The Impact of the Mid-Term Review on the German Agricultural Sector

AGMEMOD Progress report 2005

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Executive Summary

As AG-MEMOD[1] was aspired to develop an econometric model of the agricultural sectors consisting of sub-sectors of the EU-15 member states[2]. Theses individual country models were combined into an integrated model for the whole EU and were used to generate projections for the main agricultural commodity markets. Furthermore, policy details were included so that the impact of policy changes might also be projected. To establish the German AG-MEMOD model parameters were econometrically estimated based on the period 1973 to 2000. As starting point specifications of a German model template were employed but due to the German re-unification process often disturbances occurred in the base period thus the model specification was adjusted to capture these problems. Facilitation of allotted policy representation required in some case that econometric criteria had to be lowered.

Thus the adjusted German model covers the standard range of commodity markets including grains[3], oilseeds[4], oils and meals, root crops[5], livestock[6] and dairy products[7]. To represent these products agricultural supply and markets have been modelled, sometimes supplemented by processing sectors. Included policy variables range from market policy measures like production quotas, intervention prices, processing subsidies and premiums via decoupled premiums to trade instrument as tariff rate quotas (TRQs) and WTO export limit commitments. Model results cover land usage, numbers of kept animals, production and utilisation of the main crops and livestock products, balance sheets[8], prices, farmers' receipts, purchases of main inputs and agricultural incomes as reported in the Economic Accounts for Agriculture. As planned the German model has effectually been linked with other EU country models in the framework of the combined EU model. In this context the German model has provided key prices for beef, pig meat, chicken and butter to enable price transmission to the other country models.

Based on the German model projections of the period 2000 to 2010 have been successfully generated. This baseline projects the Agenda 2000, but further driving forces comprise developments of population, exchange rates and the projected macroeconomic development in

[1] Abbr. for: **Ag**ricultural Sector in the **Me**mber States and EU: Econometric **Mod**elling for Projections and Analysis of EU Policies on Agriculture, Forestry and the Environment. The research project was funded by the 5th Framework Program of the European Commission by contract No QLK5-CT-2000-00473.

[2] With a later extension to Eastern European countries which were part of the accession process.

[3] Soft wheat, durum wheat, barley and corn.

[4] Rape seed, sunflower seed and soybeans.

[5] Potatoes, sugar beets and sugar.

[6] Cattle, pigs, sheep, broiler and other poultry.

[7] Raw milk, fluid milk, cheese, butter, skimmed milk powder, whole milk powder and other dairy products.

[8] Comprising quantities produced, consumed, imported, exported as well as changes in stocks.

Germany as well as in the other model regions. Baseline results indicate price reductions for the main German cereals and oilseeds. Due to this decline price dependent allocation of areas would be curbed, but increasing yields induced by productivity gains would over-compensate for the loss in area. Thus production is projected to increase. Specifically the area planted with barley would be reduced while concerning wheat an expansion is expected.

For the livestock declining prices for beef and broiler are expected due to decreasing demand while in the broiler market the further expansion would occur. The model indicates that the pig meat prices would following a cyclically pattern. Adjustments in meat consumption would reflect well known consumption pattern in favour of poultry meat. As some policy decisions of the Agenda 2000 tackle especially the dairy market, this is shown by the results. Additional milk quotas would lead to an increase of milk production, but due to productivity gain the number of dairy cows would be reduced. Cut in intervention prices would be transformed to falling prices for all dairy products, with the highest reaction concerning butter price.

As production and prices would decline during the baseline, especially values of livestock production would be lowered with bigger effects in the cattle and dairy sectors. In dairy this would be off-set by the induced dairy premium. With other crops production values would decrease due to a diminishing forage demand. But in declining sectors costs would be reduced so that the overall income situation would not be strongly effected. Due to the additional premiums the agricultural income might even grow slightly.

To analyze the effects of the Mid-Term Review, a second scenario reflecting the Luxembourg Agreement with a focus on decoupling was compared to the baseline. Here results indicate that supply of the main crops would react only with a small reductions of crop production. Exports will decrease while imports are projected to increase slightly. Effects in the livestock and dairy sector would be somewhat higher. Calculations with the German AG-MEMOD model also show that the livestock and dairy models the ‘two-step’ adjustment on the beef market after introduction of decoupled payments. Here after the reduction of coupled premiums market prices are expected to increase as the input subsidies (premium) would decrease to partly compensate for higher production costs. Especially slaughtering of suckler cows would temporarily be increased but then would fall under the baseline after 4 years. To a lower degree this is also reflected in the other cattle sectors. In the long-run, beef production would be lower than the baseline. Exports will be clearly reduced. Within the Luxembourg Agreement scenario, due to the additional decrease of the butter price, the usage of fat in butter production would be reduced by a rising cheese production and an additional fat use within other dairy products. Additional protein would be required in the cheese

processing. Declines in the production values would be off-set be reduced inputs and decoupled payments. Thus the impact on the agricultural incomes is small.

Although the German model proved to be so far successful in achieving the proposed aims there is still scope for improvement. Firstly, this applies to the product coverage: e.g. with rye, oats, forage and vegetables are missing in the standard coverage. Secondly, the product differentiation could be enhanced. E.g. In Germany the item “other dairy products” is made up of innovative sectors like other fresh dairy products like cream, yoghourt, milk desserts, milk drinks but also of the non-fresh product condensed milk. A third possibility for amendment would involve the representation of the world markets which are treated exogenously at the moment. To improve policy impact analysis, a standard approach for implementing new established policy variables might be helpful. Those variables can not be econometrically estimated. More insights could also be provided when more detailed input and production factors would be included.

But even if these weaknesses due to data or methodological constraints exist within the estimated model, the results of the baseline projection and the Luxembourg Agreement scenario suggest that it can provide a fair contribution for agricultural-policy analysis at the country level. The actual stage of development of the German market models allows the inclusion of the German model in the EU-combined AG-MEMOD model and the results obtained within this environment also allow the AG-MEMOD partnership to generate up to date agricultural policy analysis at the EU level. This is even more true as very soon the market models of the acceding countries will be technically available to be integrated in the combined model environment.

Report[9]

1. Introduction

Since the formation of the EU, the agricultural sector and the Common Agricultural Policy (CAP) has been one of the key elements in the European integration. As one of the most protected sectors, agriculture has been the subject of consecutive reforms. Starting with the MacSharry reform in 1992, a process to shift agricultural support from price and market to income support via premiums was initiated and further accelerated with the Agenda 2000. The CAP was substantially reformed again by measures agreed to at the Luxembourg Council Agreement in 2003. A single-farm payment was introduced for EU farmers, largely independent from production and linked to environmental, food safety, animal and plant health and animal welfare measures. Additionally, it requires keeping all farmland in good agricultural and environmental condition ("cross-compliance"). A strengthened rural development policy will be financed by a reduction in direct payments ("modulation") for larger farms and a new financial mechanism should ensure that the total EU budget is fixed until 2013. As a supplement, some market measures were revised. Further on there was an agreement on additional cuts in intervention prices of butter by 10%, a reduction of the monthly increments in the cereals sector by half, and an abolition of the rye intervention as well as further adjustments in the durum wheat, nuts, starch potatoes and dried fodder sectors were agreed on.

With these measures, direct payments in the form of area and animal premiums are going to be essentially decoupled from production, which poses a major shift in the system of agricultural support. But what will their effects be on the output of agriculture? To what extent will the different agricultural markets be effected? What will be the impact on farm incomes? These effects are probably to be seen over an extended period of years. Other influencing factors may change during that period of time.

To estimate the effects of such policy changes in different EU countries and across the EU was one of the reasons for building econometric country models and for interlinking these in the AG-MEMOD partnership. Beside the focus was not only to analyze the impact of policy adjustments but also to generate baselines for the agri-food sector so that future changes in the economic

[9] The research project was funded by the 5th Framework Program of the European Commission by contract No QLK5-CT-2000-00473. The authors want to thank Friedrich-Wilhelm Probst†, Friedrich Uhlmann for their advise as market experts, Gerald Weber for his important support in programming, and Gerlinde Kubitza, Aaron Che Fru, Dirk Lehmann and Gudula Madsen for their assistance in data handling and editing text and graphs. For the helpful reading thanks to our colleagues Rainer Klepper, Frank Offermann, Karin Christoffers, Claus Deblitz and Thorsten Hemme – remaining errors or omissions are our responsibility.

environment can be anticipated. Moreover, the parameters of the models were econometrically estimated from data on the actual performance of the agri-food industry considering developments in the economic factors as well as adjustments in policy measures. Derived prices in the projection period reflect market equilibriums across the EU. Price equilibriums in each market are found by the interactive running models for nine countries representing a very large part of EU agricultural output[10]. Simulations, generated for the sector operating under conditions of the reformed CAP after implementation of the Luxembourg Agreement[11], are compared with a projection generated under the 'status quo' condition[12] without these reforms. The aim of these simulations is to show the likely impact of the policy changes, they are not forecasts of the likely levels of prices, production, etc., as abnormal weather and many other influences are likely to affect the actual outcomes.

In the following report, major efforts of the German AG-MEMOD model and based hereon results of the baseline simulation and Luxembourg agreement are presented. A first short section characterizing the German agricultural sector and its main products is followed by an account of the German AG-MEMOD model. Emphasis is put on the general set-up of the different model sections, their linkages and the key price linkages with other country models. Furthermore, a brief introduction in the estimation of the parameters is given. Consecutively, in Section 4 the baseline which reflects the status-quo simulation is discussed. Compared to these results the effects of the Luxembourg Agreement are presented in Section 5. In the concluding section a qualification and further research needs are brought out.

2 Agri-food sector in Germany

Germany is one of the biggest economies within the EU-25in terms of GDP. In the year 2002 82.5 million inhabitants generated a GDP of 1999 billion €[13]. Following a general trend, the agricultural sector has lost importance over the last 30 years. Its share of gross value added declined from 3.4% in 1970 (West-Germany) to 1.1% in 2002 (re-unified Germany). The production value of agriculture reached nearly 42 billion € in 2002, whereas a gross value added of about 10 billion € was generated (Table 2.1).

[10] Currently models for nine countries are running in combination representing 85 % of agricultural output.

[11] The simulation of the Luxembourg Agreement is also called scenario in the following text.

[12] The status-quo simulation (projection) is also called baseline in the following text.

[13] In constant prices of 1995.

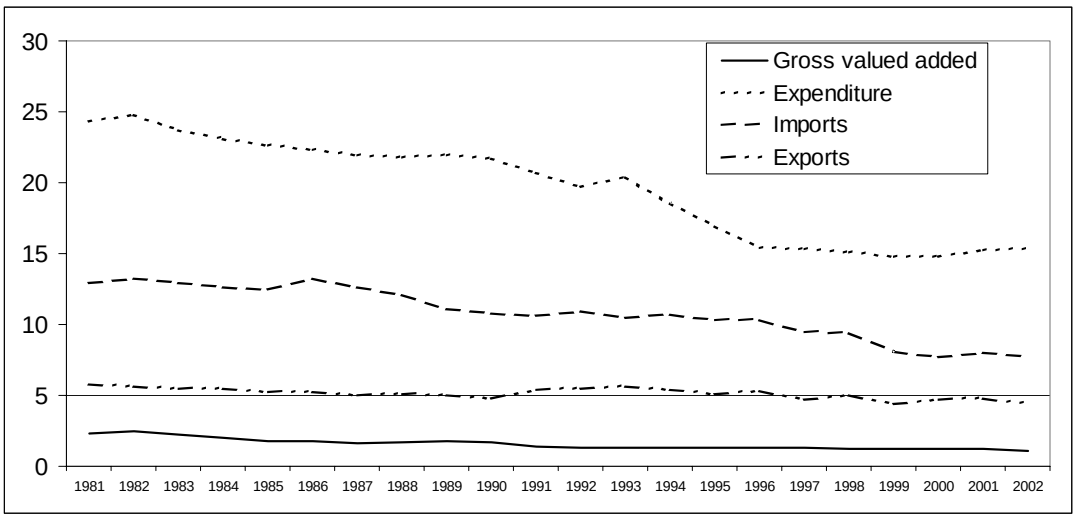
Table 2.1: Key figures of agricultural production, 2001 (bill. €)

Production value	46.39
Intermediate consumption	24.20
Net value added	15.05

Source: BMVEL 2003, pg.15.

Unfortunately, the figures from 1970 and 2002 are not directly comparable due to the fact that until 1990 two different political and economic systems existed on German territory: a socialist regime with central planning in the former German Democratic Republic (GDR) and a democratic and market oriented system in the Federal Republic of Germany (FRG). Due to differences in the underlying systems, figures cannot be summarized in total figures. Therefore statistics up to 1990 are covering only West-Germany. Concerning re-unified Germany, within the last ten years the gross value added declined from 1.3 to 1.1% (see Figure 2.1).

Figure 2.1: Development of agricultural shares of gross value added, expenditures on food, imports and exports in Germany (before 1991: West-Germany) in %



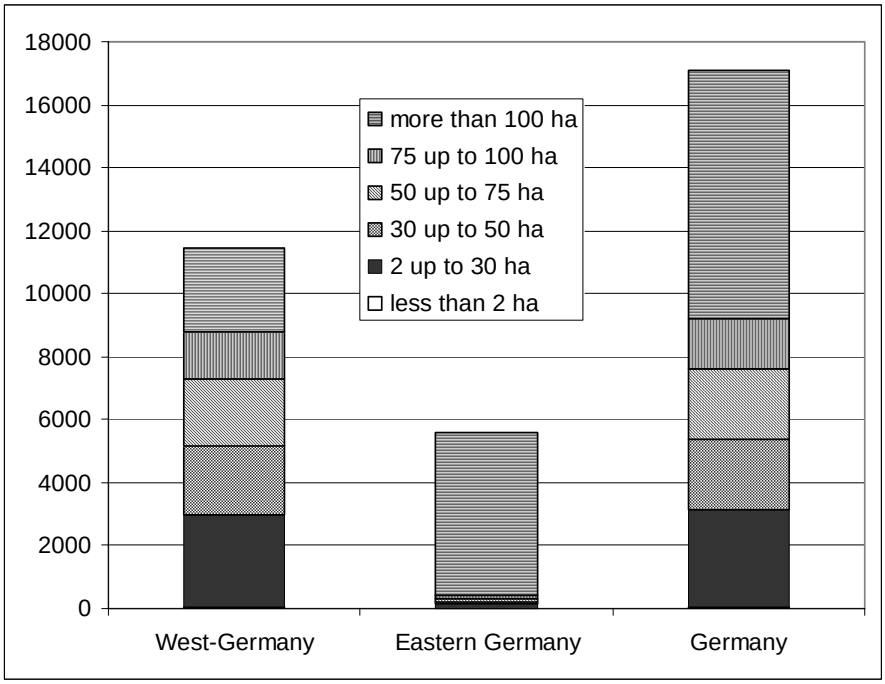
Source: BMVEL, different volumes.

