry, sheep and goats.

Macroeconomic assumptions are based on the macroeconomic projections of population, inflation, per capita economic growth and national currency exchange rates obtained from national statistical services. The assumptions on the US dollar/euro exchange rate and projections of the world market prices of the commodities were taken from the FAPRI 2006 US and World Agricultural Outlook.

Two scenarios were simulated. The “Baseline” scenario assumes additional milk quotas, a cut in intervention prices and national implementation of the Luxembourg Agreement Single Farm Payment Scheme in the old Member States and Slovenia. The 2003 reform was scheduled to come into operation over the period 2005 to 2007.

For the new Member States implementation of the SAPS until 2008 followed by introduction of the Single Farm Payment Scheme from 2009 onwards are assumed. Complementary national direct payments remain in force in the NMS until 2013.

The second scenario, named the “Further CAP reform” (FCR) scenario, assumes full decoupling of direct payments from 2007 and doubling of the modulation rate from 2007 onwards in the old Member States and from 2013 onwards in the NMS.

Decoupled payments under the SFP, SAPS and CNDP schemes are modelled in a similar manner. SFP, SAPS and CNDP payments (if decoupled) are also assumed to have some supply-inducing impact on agricultural production, although less than the impact of coupled payments or prices. The supply-inducing impact of different types of payment is reflected by deriving synthetic premiums in the country models. Producers' supply decisions are therefore a function of market prices and synthetic premiums based on the SFP or SAPS and CNDP payments. Different multipliers are used by countries to allow for the possibly differing supply-inducing impact of the SFP, SAPS and CNDP payments.

## RESULTS

The EU-25 projections (which cover EU-15 plus the NMS after the 2004 enlargement, excluding Malta and Cyprus) indicate the output of the EU-25 hybrid model and provide insights into the general market trends.

The "Baseline" scenario assumes implementation of the Luxembourg Agreement measures until 2015. The baseline projections for EU-25 suggest that cereal production will expand along a very moderate path. Price levels on the cereals markets are projected to increase from 2005 onwards due to movements in world prices and macroeconomic factors. Demand for grain for feed from the European livestock sectors and overall domestic use of cereals in EU-25 will decline over the projection period. While domestic use of barley and maize are expected to decline, domestic use of soft wheat and durum wheat should expand.

Production and domestic use of oilseed in EU-25 are projected to rise strongly mainly due to expansion of rapeseed (see Figure 1). Despite higher prices, domestic demand is driven by growing demand for oil as a biofuel.

In the "Baseline" scenario the implementation of the Luxembourg Agreement at national level that has occurred to date is assumed to continue unchanged until 2015.

In the livestock and dairy sectors Member States have significant freedom with respect to the degree of decoupling from production. Most Member States have chosen to keep at least some of their Agenda 2000 direct payments for livestock in production-coupled form.

EU-25 beef production is projected to be 2 percent lower in 2015 than in 2005, while EU-25 prices will increase by 5 percent as a result of this contraction in supply (see Figure 2). With higher prices, domestic use of beef will remain stable. EU lamb production is also expected to decline over the baseline projection period by almost 10 percent compared with 2005, with a moderate increase in prices (see Figure 2).

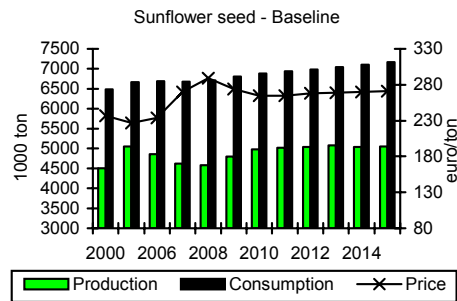
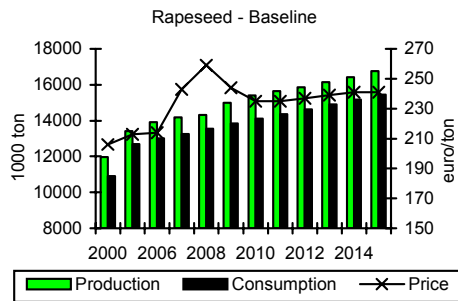