In Germany, the labour force included 38.7 million people of which only 950 000 worked in the agricultural, forestry and fishery sectors in 2002. In the last ten years, the proportion of agricultural workers dropped from 3.5% to 2.5%. Similar is the situation on the demand side. Based on 2002, total private consumption amounts to 1,174 billion € whereas consumption expenditures of food, drinks and tobacco account for only 191 billion €. After re-unification the share fell from 18.5% in

1991 to 16.3% in 2002. In general trade, Germany generates an export surplus imports comprising to 522 billion € and exports mounting to 648 billion €. But this picture differs in the food sector. An import surplus exists here where imports covered 40.6 billion €, but exports just 28.6 billion € in 2002.

The shrinking importance of the agricultural sector is also reflected in the number of farm declining from 635,819 in 1991 to 448,936 in 2001, whereas in the same time the average farm size increased from 31.3 ha to 41.4 ha. Due to the re-unification, the farm structure differs across Germany (see Figure 2.2).

Figure 2.2: Agricultural areas in Germany by different farm sizes in 2001 (thousand ha)



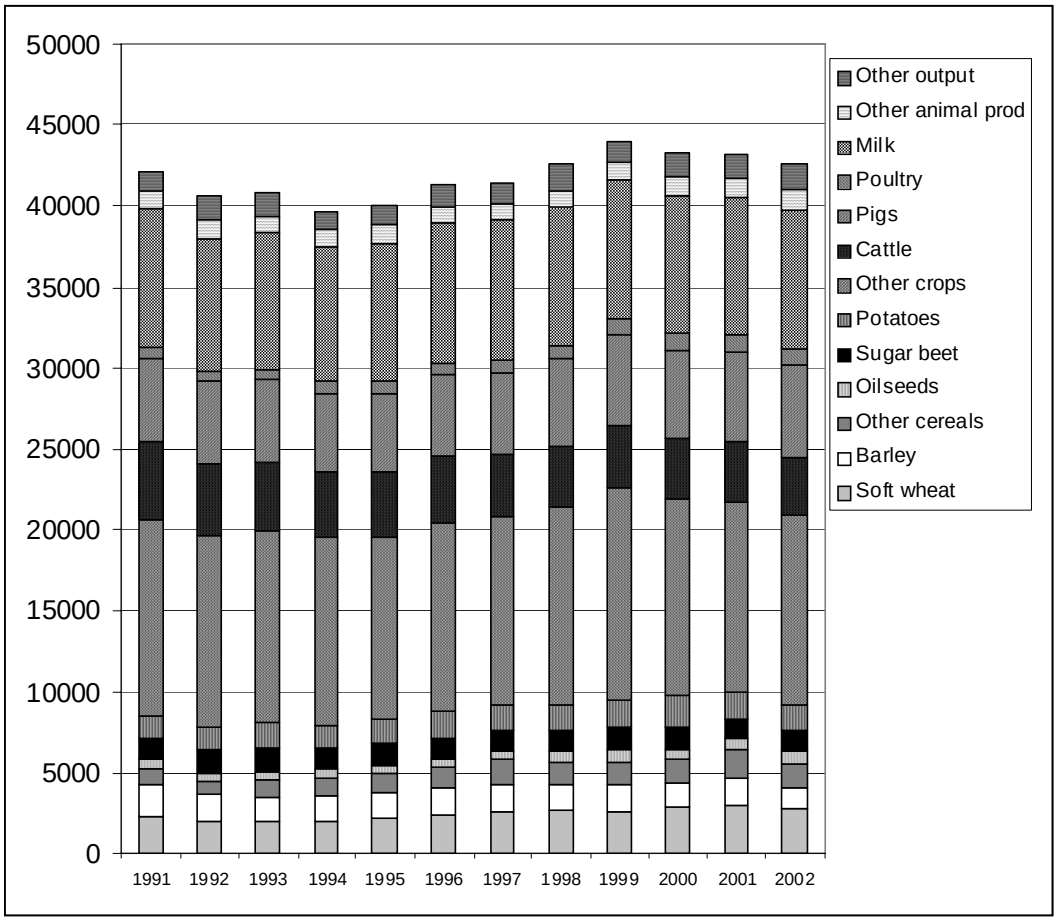
Source: BMVEL 2003.

Big farms endowed with sufficient, but oft6en rented land are predominant in the eastern federal states. These farms are run by co-operatives, individual owners or private companies. The managers are often highly educated and well informed. Also, these farms are characterised by an high input of hired labour. Dominating in the eastern federal states is crop production, as after 1990 these farms did not have enough funds to invest in costly animal production. In contrast, in the western federal states smaller farms dominate. They are run by families owning the farm and have a higher labour input available. A restructuring process towards bigger farm sizes is underway as an effect of better

job opportunities outside of agriculture. Due to natural resources and different supply and demand relations, regional differentiation can be observed concerning crop and animal production.

Although agricultural production in Germany is diversified, agricultural output values is mainly generated by the cattle comprising milk and beef production (Figure 2.3). Its share amounts to 28% of output value, but has declined since 1991. Pigs and poultry accounts for nearly 16% of output value. As these sectors are not highly regulated and therefore, they have not been object of cuts in administrative prices their share is slowly increasing. Nearly half of output value is produced in plant production. After the MacSharry reform the cereal production dropped to11% of agricultural output but increased again to 13% after 10 years. The share of oilseeds is less than 2% while root crops account for about 6.5%. Most output value in plant production, namely about 28% of total output, originates from other crop production which consists mostly of forage and vegetables.

Figure 2.3: Structure of output of agriculture in Germany (values at producer prices in thousand €)



Source: BMVEL (2003a).

3 Methodology: The German AG-MEMOD model

3.1 Overall structure

The German model has been developed as a part of the AG-MEMOD project. The developed model is an econometric, recursive dynamic, multi-product (27 commodities) partial equilibrium model. Like all country models of the AG-MEMOD project it is constructed in such a way that allows single use as well as composite use within the framework of the unique EU model. In general, it consists of five modules: cereal and oilseeds, livestock, dairy and roots which represent national markets for grains[14], oilseeds[15] and related oilseed products (oil and cake), root crops[16], livestock (cattle and beef, pigs and pork, poultry, sheep and sheep meat)[17], milk and dairy products[18]. Simulation results are derived for supply, demand and usage, trade and stocks as well as for domestic prices. Different domestic markets are linked to other domestic markets by substitution or complementarity parameters in production or consumption.

At the individual country level, commodity prices are linked to key prices at a Common Market level. These are further used to clear the markets in the combined EU model. For example, the key prices for poultry are endogenously determined in the German model[19]. These prices are then engaged in the price determination of the poultry markets in other EU countries (e.g., in France). This implies that German key prices combined with other endogenous variables like self-sufficiency rate of Germany as well as the self-sufficiency rate of France determines 'domestic' prices for poultry in France. On the other hand, the French key price for wheat in combination with other endogenous variables determines the 'domestic' prices for cereals in Germany.

For each commodity and year, net export supply will be calculated as the difference between estimated variables of domestic supply (production and beginning stocks) and estimated variables of domestic demand (domestic consumption, waste and ending stocks). The sum of net export supplies across all EU member states determines the EU net export supply. The EU commodity markets will close by equalising EU net export supply with the EU net export demand which are determined through WTO commitments, relative EU market prices and world market prices. Supply and demand in the member states and therefore, in the entire EU, will change until an equilibrium is attained on the EU market. In summary, AG-MEMOD is solved through an iterative process, which

[14] Soft wheat, durum wheat, barley and corn.

[15] Rape seed, soybean and sunflower seed.

[16] Sugar beets and potatoes.

[17] Cattle and beef, pigs and pork, poultry, sheep and sheep meat.

[18] Cheese, butter, whole milk powder, skimmed milk powder, other dairy products.

[19] A list of German key prices can be found in Annexe 3.

brings all EU commodity markets in all years in equilibrium with respect to supply of exports on the one hand and demand for exports on the other hand.

Sets of behavioural equations for all commodities have been specified and estimated in terms of prices, demand and supply variables, and policy variables. Equilibrium on national commodity markets is attained given that all markets are cleared. That means that production plus beginning stocks plus imports is equal to domestic use plus ending stocks plus exports. There is no guarantee that a model with econometrically estimated parameters will automatically fulfil the market clearing condition. Therefore a closing variable for each market is chosen to ensure the market clearing condition. Thus, for each commodity market one endogenous variable is determined, generally export, import or stocks, which are calculated as a residual variable of the market balance. Annex 5 addresses the closing variables for all commodity markets used in the German model.

In order to reflect policy impacts, the AG-MEMOD partnership agreed on a set of policy instruments associated with CAP and the WTO. The model results are designed to show economic effects of some of these different policy measures. Annex 4 summarises the policy instruments used in the German model. For the baseline projections, it is assumed that all policy instruments remain in place over the whole period, and that the Agenda 2000 settings will be reflected the agricultural policy assumptions.

Estimates to obtain the model parameters have been based on annual data for the period 1973–2000, which was obtained mainly from New Cronos as agreed on by the AG-MEMOD partnership. Additionally data provided by the FAO, the USDA, the German statistical, and the German Ministry of Consumer Protection, Food and Agriculture were used. In the German case, econometric estimations were hampered by the re-unification process which often caused structural breaks in the data series. Different types of dummy variables were employed in the econometric estimation to offset the effects of the structural breaks: a single dummy for years before[20] or after the re-unification to cover short-term disruptions, a level dummy for the period after the re-unification to offset an enduring shift in the agricultural sector and additional trends to indicate a converging or diverging processes between agriculture in West-Germany and East-Germany. Parameters were derived by single equation Ordinary Least Square (OLS) estimators. The estimations were conducted with the software program EViews 4.0. Estimator were chosen by the ‘Goodness of Fit’ and the quality of test variables, but results which contracted economic theory with e.g., wrong signs, were rejected. Estimates also had to be eliminated when they induced an infeasible solution for the country or the combined model. Parameters for policy variables were

sometimes hard to attain so that quality criteria had to be eased. Detailed descriptions of the model structure and related estimations can be found in Salamon and von Ledebur (2004b) on the partnership homepage[21].

In all national, as well as EU markets, prices are ultimately linked to the key prices or world prices. In the grain model the key prices are the associated French prices, while the German prices determine most of the commodity prices within the livestock modules. Prices cif Rotterdam for most oilseeds, which are assumed to reflect the world market price, represent key market prices in the oilseed model. For the baseline period world prices correspond to the FAPRI projections in the EU-GOLD model (FAPRI-Ireland, 2003).

3.1 Commodity models

As one of the four modules, the cereals-oilseeds complex comprises the grains soft and durum wheat, barley and corn as well as the oilseeds, oils and cakes of rapeseed, sunflower seed and soybeans. The root crops module consists of potatoes and sugar beets. All livestock activities, with the exception of dairy, are covered by the livestock module which consists of animal husbandry and slaughtering of cattle, pigs, sheep, broiler and other poultry as well as of the related markets. In the dairy module, raw milk production, and milk allocation as milk fat and as milk protein for the processing of dairy products[22] are derived. Furthermore, the markets of the different dairy products and their price formation are displayed. The so-called Mediterranean products like tomatoes, olives and olive oil, tobacco and oranges are treated on a more aggregated basis so that for Germany only import demand is represent. To illustrate the internal relationship between exogenous (explaining) and endogenous (explained), variables flow charts are to be found in Annexe 6.

In the grains sub-model, production of cereals and oilseeds primarily is determined by the areas harvested and yields per hectare achieved. Available land is allocated in a two step process. In the first one, the land is allocated to cereals and oilseeds. In the second step, shares of total grains or oilseed area are distributed to each of the main cultures. In the planting decisions, policy variables like premiums, set-aside and prices are reflected. Exceptions hereof are durum wheat and corn which are not considered due to low acreage and are fixed at a certain level. The second part of the sub-model is devoted to describing the respective market situations. On the demand side, feed use and non-feed use per capita are determined, including other variables such as prices, price relations, income and animal husbandry. For all cereals, ending stocks and imports are estimated while

20 In some cases trade between West-Germany und East-Germany was intensified shortly after the frontiers were opened.

21 Find the continuously actualised documentation on the national folders on www.agmemod.org.

particular exports are derived from a supply and demand as identity. Prices are all linked to the French key prices via a price transmission equation. In the case of corn the German price is directly linked to French one.

Rape seed, sunflower seed and soybeans are treated similarly to cereals. First the harvested areas and the yield per hectare are determined, and then the production is considered. But one has to keep in mind that in Germany sunflower seed and soybean production are almost negligible. Also in the case of planting oilseeds, decisions are influenced by prices, premiums, and other policy variables. Subsequently the markets for different oilseeds are described by demand for feed use, seed use and crushing, derived as well as trade and stocks, which are influenced by prices, price relations, income and feed demand. Demand for crushing enables to derivate the relevant production of oils and oil cakes. Finally, oil and oil cake domestic uses, trade and ending stocks for the various oils and oil cake products are estimated, taking into account prices, price relations, income, feed demand and others. The German prices of oilseeds are directly linked to the world market prices.

Production of the livestock module is deduced by slaughter and slaughter weight, whereas slaughters are influenced by the developments of animal stocks, economic and policy variables. In turn, animal stocks are affected by variables like prices, cross prices, price relations, input costs, premiums, as well as by lagged stocks and slaughters. In the cattle sector there is also a differentiation between the suckler cows, calves and other cattle stocks or slaughters. The number of dairy cows is determined in the dairy module. But the number of cow slaughters reflect beneath suckler cow slaughters also dairy cow slaughters which comprise the bigger part. Concerning pigs and also the sheep sector, the model only differentiates between mother animals (sows, ewes) and other animals. But in the case of the pig sector, only total number of slaughters are determined, while in the poultry sector broiler and other poultry are regarded. The slaughter weights always follow a trend and some other variables, e.g., a variable catching the effect of BSE or a high number of slaughters. In a second step the different meat markets with demand per capita, trade and stocks are modelled by various variables like own prices, cross prices, price relation, income, trends, and others. With the exception of sheep meat, the German prices form the key prices for the other country models. The price equations reflect the impacts of the administrative prices, the demand and the supply situation, and the world market prices as well as the effects of premiums, export limits, tariff rate quotas and other factors.

In the dairy module, raw milk production is determined by yield per cow and the number of dairy cows which in turn is explained by the milk quota, milk prices, feeding costs and other variables.

[22] Fluid milk, cheese, butter, skimmed milk powder, whole milk powder and other dairy products.

Then the available fat and protein in the total amount of raw milk is allocated to different usages like feeding and fluid milk use (drinking milk) while the rest is distributed as factory use to all other dairy products. Cascades are employed to derive the allocation of the factory use, one concerning fat and one for protein. First the amount of cheese produced is determined in the protein line, followed by the quantity of whole milk powder and skimmed milk powder. The available rest is used for other dairy products. This group of other dairy products comprises not only products like condensed milk but also a larger range of other fresh milk products (e.g., cream, yogurt, milk drink, fermented products). Fat used in cheese and whole milk powder production in determined in a fixed relation to the specific protein use. Then fat is allocated to butter and the rest is spent in the processing of other dairy products. To govern the allocation of milk fat and protein variables, the availability of fat and protein, administrative prices, market prices, cross prices and price relations are employed. Market of dairy products are made up by processing, demand, stocks and trade. Explaining variables concerning demand are income, prices, cross prices or price relations, subsidies, trends and dummy variables, while trade and stocks are determined by availability of the specific product, prices and dummy variables. Markets of whole milk powder and butter are closed by imports, while in the case of skimmed milk powder the stocks, and in the case of cheese, exports are used for market clearing. Deduction of prices in the dairy sector doesn't follow a unified system, the key price for skimmed milk powder is determined in the Netherlands, but the price of butter is formed in Germany. Concerning whole milk powder, price formation is based on the world market prices. In the formation of the key prices supply, demand, administrative prices, and trade restrictions are regarded.

3.2 Estimation of Economic Accounts for Agriculture variables and environmental indicators

Both Economic Accounts for Agriculture as well as a set of environmental indicators are not included in the GAMS model but are derived in side-calculations based on the results generated. Output values of the Economic Accounts for Agriculture are represented at producer prices level and cover most products as they are generated by the AG-MEMOD model. These are animal output of cattle, pigs, sheep and poultry, output of animal products which are milk and the sum of other animal products like eggs, wool, etc.; crop output consisting of wheat, barley, maize grain, rape seed, potatoes, sugar beets and other crops with the main items fresh vegetables, forage plants and fresh fruits. Calculated output values are in general adjusted by estimated correction terms, while the output of other animal products is kept constant and the total output of other crop products are estimated by a trend. To derive subtotals of other crop products, a trend (vegetables, fresh fruits) or a relation to the animal production (forage) is employed. Subsidies are calculated on the basis of

subsidies per unit and adjusted for observed values whereas taxes are established by the agricultural output. Intermediate consumption consists of crop production driven by fertilizer expenditures, animal stock based feed consumption and other intermediate consumption which is acquired by a trend and agricultural output at basic price. To obtain agricultural gross value added intermediate consumption is subtracted from agricultural output at basic prices. When gross value added is adjusted for fixed capital consumption, subsidies and taxes, the remaining value represents factor or agricultural income.

Emissions of agriculture are regularly published in specific reports (Dämmgen et al. 2004). This report provides information subdivided to detailed agricultural activities especially concerning animal husbandry whereas for the crop sector more aggregated data were presented. Based on this principle work data was made available on emissions of NH_3, N_2O, NO as well as CH_4. Also CO_2 and NMVOC-C were also selected as environmental indicators. Data were adjusted to comply with the AG-MEMOD activities (Schmidt and Osterburg, 2004)[23].

Table 3.1: Emission rate per activity in Germany

	Wheat	Barley	Corn	Rape seed	Potatoes	Sugar beet	Dairy cows	Other cattle	Pigs	Poultry[1)]	Sheep	Other activities
	Kg per ha area or per stock											
N_2O	7.3	6.1	9.1	8.3	7.4	7.9	0.6	0.3	0.1	0.8	0.2	7.5
NO	3.7	2.7	5.1	4.5	3.8	4.2	0.8	0.4	0.1	1.1	0.0	3.8
NH_3	8.3	5.6	7.6	10.6	5.2	6.4	39.1	10.3	6.4	84.8	1.2	5.5
CH_4	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	210.4	101.2	21.4	6.3	8.2	-2.0
NMVOC-C	0.0	0.0	0.0	0.0	0.0	0.0	18.8	4.9	4.6	2.3	0.8	0.0
CO_2 (limestone and enery)	405.3	368.8	430.6	515.2	542.4	488.7	242.6	105.3	36.9	141.3	19.5	448.0

1) Emissions in kg per t of production.

Source: Schmidt and Osterburg 2004.

4 Business as usual Baseline Scenario

4.1 Description of the 'business as usual' baseline scenario

In the following section a baseline scenario is developed which reflects the continuation of the CAP as agreed on under the Agenda 2000. A short summary of the macroeconomic outlook that underlies the model's projections and the world market price projections used to generate the baseline projection is presented . These same projections will then also be used in the analysis of the scenario of the agreement reached at the Luxembourg Council (Luxembourg Agreement). These scenarios do not include any assumptions concerning the outcome of the WTO Doha Development

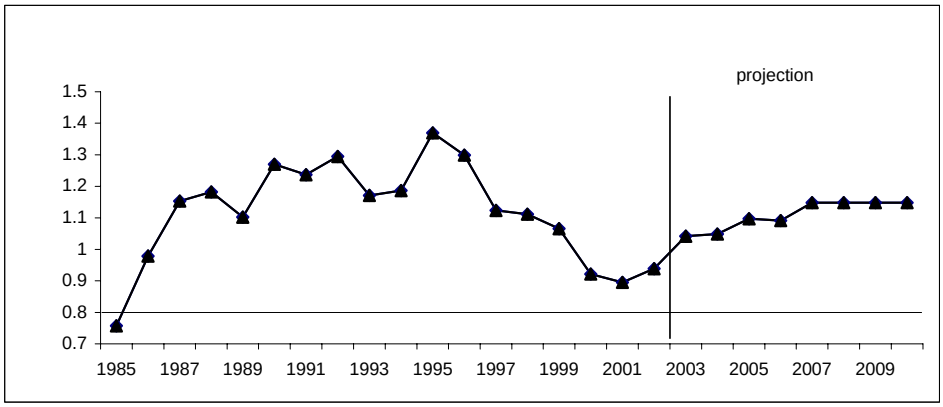
[23] We like to thank Bernhard Osterburg to provide for the relevant information.

Round, thus the existing Uruguay Round Agreement on Agriculture (URAA) is assumed to prevail for the whole projection period. Nor does the current baseline for the EU-15 incorporate the accession of new members on the 1st of May 2004, most of whom are already partner in the AG-MEMOD Partnership. This is also because the old political framework against which the scenario simulation is going to be played didn't apply to the new acceding countries. In future, policy scenarios such WTO and EU enlargement assumptions will be relaxed.

The macroeconomic outlook incorporated in this baseline comes from external sources. Population projections are from EUROSTAT while projections of most macroeconomic variables are from the econometrics unit in General Directorate Economics and Finance of the EU Commission. Other sources are macroeconomic institutes in member states and the FAPRI-Ireland Partnership. At this stage, world market price projections are not endogenous to the AG-MEMOD model. However, the AG-MEMOD model is linked to the FAPRI-Missouri EU-GOLD model (Hanrahan, 2001). This model incorporates world price projections from the FAPRI world agricultural modelling system and allows to involve the impact of global supply and demand developments on EU agricultural markets.

The leading macroeconomic projections used in this analysis are depicted in the following charts. Of prime importance is the exchange rate between the US dollar and the Euro. Till 2010, the nominal exchange rate was assumed to be $1.13/euro. (Fig. 4.1). Inflation in the EU-15 is projected to remain under two percent a year with a real rate of economic growth tending to be 2.2 % per year.

Figure 4.1: Exchange rate between US dollar and Euro (US$/€)



Source: FAPRI 2003.

Projections of key prices under the different scenarios like the baseline as well as the Luxembourg Agreement are provided by solving the AG-MEMOD combined model. In principle, policy assumptions for the crop sector and livestock sector do not indicate further adjustments, while in the dairy sector the intervention prices are to be cut in three equal steps by a total of 15%, subsidies for butter and skimmed milk powder processing are adjusted accordingly while the German dairy quota is increased at large by 1.5%. Details can be found in Table 4.1. A second set of assumptions deals with the German macroeconomic variables (see Table 4.2).

Table 4.1: Policy assumptions in AG-MEMOD for baseline scenario (prices in €/t; quotas in t)

	2002	2003	2004	2005	2006	2007	2008	2009	2010
EU Crop Sector									
Common wheat int. price.	101.30	101.30	101.30	101.30	101.30	101.30	101.30	101.30	101.30
Barley intervention price	101.30	101.30	101.30	101.30	101.30	101.30	101.30	101.30	101.30
Maize intervention price	101.30	101.30	101.30	101.30	101.30	101.30	101.30	101.30	101.30
Cereal compensation	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00
Oilseeds compensation	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00	63.00
White sugar intervention price	631.90	631.90	631.90	631.90	631.90	631.90	631.90	631.90	631.90
Sugar beet basic price	47.67	47.670	47.67	47.67	47.67	47.67	47.67	47.67	47.67
Cereal set-aside rate	10.00	10.00	10.00	10.0	10.0	10.0	10.0	10.0	10.0
German Cereal reference yield	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93
German Oilseed reference yield	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93
German Sugar quota A	2612.9	2612.9	2612.9	2612.9	2612.9	2612.9	2612.9	2612.9	2612.9
German Sugar quota *B*	804.00	804.00	804.0	804.0	804.0	804.0	804.0	804.0	804.0
German Sugar levy on A quota	12.60	12.60	12.6	12.6	12.6	12.6	12.6	12.6	12.6
German Sugar levy on B quota	237.00	237.00	237.0	237.0	237.0	237.0	237.0	237.0	237.0
EU Livestock Sector									
Beef intervention price	278.00	243.30	243.30	243.30	243.30	243.30	243.30	243.30	243.30
Butter intervention price	328.20	328.20	328.20	311.80	295.40	279.00	279.00	279.00	279.00
SMP intervention price	205.50	205.50	205.50	195.20	185.00	174.70	174.70	174.70	174.70
Suckler cow premium	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00
Male bovine premium	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00
Butter consumption subsidy	39.70	39.70	39.70	31.80	23.80	15.90	15.90	15.90	15.90
SMP feed subsidy	75.00	75.00	75.00	60.00	45.00	30.00	30.00	30.00	30.00
Ewe premium	19.30	20.90	20.00	20.30	20.70	20.90	21.00	21.00	20.80
German milk quota (applied)	27 953	27 953	27 953	28 093	28 235	28 375	28 375	28 375	28 375
German suckler cow quota	639.5	639.5	639.5	639.5	639.5	639.5	639.5	639.5	639.5
Animal density threshold	2.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8

Source: AG-MEMOD partnership.

Price projections for markets of international significance can be seen in Figures 4.2 to 4.4. Prices have been converted to Euros at the rates shown in Figure 4.1. Following the recent price spike, prices of wheat and maize return to 2000/01 levels and then slowly decline. Barley prices return to the levels as regarded in 1999/2000 and then also decline gradually. These prices are linked directly to those in France which are the key market for these grains. This linkage equation also takes

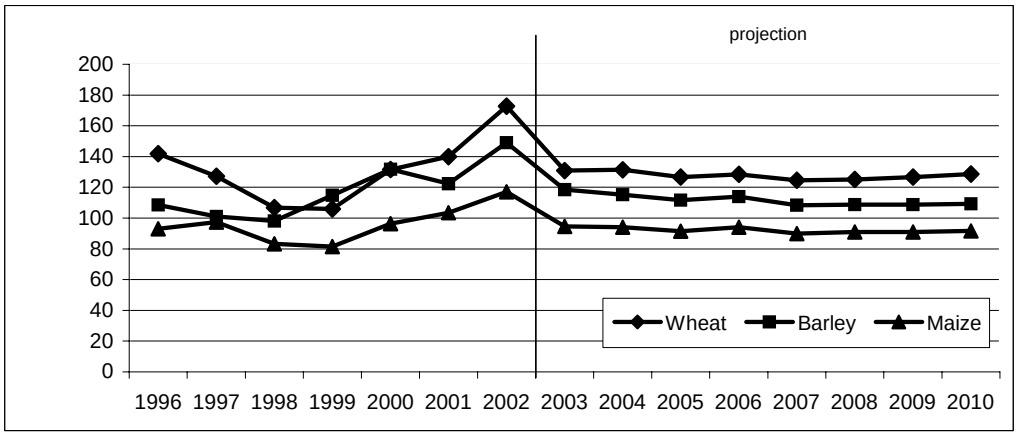
account of trade policy measures and the EU market situation. For oil seeds and their products, the international prices are taken as key prices to which each EU national markets are linked.

Table 4.2: Macroeconomic assumptions in the German AG-MEMOD model in the baseline scenario

	Population	Real GDP	Real GDP	GDP deflator
	million	billion 1997 US $	1991 US $ per capita	1995=1
2001	82.322	1 883.196	22 876	0.988
2002	82.338	1 950.509	23 689	1.005
2003	82.324	2 015.323	24 480	1.016
2004	82.288	2 073.508	25 198	1.032
2005	82.219	2 136.467	25 985	1.045
2006	82.163	2 204.579	26 832	1.058
2007	82.100	2 276.200	27 725	1.072
2008	82.007	2 343.712	28 579	1.087
2009	81.892	2 411.779	29 451	1.102
2010	81.748	2 481.332	30 353	1.119

Source: AG-MEMOD partnership based on EUROSTAT and Satistical Office.

Figure 4.2: Projection of international grain prices (€/t)

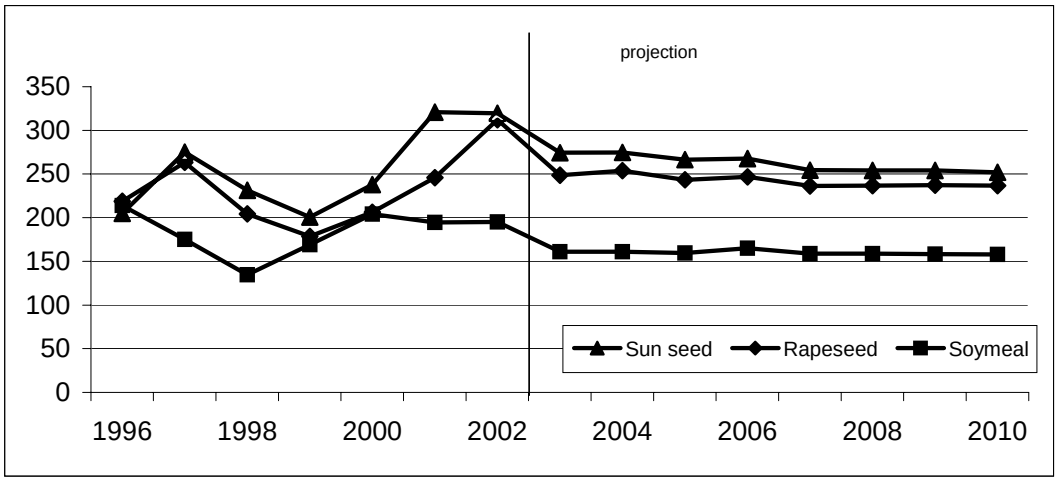


Notes: Wheat: No.2 Hard Red Winter (Ordinary) fob US Gulf; Barley: fob Pacific Northwest; Maize:US N0.2 Yellow, fob US Gulf.

Source: FAPRI (2003)

Projection for oilseeds (Figure 4.3) show a price spike followed by a correction then a declining trend for rape seed. A steeper decline in the price of rape-oil is reflected in a slight rise in price levels for rapeseed meal over the coming years. Similarly, prices for soy meal are projected to be close to 160 Euro/ton in the years up to 2010.