Figure 1 EU-25 rapeseed and sunflower seed baseline projections

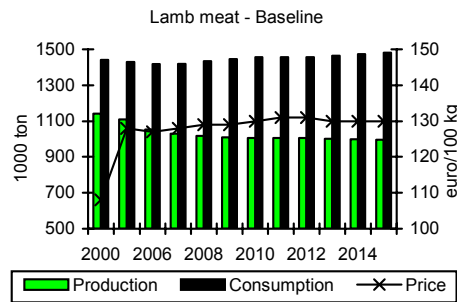
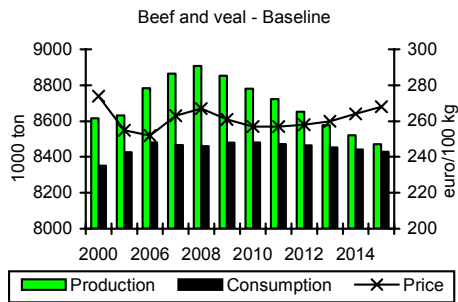


Figure 2 EU-25 beef and veal and lamb meat baseline projections

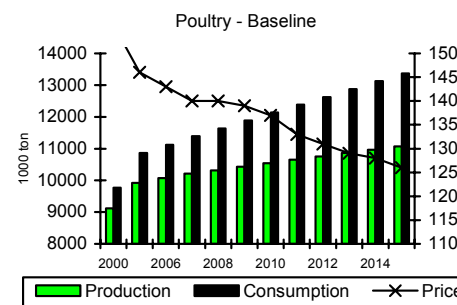
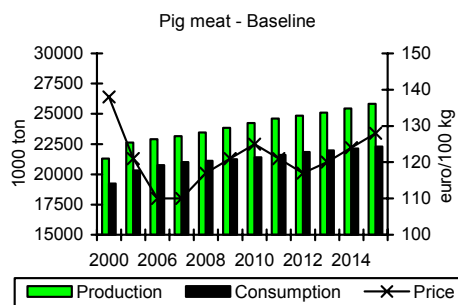


Figure 3 EU-25 pigmeat and poultry baseline projections

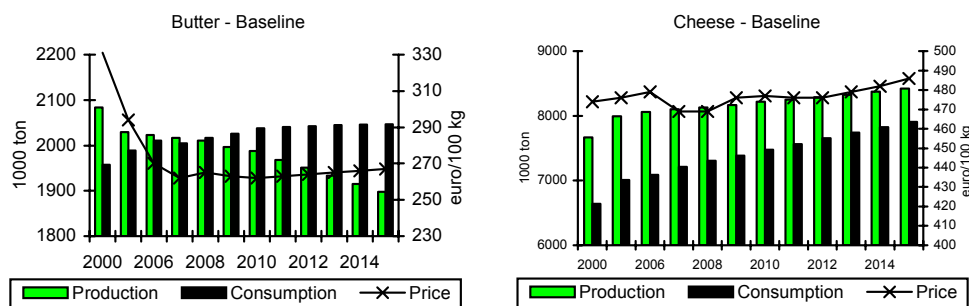


Figure 4 EU-25 butter and cheese baseline projections

Domestic uses of pigmeat and poultry meat are projected to increase due to the higher prices of beef and lamb (see Figure 3). Furthermore, in response to projected higher prices, pigmeat production is expected to increase by 16 percent between 2005 and 2015. Prices of poultry meat are projected to continue to decline due to the persisting strong technology-driven expansion of poultry production, which will increase by 12 percent over the period 2005-2015.