Figure 4.3: Projection of international oilseed prices (€/t)

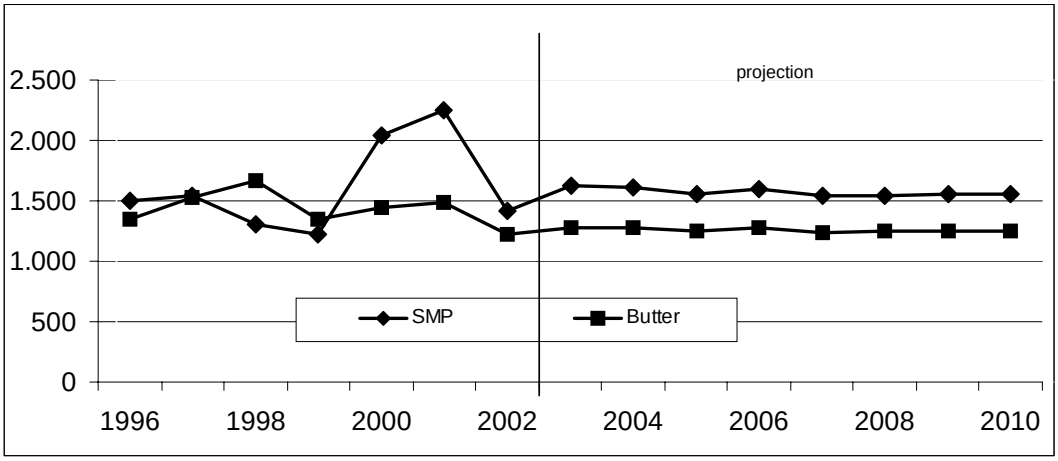


Notes: Sunflower seed: EU/US/Canadian cif Lower Rhine/Rotterdam; Rapeseed:"00" cif Hamburg; Soymeal: 45% pellets Argentine, cif Rotterdam;

Source: FAPRI (2003)

Dairy product prices hit a low in 2002, in contrast to the grain price spike at that time. Since then the prices have recovered strongly and projections show a slight retrenchment in the years 2010 (Figure 4.3).

Figure 4.4: Projection of international dairy prices (€/t)



Notes: Skim Milk Powder (SMP): fob, Northern Europe; Butter: fob Northern Europe

Source: FAPRI (2003)

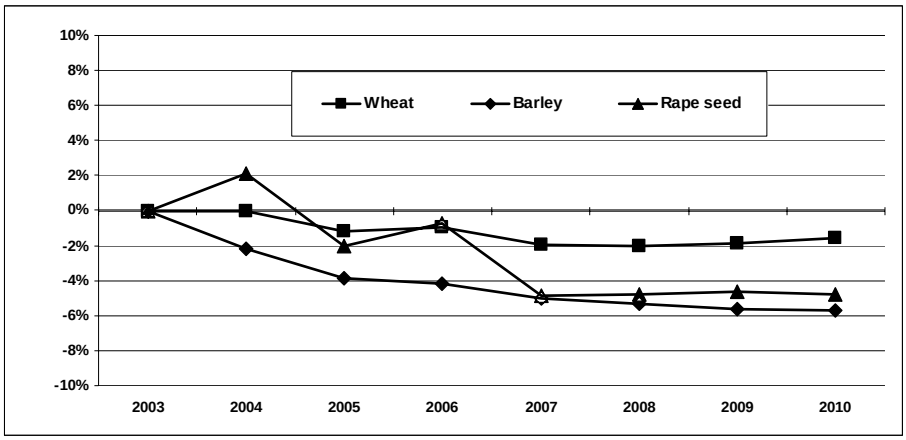
4.2 Baseline Results

As basis for the impact analysis a 'business as usual' baseline scenario with the AG-MEMOD combined model is generated. Results for Germany reflect the projections for prices of agricultural products on key EU-15 markets. Some of these are endogenous to the German model including those for beef, pork, broilers and butter (for details see Annexe 3 and 6 as well as Salamon and von Ledebur, 2004).

4.2.1 Crops sub-sectors

Grain prices in France are expected to decrease over the 2003 to 2010 projection period, reflecting trends in international markets as noted above. German prices follow this development. The barley prices would decrease between five and six percent, while soft wheat prices are expected to decline by less than two percent (Figure 4.5). At the same time the intervention price is supposed to remain unchanged. This implies that the intervention price for barley will maintain an important support function concerning the domestic prices.

Figure 4.5: Baseline projection of German crop prices (% change compared to 2003)



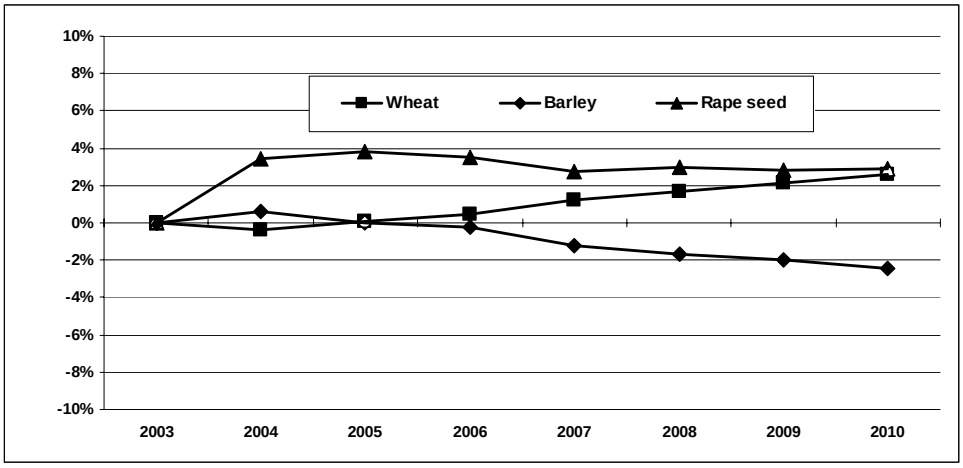
Source: Own calculations.

After the German re-unification and during the course of the MacSharry reform, area used for the three main grains was subject to a reduction. Only from 1997 onwards can small increases in the grains area be observed. A more detailed analysis shows that soft wheat area has been expanded annually since the beginning of the 1990s, while barley area was reduced significantly at the same time. Corn area has been increasing since 1980 but the overall share is still very small. Under the baseline projections, the 3-grain area would remain close to 5.2 million hectares in 2010, implying a negligible increase of 0.4%. While soft wheat area is projected to grow by 2.6%, the barley area decreases by 2.4% both developments are impacts of the expected price adjustments (Figure 4.6).

The corn area would remain virtually unchanged. Because of projected increases in yields production for soft wheat, barley and corn would rise by 12%, 7% or respectively 10% (Figure 4.7).

On the demand side, the expected changes concerning domestic use are less pronounced than on the supply side with the exception of durum wheat. The domestic use of soft wheat and maize is expected to increase respectively by 5% and 2% till the end of the period, while barley domestic use would decrease by -4% (Figure 4.8). Following the historical trend, the domestic use of durum would instead grow by about 24% till the year 2010. Regarding the trade would not occur any change in the net trade position of these commodities. But nevertheless the amount of traded grains would be aligned. To cover the growth in durum wheat use Germany's net imports would increase by 26% in the period 2003 till 2010 whereas the rise in German production would induce a decline of –27% of corn net imports. Those factors would also result in gaining net exports of soft wheat and barley of about 37%, respectively 46%, until 2010.

Figure 4.6: Baseline projection of German crop area (% change compared to 2003)

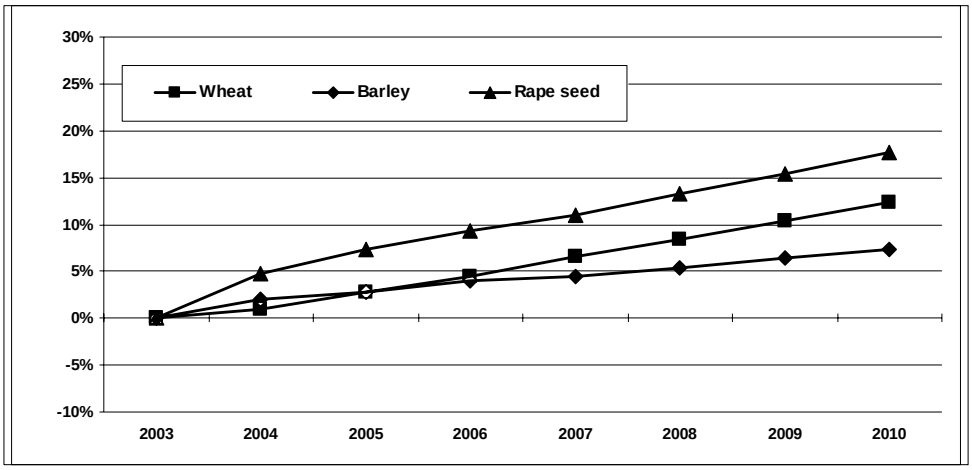


Source: Own calculations.

Total oilseed harvested area in Germany is expected to show a small increase of about 2%. Because of the relative importance of rape seed with a share of 94%, this shift is more or less attributed to rape. Due to the decline in world market prices, the German prices would decrease by 5% (rape seed and soybeans) and by 8% (sunflower seed). Nevertheless under these conditions the rapeseed area is projected to expand a bit, as the price decline is less marked than in the case of barley and crop rotation has to be observed. The simulations conducted indicate that the rapeseed production in Germany would hit 4.6 million tonnes in 2010, which equals an increase of 17% resulting from

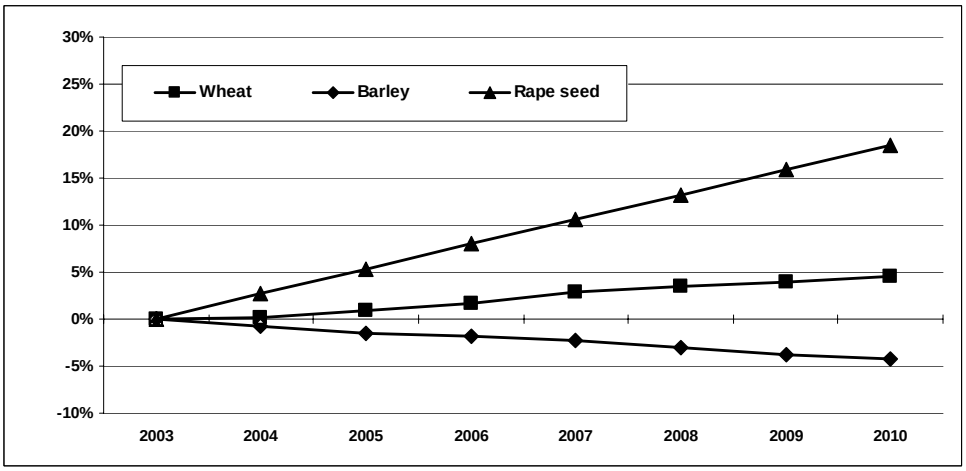
adjustments in area usage and gains in yields. So total oilseed production would increase by 16%. Soybeans imports are projected to rise by 10% and the imports of sunflower seed by 18%.

Figure 4.7: Baseline projection of German crop production (% change compared to 2003)



Source: Own calculations.

Figure 4.8: Baseline projection of German crop use (% change compared to 2003)



Source: Own calculations.

Total demand for oilseeds in crushing is expected to grow by 15% over the period, whereas the biggest increases would occur in rapeseed (18%), followed by sunflower seed (14%) and soybeans (11%). The bigger gain in rapeseed crushing is caused by the growth in domestic production which also included non-food use. Here the price decline is less marked than with the other oilseeds. The German cake and oil production is projected to rise between 14% and 16% in the period 2003 to 2010.

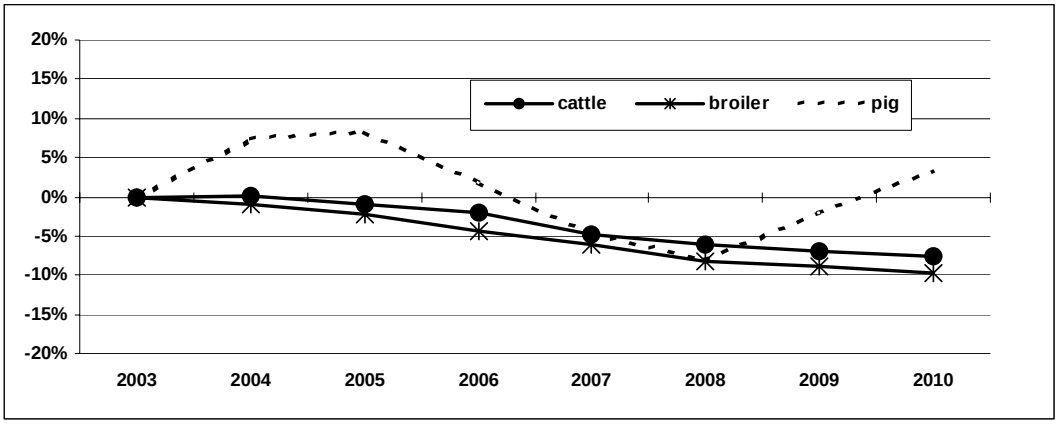
Due the production quotas, the sugar beet area would decline as yields are projected to rise by about 2%. The amount of produced sugar reflects this pattern. A decrease in total sugar consumption of 4.7% during the projection period is caused by a long-term downward trend. As to be expected, no change would occur for Germany's sugar net-trade position.

In Germany, the area harvested with potatoes would be subject to a decrease of about 8% to 2010. Even when production would follow the long term downward trend, prices are projected to decrease by about one percent because demand is also falling steeper. However, to dispose the additionally available quantities, potato exports would have to increase by about 20%.

4.2.2 Livestock and Dairy sub-sectors

Regarding the prices for land based animal production (beef) a down by -7.6% is projected for the period between 2003 and 2010 (Figure 4.9). Pork prices are projected to oscillate around the current level, starting with an increase at the beginning of the period, but declining after 2005 until 2008. In total pork prices would rise about three percent which would induce would occur due to a slightly lower per capita consumption compared to the current situation. To dispose bigger trend induced gains in poultry production, broiler prices would fall by about 10% in Germany. Effects in the sheep meat sector are quite small and would result in a small price drop of -2%.

Figure 4.9: Baseline projection of German meat prices (% change compared to 2003)



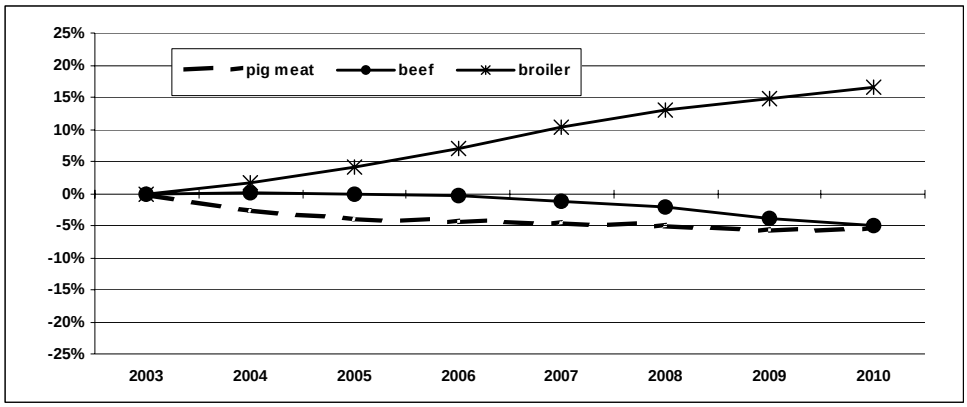
Source: Own calculations.

According to the declining prices, the cattle herd would shrink in the period by -17% and the sheep herd by about -1%.

If meat production is regarded, increasing slaughter weights would partly compensate for the fall in the herd size so that the decrease German beef output would be attenuated while total consumption

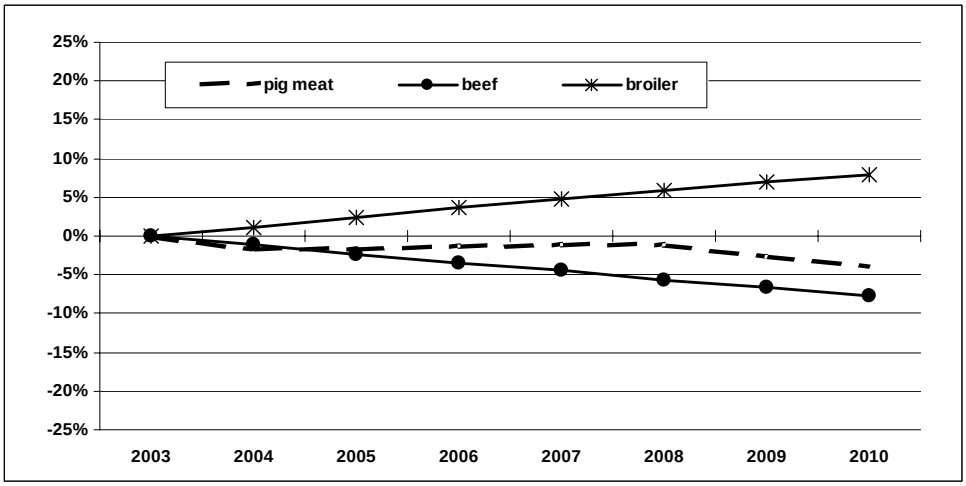
would be further reduced by more than seven percent (Figure 4.10 and Figure 4.11). This development would result in higher lower imports of about -7%.

Figure 4.10: Baseline projection of German meat production (% change compared to 2003)



Source: Own calculations.

Figure 4.11: Baseline projection of German meat use (% change compared to 2003)

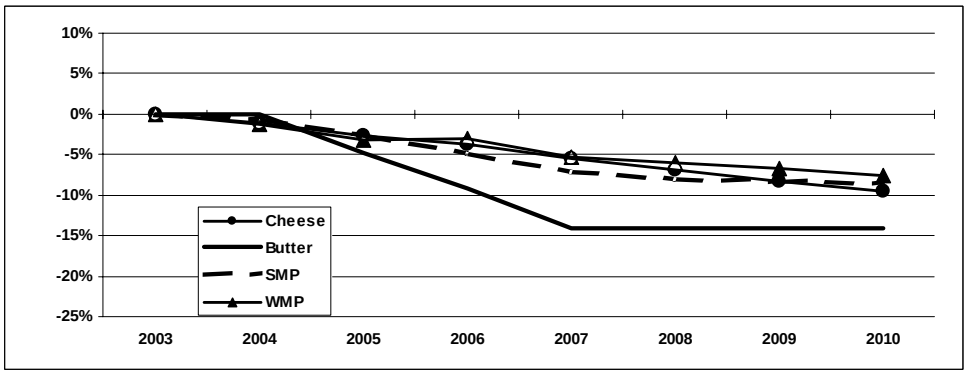


Source: Own calculations.

Pork production is projected to fall by five percent, whereas total domestic consumption would decreases by less than five percent. Therefore it is expected that the resulting net imports for pork would grow by 2.5% over the period. On the other hand, the big gains in broiler production would not be totally used up to meet the slower rising domestic demand, with the consequences of increased exports and declining prices. But in the case of other poultry, the import demand would be growing. Finally, German sheep meat production is expected to remain virtually unchanged (0.7%) while consumption would increase by about 14%, to be met by additional imports.

Due to cuts in the intervention prices, German raw milk prices would decline by almost 9% as would the whole sale prices for butter (-14%), skim milk powder (-6%), whole milk powder (-8%) and cheese (-10%) (Figure 4.12). To regard the conditions of the supply management by quotas, the number of dairy cows would be reduced to compensate the productivity gains in milk yields per dairy cow. Thus the dairy cow stock would go down by almost eight percent till the end of the period. In this figure, quota increase of 1.5% proposed in the Agenda 2000 already regarded.

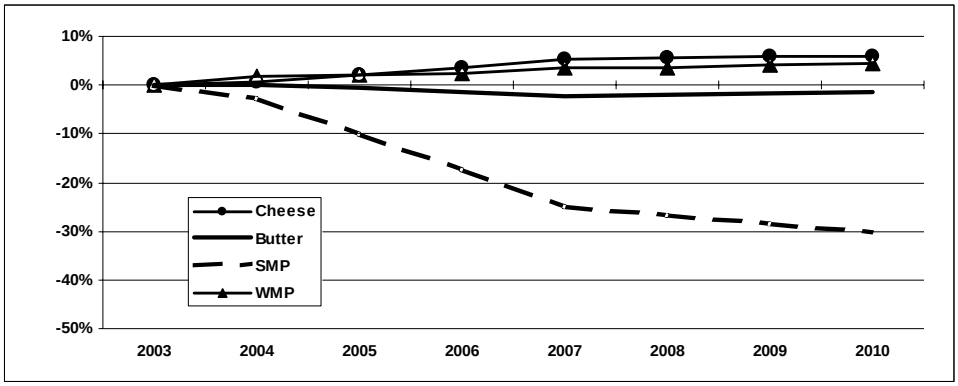
Figure 4.12: Baseline projection of German prices for dairy products (% change compared to 2003)



Source: Own calculations.

While in Germany the feed use of unprocessed raw milk as well as the consumption of fluid milk is projected to decline, factory use would increase. To continue the long-term trends, processing of cheese would also increase by 5.5 % in the projected period (Figure 4.13), even though the wholesale price of cheese is declining, but at a less severe rate than for some other products.

Figure 4.13: Baseline projection of German production of dairy products (% change compared to 2003)



Source: Own calculations.

So the falling butter price would impact a reduction in butter processing. To reflect the development in the domestic demand for skimmed milk powder (cuts in feeding subsidy, declining number of calves) production of skimmed milk powder would be clearly cut back. This reduction would also limit the price drop of skimmed milk powder. At the same time production of whole milk powder would be enlarged by 4.5%. The consumption of cheese is projected to increase by 9% leading to an expansion of the net-imports of cheese. Demand of butter would remain virtually unchanged over the period (-0.4%) and the net-importer position would stay stable over the projection period.[24]

4.2.3 Economic Accounts for Agriculture

As production and prices would decline in some area during the baseline, the Economic Accounts for Agriculture (EAA) reflect these circumstances (Table 4.14). Especially values of livestock production are projected to decline, with greater effects in the cattle-dairy complex. The drop in the dairy sector would be partly set off by the induced dairy premiums. Also some increases in the crop sector would occur with the focus on the grain-oilseed sector whereas other crops products the production values would decrease due to a diminishing forage demand by the livestock sector. In declining sectors costs would also be reduced so that the overall income situation would not be strongly affected. Due to the additional premiums, the agricultural income might not change very much at all.

5 Scenario Luxembourg agreement

5.1 Description of the Luxembourg Agreement scenario

The Luxembourg Agreement reflects policy adjustments to the Agenda 2000 as they were proposed in the Mid Term Review. Although the Luxembourg Agreement tackles a number of agricultural markets[25] it also calls for horizontal measures including the establishment of common rules for direct support schemes under the Common Agricultural Policy and establishing certain support schemes for farmers (single farm payment: SFP) (COM(EU) No 1782/2003) and detailed rules for the implementation of the single (farm) payment scheme (COM(EC) No 795/2004).

[24] Same projections with a different price transmission function for cheese would lead to a bigger decline in cheese prices combined with a more marked decline in milk prices. In this case, cheese processing would react much more pronounced to prices declines than the processing of intervention products. So the lower cheese price would hinder a quick adjustment of the processing sector. Cheese production is projected to increase only starting in 2008 inducing in the first years an expansion of the net-import of cheese. Dropping prices and a further shift in demand lead to an expansion of cheese consumption. Falling butter price would induce a reduction in butter processing only with a time lag, leading to a growth in stocks. Demand of butter would remain virtually unchanged over the period and the net-importer position would stay stable over the projection period (see also Annexe 8).

[25] The relevant sectors are cereals (COM(EU) No 1784/2003); rice (COM(EU) No 1785/2003); dried fodder (COM(EU) No 1786/2003); nuts; milk (COM(EU) No 1788/2003), and dairy products (COM(EU) No 1787/2003).

Table 5.1: Baseline projection of German EAAs in million €

EAA code number	EAA items	2003	2004	2005	2006	2007	2008	2009	2010
		million euro							
	Commodity (valued at producer prices)								
18.A	**Livestock and livestock products**	**18147**	**18300**	**18047**	**17580**	**17027**	**16779**	**16873**	**16994**
16.A	**Livestock** (incl. Stock changes)	8507	8712	8674	8412	8094	7921	8071	8239
	of which:								
16.1.A	Cattle	2599	2605	2568	2535	2445	2388	2326	2280
16.2.A	Pigs	4672	4847	4821	4577	4332	4202	4388	4580
16.4.A	Sheep & Lambs	167	166	166	166	166	166	166	166
16.5.A	Poultry	1069	1094	1119	1134	1152	1166	1191	1213
17.A	**Livestock Products**	**9641**	**9588**	**9372**	**9168**	**8933**	**8858**	**8802**	**8755**
	of which:								
17.1.A	Milk	8281	8228	8012	7808	7573	7498	7442	7395
	Other livestock and products (horses+eggs+wool etc)	1360	1360	1360	1360	1360	1360	1360	1360
15.A	**Crops** (incl. stock changes)	**17671**	**17534**	**17323**	**17195**	**16990**	**16846**	**16711**	**16579**
01.1A	Wheat	2249	2268	2281	2317	2340	2372	2412	2456
01.3.A	Barley	1123	1121	1113	1121	1116	1121	1127	1134
01.5.A	Maize grain	437	435	435	440	440	444	448	453
05.1.1.A	Rape and turnip seed	794	846	832	857	835	852	869	884
04.1.A	Potatoes	944	945	949	952	956	958	961	963
04.2.A	Sugar Beet	1102	1106	1110	1114	1117	1121	1125	1129
	Other Crops	11022	10813	10604	10395	10186	9977	9768	9559
	of which:								
	Fresh Vegetables including mushrooms	3880	4001	4121	4242	4362	4483	4603	4724
	Fresh Fruit	867	908	950	991	1033	1074	1116	1157
	Forage plants	3773	3551	3304	3059	2809	2583	2361	2140
	Agricultural Output (of goods) at producer prices (15.A+18.A)	**35818**	**35834**	**35370**	**34775**	**34017**	**33625**	**33584**	**33573**
19.A	Contract work and output of agriculatural services	1416	1461	1505	1550	1595	1640	1685	1729
20.A	**Agricultural Output incl services (15.A+18.A+19.A)**	**37234**	**37295**	**36875**	**36325**	**35612**	**35265**	**35268**	**35302**
21.A	Secondary activities	**130**	**130**	**130**	**130**	**130**	**130**	**130**	**130**
22.A	**Output of the Agricultural 'Industry' (20.A+21.A)**	**37364**	**37425**	**37005**	**36455**	**35742**	**35395**	**35398**	**35432**
22.B	*Subsidies on products*	3863	4158	4441	4726	4677	4634	4592	4554
22.C	*Taxes on products*	334	335	322	306	286	276	275	274
	Subsidies less taxes on products (include in 'All Subsidies..' below)								
22.D	**Agricultural output at basic prices (22.A+22.B-22.C)**	**40893**	**41248**	**41124**	**40875**	**40133**	**39754**	**39716**	**39712**
23	**Total intermediate consumption (inputs of materials and**	**25463**	**25257**	**24973**	**24649**	**24268**	**23947**	**23706**	**23484**
23.6	Feeding stuffs	10868	10533	10176	9795	9415	9053	8729	8421
23.3	Fertilizers (incl. lime)	1571	1617	1664	1710	1757	1802	1849	1895
	Other intermediate consumption	13024	13107	13133	13144	13096	13092	13128	13168
24	**Gross value added at basic prices (22.D-23)**	**15431**	**15991**	**16151**	**16226**	**15864**	**15807**	**16010**	**16228**
25	Fixed capital consumption (Depreciation)	7324	7312	7287	7259	7228	7205	7191	7178
26	Net value added at basic prices (24-25)	8106	8680	8864	8967	8637	8602	8819	9050
28	Taxes on production	770	770	770	770	770	770	770	770
29	Subsidies on production	1413	1313	1213	1113	1013	913	813	713
	Subsidies less taxes on production (29-28)								
30	**Factor income (agricultural income)(26-28+29)**	**8750**	**9223**	**9307**	**9310**	**8880**	**8745**	**8862**	**8993**
27	Wages & Salaries (incl. employers'	3369	3319	3269	3220	3172	3124	3077	3031
	contributions to social security)								
31	**Operating Surplus (self-employment income)(30-27)**	**5380**	**5904**	**6038**	**6090**	**5708**	**5621**	**5785**	**5962**
	INFORMATION NOTE								
	All subsidies on products and production less taxes								
	Interest paid								

Source: Own calculations.

Finally rules for the implementation of cross-compliance, modulation and the integrated administration and control system (COM(EC) No 796/2004) were defined[26]. In our 'Luxembourg Agreement' scenario only those measures were simulated which might affect markets included in the AG-MEMOD model.

[26] Also detailed rules for the application of certain support schemes provided for in Title IV of Council regulation (EC) No 1782/2003 (COM(EC) No 2237/2003) were laid down.

This is especially true for the additional reduction of intervention prices for butter by 10%, the temporal postponement of the additional dairy quotas of 1.5% and the so-called decoupling established by the SFP. Unlike previous CAP instruments the amount of SFP is rather independent of the levels of various farming activities, at least in theory. Though the land would have to be maintained in 'good agricultural condition'. But so far, analysis of supply response has shown that even the SFP is to a certain degree supportive of production.

Furthermore, farmers' decision to keep up production would be affected by the definition of maintaining land in 'good agricultural condition'. A low standard might lead to a certain type of fallow land in which case the maintenance of 'good agricultural condition' would be provided by external services. On the other hand, a higher standards might lead to a normal production on the area. Analysing the SFP can be also complicated by the existence of a phasing-in period for the shift from the farm specific payment to regionalized payments (e.g. Germany and Ireland) as well as by differences in the actual national implementation as provided for in the EU Regulations. The German Regulation concerning the implementation of the SFP is laid down in BMVEL (2004b, 2004c, 2004d) and discussed in BMVEL (2004a). In our simulation of the Luxembourg Agreement the different regional approaches concerning the degrees of decoupling are ignored. Instead a maximum decoupling in all member states are assumed.[27]

This scenario was simulated by changing the levels of the policy variables compared to those used to generate the baseline results. Once the levels of the policy variables were adjusted to reflect the Luxembourg reform scenario, the combined EU-15 model generated a new set of prices and quantities for each year to 2010. Within this framework, the German model produced results for Germany which are consistent with market equilibrium in the EU-15. Without interactions between German markets and the market of the other EU member states the equilibrium of the model evolved along different paths.