In the “Baseline” scenario, the EU-25 dairy sector is affected by the Luxembourg Agreement measures, e.g. by a reduction in the intervention prices for skimmed milk powder and butter, and milk quota growth. Due to large differences between the EU and world price for butter the reduction in the intervention price of butter is almost completely reflected in lower domestic prices (down by 10 percent over the period 2005 to 2015). With lower butter prices, EU dairy-processing industries reallocate milk from butter to cheese production. At EU-25 level, butter production is projected to be 6 percent lower in 2015 than in 2005, whereas cheese production will be about 8 percent higher. Over the same period the reallocation of milk protein necessary to facilitate this increase in cheese production affects EU-25 skimmed milk powder production, which declines by over 28 percent.

Changed prices also have an impact on EU-25 consumption of dairy products. Lower EU butter prices increase domestic use of butter in EU-25 by almost 2 percent. Cheese consumption in EU-25 increases by almost 15 percent over the period 2005 to 2015. Although all dairy prices (with the exception of cheese) and, consequently, producer prices for milk fall under the “Baseline” scenario, raw milk production remains at quota levels.

The decoupling provisions of the Luxembourg Agreement lead to lower volumes of agricultural output, although the impact of such projected developments on the value of agricultural output is offset by price increases. Despite the phasing-in of



the full value of the SFP support in the new Member States, total EU-25 subsidies fall in value by 4 percent over the “Baseline” projection period. The trend in gross agricultural income is upward, taking its level in 2015 almost 7 percent higher than in 2005.

The results for the “Further CAP reform” scenario show only a limited impact on the supply and use balances. Arable aid payments were coupled to production to only a small extent prior to the Luxembourg Agreement. Therefore full decoupling will only marginally affect cereal and oilseed production compared with the baseline. Similarly, the majority of direct payments for livestock were decoupled prior to introduction of the Luxembourg Agreement. In the “Further CAP reform” (full decoupling) scenario, beef production is projected to decline and prices to grow relative to the baseline from 2007 onwards. The output value, subsidies and gross agricultural income will decline relative to the baseline scenario.

## DISCUSSION AND CONCLUSIONS

The AGMEMOD baseline results indicate that – in spite of the decoupling – EU production will grow in several sectors over the period 2005 to 2015. In the cereals sector EU-25 production of wheat and maize will increase. This reflects a shift in land use from barley to wheat which will generate better gross margins. The increase in consumption will lead to a decline in net exports. The oilseed sector will be more dynamic, with demand driving the markets and sustaining an expansion of supply that keeps net imports virtually unchanged at the same level during the projection period.

In the “Baseline” scenario, the introduction of decoupling will induce a further decline in beef and lamb production. However, the negative impact of decoupling will be mitigated by the price increases that result from the contraction in indigenous production in EU-25. The other livestock sectors (pigmeat and poultry) will be largely unaffected by decoupling. The rising price of beef and lamb will fuel demand for other meats and thereby contribute to increases in their prices. Pig and poultry production are both projected to expand in EU-25. Growth in demand will be sufficient to maintain pigmeat prices, but poultry meat prices are projected to decline. The dairy sector will be adversely affected by declining dairy prices that are largely the result of the reductions in their intervention prices. Quotas, however, will be fully met. There will be a shift away from butter and skimmed milk powder towards production of cheese. The lower wholesale and consumer prices combined with higher economic growth in the new Member States will boost domestic consumption of cheese in EU-25.

In general, the “Further CAP reform” scenario results match *a priori* expectations. The impact of the policy measures under this scenario is very limited since many

Member States were already largely applying decoupled direct payments before implementation of the Luxembourg Agreement. However, the impact of decoupling on EU agricultural production, in both the “Baseline” and the “Further CAP reform” scenarios, compared with historically observed production might not have been fully reflected by the method of implementing the decoupled single farm and simplified area payments in the AGMEMOD country models. Modelling of decoupling in AGMEMOD will be further developed.

The EU-25 projections presented in this paper were generated by the hybrid model - a preliminary version of the AGMEMOD combined EU-25 model. Even though the modelling approach is still being developed, the results obtained in this study provide useful information about general trends on the EU's main agricultural markets.

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