5.2 Baseline Results

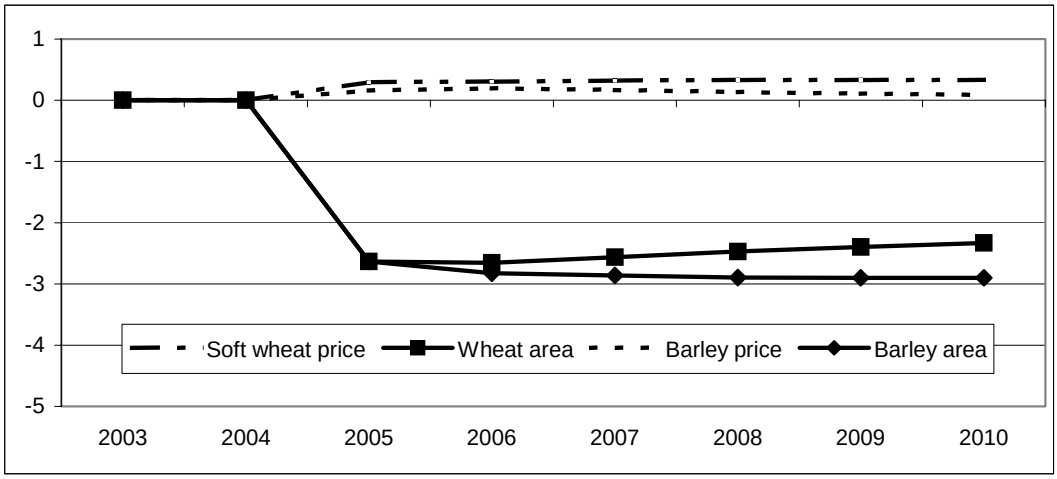
4.2.4 Grain-Oilseed Complex

Concerning Germany, the grain-oilseed complex as modelled in AG-MEMOD consists of wheat, durum wheat, barley, corn, rapeseed, sunflower seed and soy bean. But one has to keep in mind that the key products wheat, barley and rape seed with a production value of 90% play the major role, whereas the other grains and oilseeds are almost negligible (see also Section 4). The Luxembourg

[27] Detailed analysis of possible effects of the SFP on farms and regional structure in Germany can be found in Isermeyer (2003a, 2003b, 2003c), Kleinhanss et. al. (2002), Bertelsmeier et. al. (2003), Kleinhanss et. al. (2003).

scenario results compared to the baseline indicate that the producer prices in Germany would very much follow the French key prices. So the impact on grain prices in Germany is a relatively small increase in the case of wheat and barley (Figure 5.1), while prices of oilseeds are largely unaffected. The effect on the planting decision in terms of harvested area is a bit higher. The decline in the area of wheat would start with –2.6% and would end with a decline of -2.3% in 2010 whereas the area of barley would be decreased by –2.9% in 2010. In the case of rape seed, the impact is even less (-1.8%). One has to keep in mind that the share of oilseeds in planting arable land is quite low and that due to rotation requirements oilseeds would still be grown.

Figure 5.1: Prices and areas of soft wheat and barley – Impact of the Luxembourg Agreement as percentage change compared to the baseline (%)

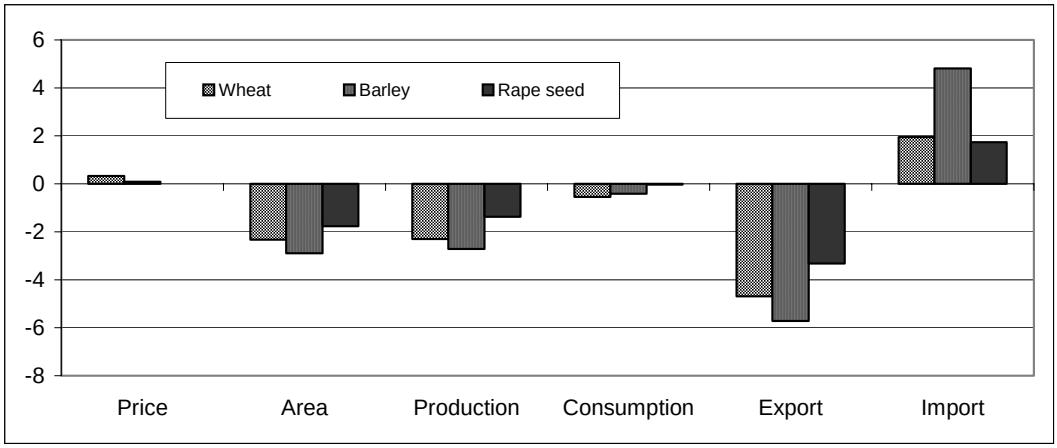


Source: Own calculations.

The Luxembourg Agreement would change the market situation of the main crops of the cereal-oilseed complex only marginally in 2010 (Figure 5.2). Declines in the harvested area of the main crops would also show in the development of production, although to a lesser extent declines in the harvested area of rape seed (-1.8%) and to a small degree of barley, would be partly offset by productivity increases. Drop in production would be highest concerning barley, at nearly three percent. The decline in production based on the reduction in coupled direct payments would result in slight increase in price (less than 0.5%). The price effect would be higher in the case of wheat, although wheat would show a lower impact in production. This indicates that barley would be more likely effected by the reform due to lower returns and a higher usage of more marginal land. Utilisation would decrease slightly namely less than -0.5% but with a slightly larger reduction in the case of wheat which is due to the small price increase. All of the shortfalls in production would be filled by rising imports and/or declining exports. In trade, the impacts would be a bit higher with

reductions in exports between minus three percent (rape seed) and minus six percent (barley). Imports of barley would increase by more than five percent, but wheat by 2 percent, as there would be little change in utilisation.

Figure 5.2: Market situation of main crops in Germany: Impact of the Luxembourg Agreement as percentage change compared to the baseline, 2010 (%)



Source: Own calculations.

When compared to results of impact analysis based on farm response models, effects generated with these are in general a bit higher. These farm based simulations show a decline in the harvested area of cereals of –9% and in oilseed area of about –4% (Kleinhanss et al. 2003, p. 20). But in these simulations, adjustments in the prices of leased land were not taken into account.

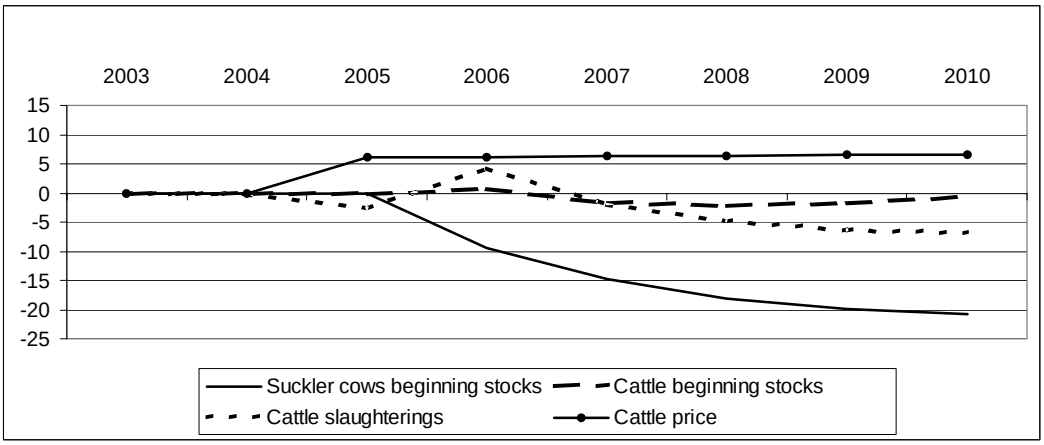
5.2.2 Livestock and dairy sector

Impact of the Luxembourg Agreement in the livestock sector and here especially in the beef sector would be more marked. Reduced production would occur in all beef sectors but would be quite marked concerning suckler cows. The drop in numbers of suckler cows in Germany under the Luxembourg reform scenario amounts to 21% of the herd. To achieve this decline the number of cow slaughter is increasing compared to the baseline. Unfortunately, the slaughter of beef cows and dairy cows is not differentiated in the relevant statistic. This reduction seems high but the proportion of suckler cows compared to the total cow herd is low, about 15%. Farm response models show a somewhat larger reduction in the suckler cow herd of about 30% (Kleinhanss et al. 2003, p. 17). Influenced by the definition of maintenance in ‘good agricultural condition’ the drop in the number of suckler cows might be even more marked in Germany.

Most of the German beef production is based on dual purpose cattle. Projections concerning the impact of the Luxembourg CAP reform scenario show a decline in cattle slaughtered only after

three years following the beginning of the Luxembourg Reform so they would run at a level above the baseline, as in Figure 5.3. When the cattle stock is reduced after that time slaughters drop below the baseline. As the slaughter weight of cattle would be only slightly affected by the Luxembourg scenario, so beef production would follow the development in the number slaughtered animals.

Figure 5.3: Suckler cows, total cattle, cattle slaughters and cattle prices in Germany – Impact of the Luxembourg Agreement as percentage change compared to the baseline



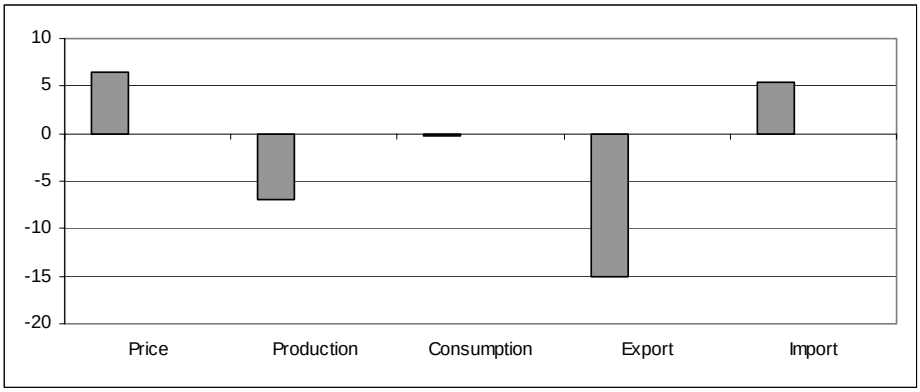
Source: Own calculations.

Coupled premiums in the beef sector represent a subsidy for the production costs which covers about 30% of the producer price (Kleinhanss et al. 2003, p. 10). When these premiums are decoupled, the producer price would increase to partly make up for rising production costs due to the loss of the direct subsidies. Because of the declining beef production the price would increase further.

In the Germany, the market situation would adjust to these developments. Even though the increase in producer prices would eventually induce a further small reduction in the consumption of beef accounting to nearly 0.3%, beef exports would probably decline and imports would increase to compensate for the drop in production (Figure 5.4).

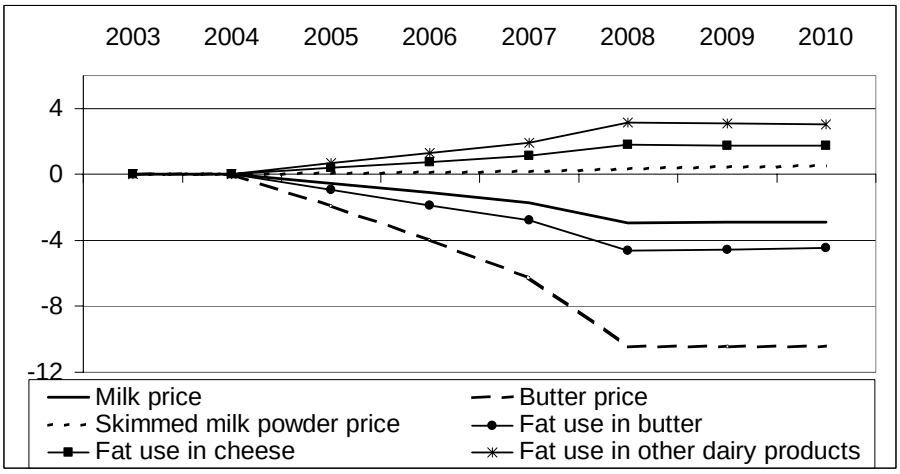
The policy changes applied in this scenario would also tend to reduce the production of sheep and raise prices and imports. In contrast, the reform would not bear directly on pork or poultry producers but affect them though the markets for meat as well as by the feed demand of grains and other ingredients. Results show a slight rise in pork consumption provided by a very small increase in production and in net-imports.

Figure 5.4: Market situation of beef in Germany: Impact of the Luxembourg Agreement as percentage change compared to the baseline, 2010 (%)



Source: Own calculations.

Figure 5.5: Development of butter price, skimmed milk powder price, milk price, fat use in butter, cheese and other dairy products in Germany – Impact of the Luxembourg Agreement as percentage change compared to the baseline



Source: Own calculations.

Escalating cuts in butter intervention prices in the scenario are reflected in the decreases in the market price of butter as well as in the producer price of milk. Even though the model simulation assume that the milk quota is still filled under the Luxembourg Agreement there exists an uncertainty in this respect (for details see: Kleinhanß et al. 2000). So production is determined to a great degree by the quota.

By 2008 butter prices in Germany would be 10% below baseline levels and would remain so (Figure 5.5). This measure would reduce the usage of fat for butter production. Instead, production of other dairy products and cheese would be expanded. One has to keep in mind that this aggregate

other dairy products comprise not only condensed milk, but what is more important, a great variety of other fresh products such as, e.g., cream, yoghurt, fermented and other milk drinks. As a result of the shift in the fat usage from butter to other dairy products, the price of skimmed milk powder would increase to a very small degree, because additional protein would be needed to produce these products. The production of skimmed milk powder would also drop because protein would get scarcer. Consumption would decline due to the cut in the subsidy for feeding skimmed milk powder to animals. Other effects of this reform concerning consumption of dairy products would be very small, even in the case of butter[28]. Regarding trade, Germany's cheese exports would increase, whereas butter imports would rise.

5.2.3 Economic Accounts of Agriculture and environmental indicators

Based on the fact that the Luxembourg Agreement would have an impact on the markets of at least certain products, impacts on the EAAs are also to be expected[29] (Table 5.1).

The simulations indicate that especially in the livestock sector, the output value at producer price might decline whereas in the crop sector the impact would below one percent. Only at the end of the period would occur the impact fully. At the same time, the decoupled market subsidies would evolve to be more stable than the coupled subsidies which leads to a slighter higher subsidy sum in the EAAs. Due to declines in livestock production, intermediate consumption would also be lower than in the baseline. Therefore agricultural income would be nearly unchanged compared to the baseline, but the effect would be slightly positive.

Also the environmental indicators show only marginal overall changes (Table 5.2). Whereas emissions of N_2O and NO would increase, the emissions on NH_3, CH_4 and NMVOC-C would decline. Especially in the case of N_2O and NO one has to keep in mind that the other agricultural area comprises quite different agricultural activities like vegetable production and fallow land, but only one emission factor is applied. A probably increase of quasi fallow land would induce a decline in the emission factor. But in the calculations constant factor were used.

[28] Econometric estimation of butter consumption can only be improved when additional variables are included or instead of yearly data quarterly data can be used.

[29] Modulation is not regarded in the calculations.

Table 5.2: Impacts of the Luxembourg Agreement of the German EAAs

EAA code number	EAA items	2003	2004	2005	2006	2007	2008	2009	2010
				Percentage change from the Baseline					
	Commodity (valued at producer prices)								
18.A	**Livestock and livestock products**	**0.0%**	**0.0%**	**0.3%**	**1.1%**	**-0.2%**	**-1.2%**	**-1.4%**	**-1.4%**
16.A	**Livestock** (incl. Stock changes)	**0.0%**	**0.0%**	**1.2%**	**3.4%**	**1.4%**	**0.5%**	**0.0%**	**-0.1%**
	of which:								
17.A	**Livestock Products**	**0.0%**	**0.0%**	**-0.5%**	**-1.1%**	**-1.6%**	**-2.7%**	**-2.7%**	**-2.7%**
	of which:								
17.1.A	Milk								
15.A	**Crops** (incl. stock changes)	**0.0%**	**0.0%**	**-0.4%**	**-0.5%**	**-0.4%**	**-0.4%**	**-0.4%**	**-0.5%**
	Agricultural Output (of goods) at producer prices (15.A+18.A)	**0.0%**	**0.0%**	**-0.2%**	**-0.5%**	**-0.8%**	**-1.5%**	**-1.6%**	**-1.7%**
19.A	Contract work and output of agriculatural services								
20.A	**Agricultural Output incl services (15.A+18.A+19.A)**	**0.0%**	**0.0%**	**0.0%**	**0.3%**	**-0.3%**	**-0.8%**	**-0.9%**	**-0.9%**
21.A	Secondary activities								
22.A	**Output of the Agricultural 'Industry' (20.A+21.A)**	**0.0%**	**0.0%**	**0.0%**	**0.3%**	**-0.3%**	**-0.8%**	**-0.9%**	**-0.9%**
22.B	Subsidies on products								
22.C	Taxes on products								
	Subsidies less taxes on products (include in 'All Subsidies..' below)								
22.D	**Agricultural output at basic prices (22.A+22.B-22.C)**	**0.0%**	**0.1%**	**0.2%**	**0.6%**	**0.2%**	**-0.1%**	**-0.1%**	**0.0%**
23	**Total intermediate consumption (inputs of materials and**	**0.0%**	**0.0%**	**-0.1%**	**0.1%**	**-0.2%**	**-0.4%**	**-0.5%**	**-0.5%**
24	**Gross value added at basic prices (22.D-23)**	**0.0%**	**0.2%**	**0.6%**	**1.2%**	**0.7%**	**0.3%**	**0.4%**	**0.6%**
30	**Factor income (agricultural income)(26-28+29)**	**0.0%**	**0.3%**	**1.1%**	**2.1%**	**1.3%**	**0.6%**	**0.8%**	**1.1%**
27	Wages & Salaries (incl. employers'								
	contributions to social security)								
31	**Operating Surplus (self-employment income)(30-27)**	**0.0%**	**0.5%**	**1.7%**	**3.2%**	**2.1%**	**0.9%**	**1.3%**	**1.7%**

Source: Own calculations.

Table 5.3: Impacts of the Luxembourg Agreement of the German EAAs

Emission	2003	2004	2005	2006	2007	2008	2009	2010
	Percentage change from the Baseline							
N_2O	**0.0%**	**0.0%**	**0.1%**	**0.2%**	**0.2%**	**0.1%**	**0.1%**	**0.1%**
NO	**0.0%**	**0.0%**	**0.1%**	**0.2%**	**0.2%**	**0.1%**	**0.1%**	**0.1%**
NH_3	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**-0.1%**	**-0.4%**	**-0.3%**	**-0.2%**
CH_4	**0.0%**	**0.0%**	**0.0%**	**0.2%**	**-0.2%**	**-0.9%**	**-0.9%**	**-0.5%**
NMVOC-C	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**-0.1%**	**-0.4%**	**-0.4%**	**-0.2%**
CO_2 (limestone and enery)	**0.0%**	**0.0%**	**0.1%**	**0.2%**	**0.1%**	**-0.1%**	**0.0%**	**0.0%**

Source: Own calculations.

6 Conclusions on the performance of the model and the initial results

With the project AG-MEMOD it was aimed to develop an econometric model of the agricultural sectors consisting of different sub-sectors of the EU-15 member states[30] and to combine theses individual country models into an integrated model for the whole EU. This was to construct and to generate projections on a yearly basis for the main agricultural commodity markets and to include policy details in the model so that the impact of policy changes might also be projected. Projection and simulation results should cover production and utilisation of the main agricultural output, as well as commodity markets; prices; farmers' receipts and agricultural incomes as reported in the

[30] With a later extension to Eastern European countries which were part of the accession process.

Economic Accounts for Agriculture. The achievements so far of the German model are considered in this report.

As proposed, econometric estimations of the parameters concerning the German model template based on the period 1973 to 2000 have been conducted. Due to the German re-unification process, disturbances often occurred in the base period. Thus the standard specification of the model had to be adjusted to capture these problems. In addition econometric selection criteria had to be lowered in some case to facilitate the policy representation concerning policy variables. Thus the adjusted German model covers the standard range of commodity markets including grains, oilseeds, oils and meals, root crops, livestock and dairy products. To represent these agricultural products, agricultural supply and markets have been modelled, sometimes supplemented by processing sectors. This German model has effectually been linked with other EU country models in the framework of the combined EU model. In this context, the German model has provided key prices for beef, pig meat, chicken and butter to enable price transmission for the other country models. Due to some methodological restrictions the markets of potatoes are not linked at the EU level.

Based on the German model, projections of the period 2000 to 2010 have been successfully generated. Here the projected baseline included the effects of the Agenda 2000. To analyze the effects of the Mid-Term Review, a second scenario reflecting the Luxembourg Agreement with a focus on decoupling was compared to this baseline, indicating some smaller negative adjustments in the cereal sector as well as more marked impacts in the livestock and dairy sector. But declines in the production values have been off-set by reduced inputs and decoupled payments. Thus the impact on the agricultural incomes is small.

Although the German model proved so far to be successful in achieving the proposed aims there is still scope for improvement. In this context one has to mention that the world market still has to be included endogenously to allow for feedback effects. Beneath the product coverage lacks some commodities like E.g., rye and oats, but also forage and vegetables are missing in the standard coverage even though they account for a larger share of agricultural output. Also the product differentiation could be enhanced. For example, in Germany, other dairy products comprise some innovative sectors in the case of other fresh dairy products like cream, yogurt, milk desserts, milk drinks. To improve policy impact analysis, a standard approach for implementing newly established policy variables which can not be econometrically estimated might prove helpful. More insights could be provided if all input and production factors were to be covered by the model. Due to the fact that erratic disturbances often occur in agricultural markets, e.g., weather fluctuations, an

assessment of related risks might improve the model results. But even without such enhancements, policy impact analysis can be conducted with the AG-MEMOD model.

Annex 1: Agri-Food Sector in Germany

Figure A1. 1: Germany, grain area (before 1991: West Germany)

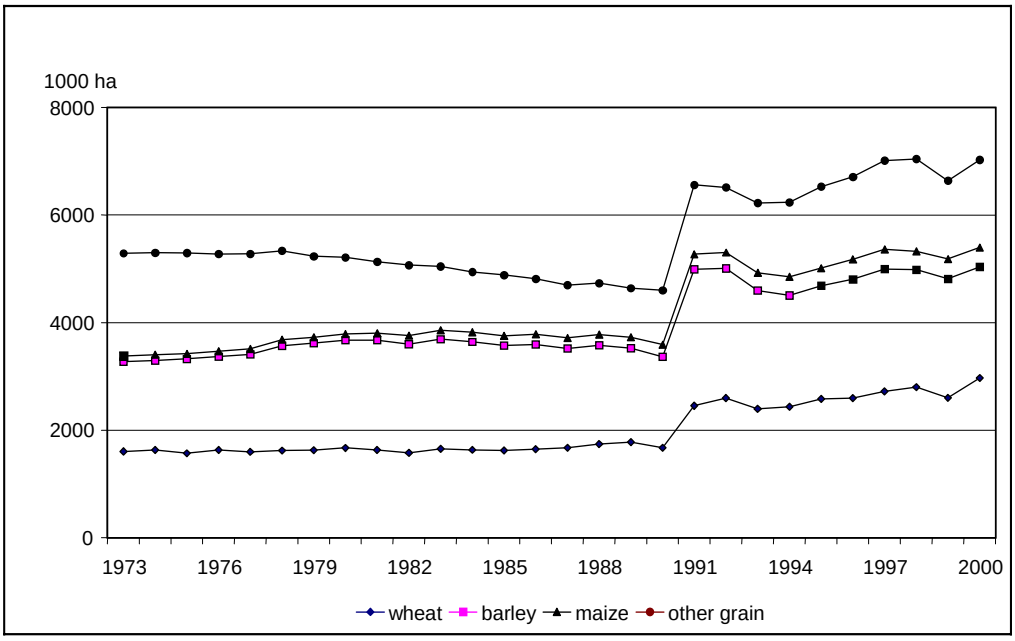


Figure A1. 2 Germany, grain production (before 1991: West Germany)

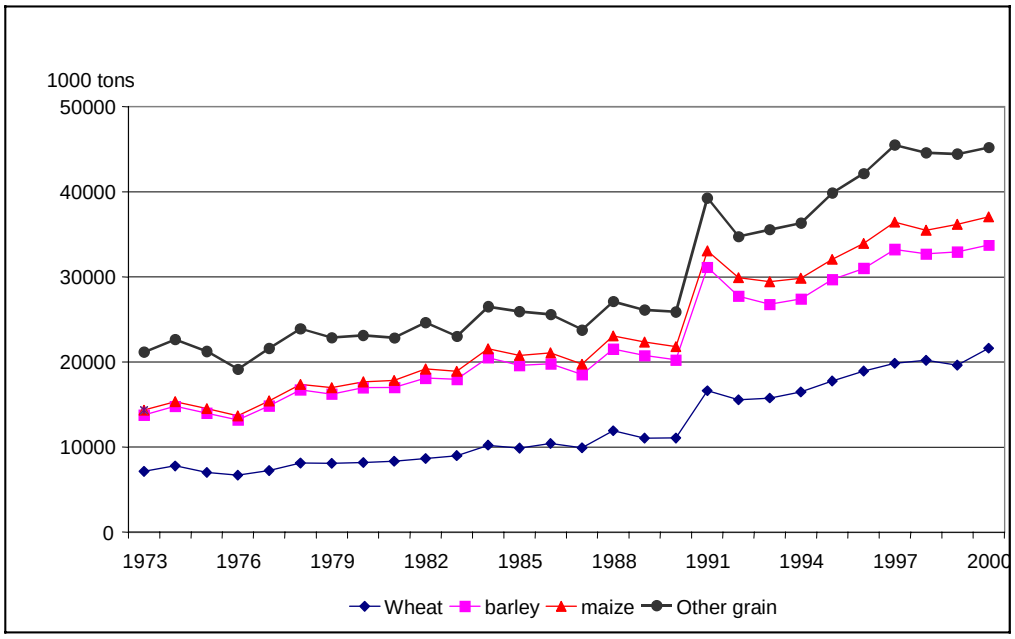


Figure A1. 3: Germany, structure of grain production (before 1991: West Germany)

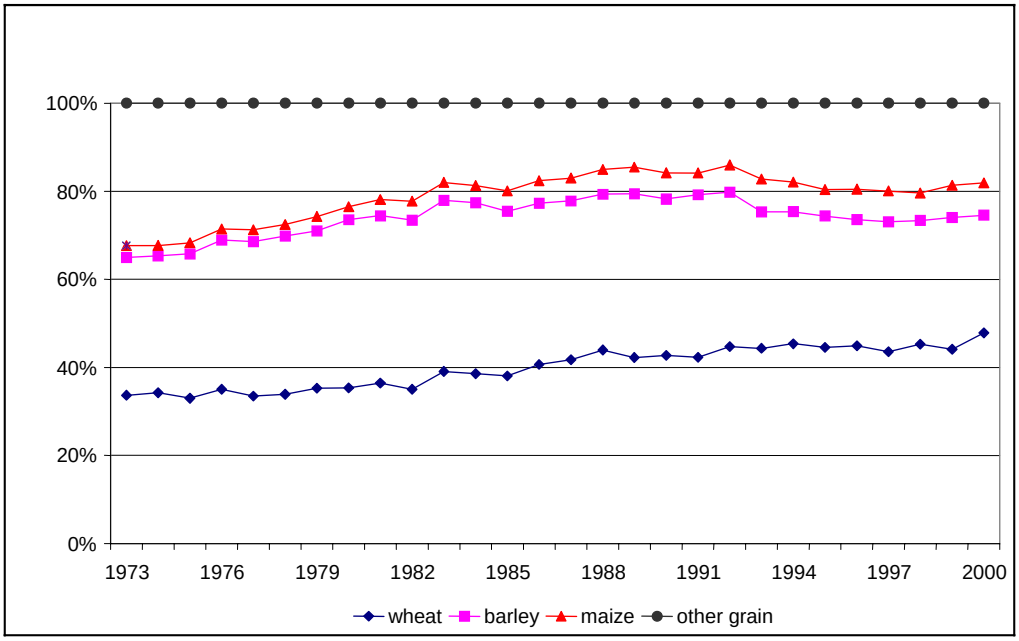


Figure A1. 4: Germany, wheat balance (before 1991: West Germany)

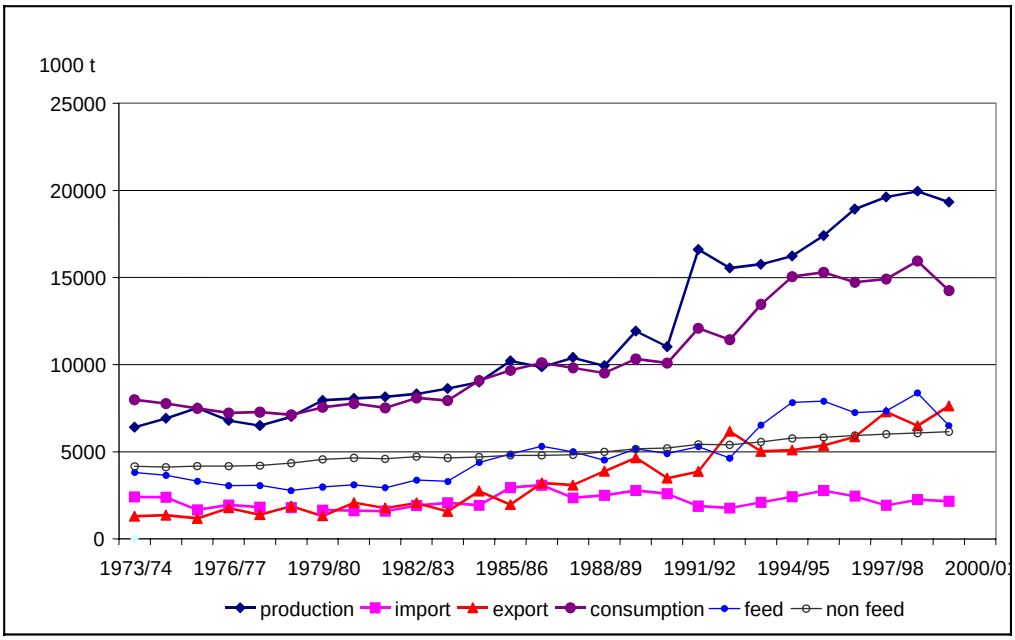


Figure A1. 5: Germany, barley balance (before 1991: West Germany)

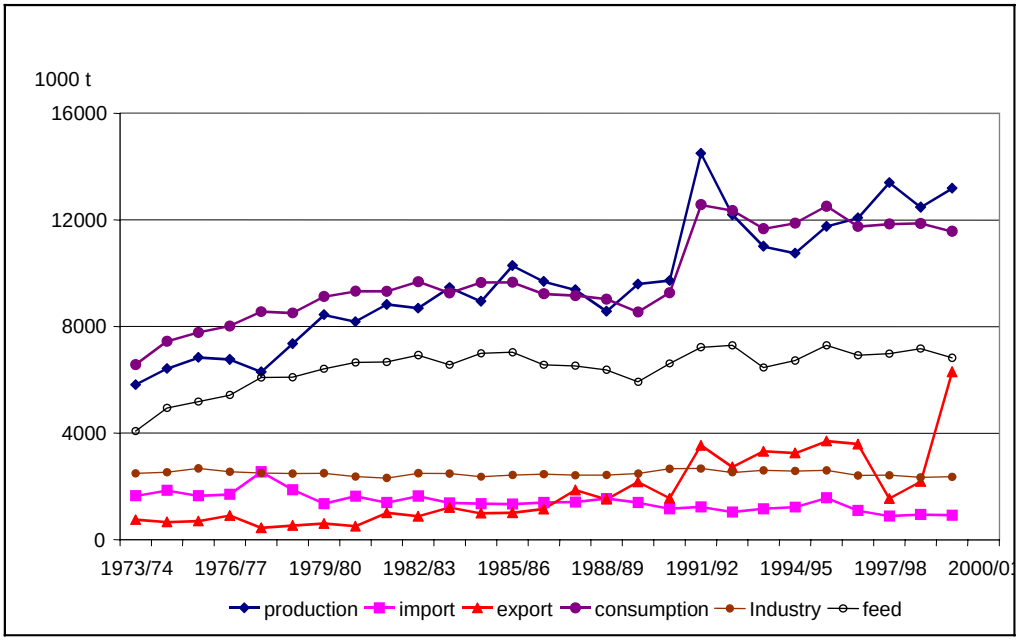


Figure A1. 6: Germany, maize balance (before 1991: West Germany)

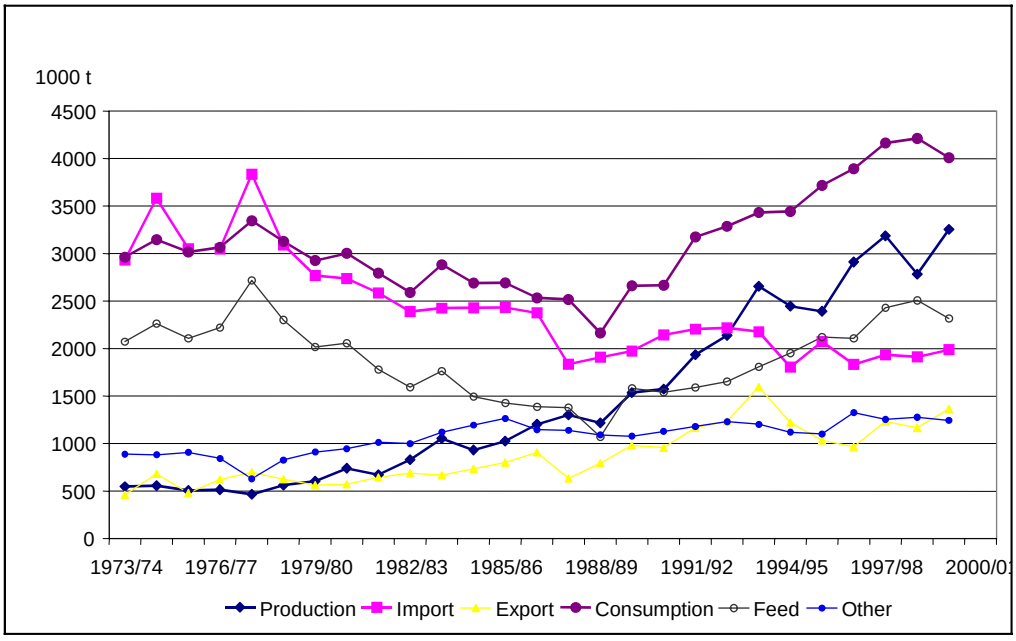


Figure A1. 7: Beef and Veal Balance in Germany (1000 t SW)

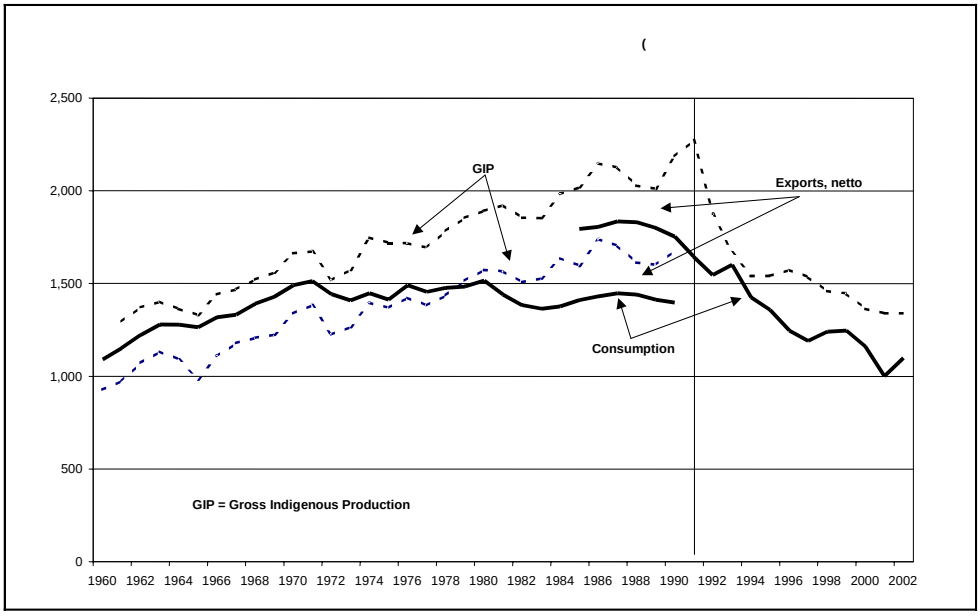


Figure A1. 8: Beef Market Prices in Germany(DEM per 100 kg LW)

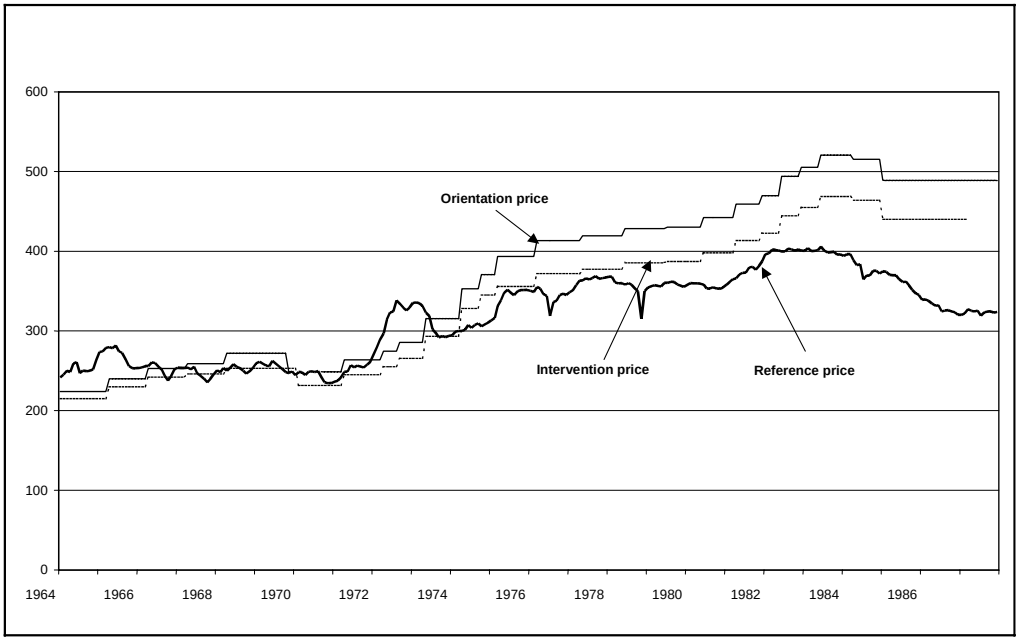


Figure A1. 9: Prices for Young Bulls, Class R3 in Germany DEM je kg SW)

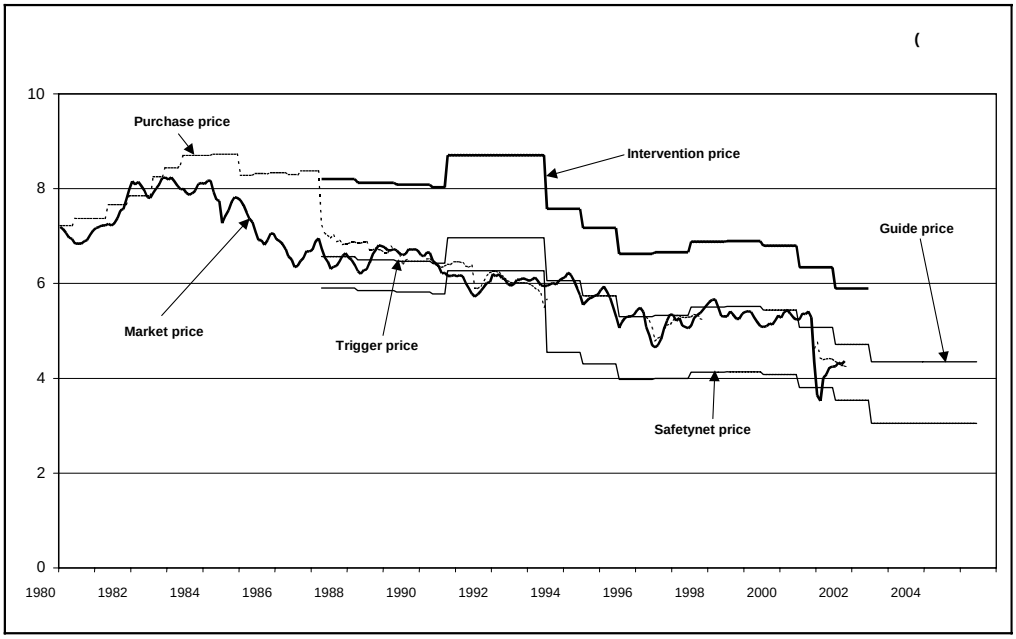


Figure A1. 10: Grain production in Germany (index 100 in 1980)

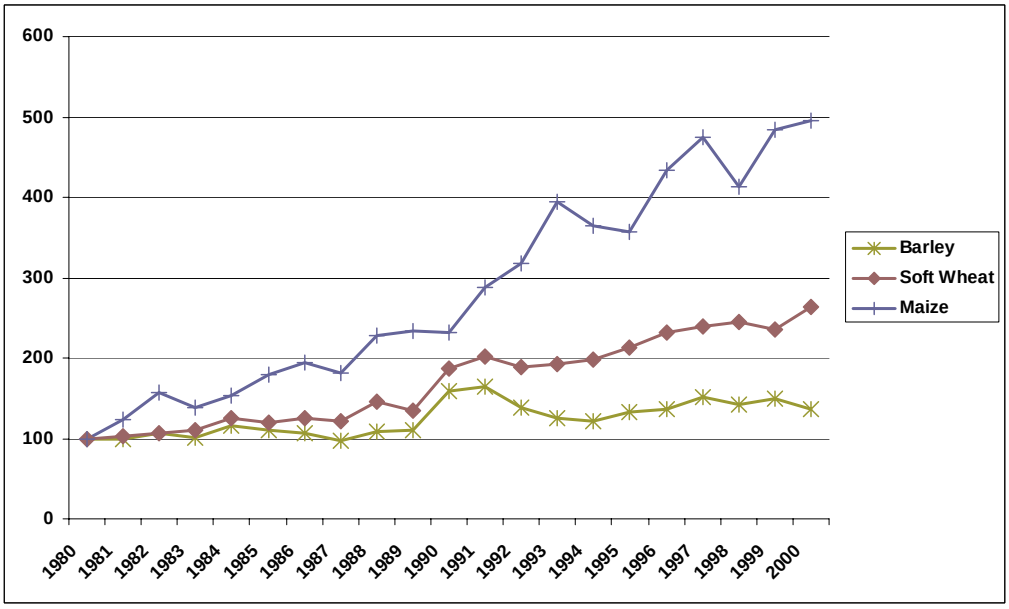


Figure A1. 11: Grain consumption in Germany (index 100 in 1980)

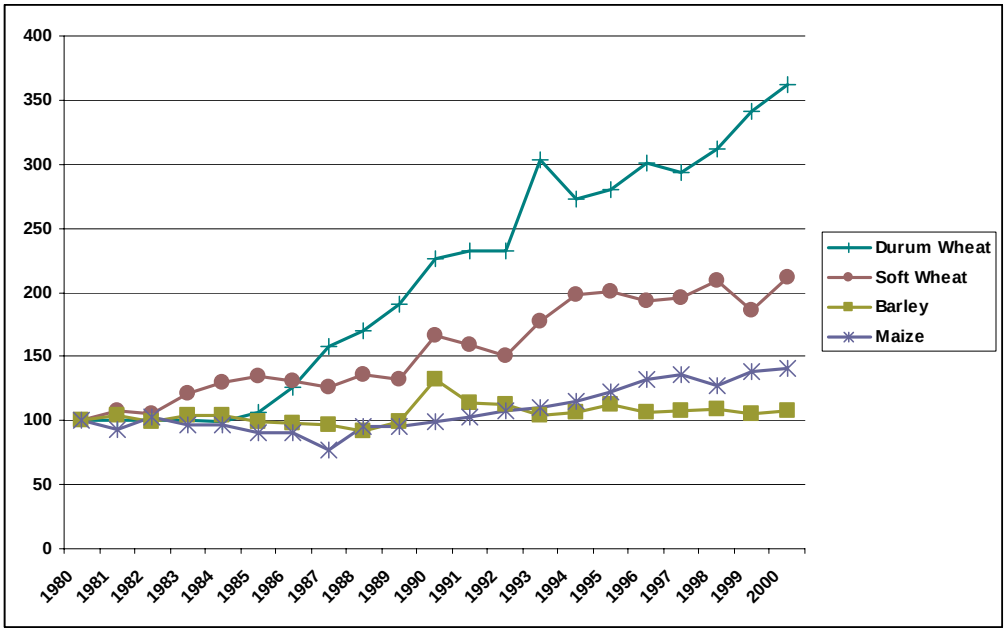


Figure A1. 12: Rapeseed production in Germany (index 100 in 1980)

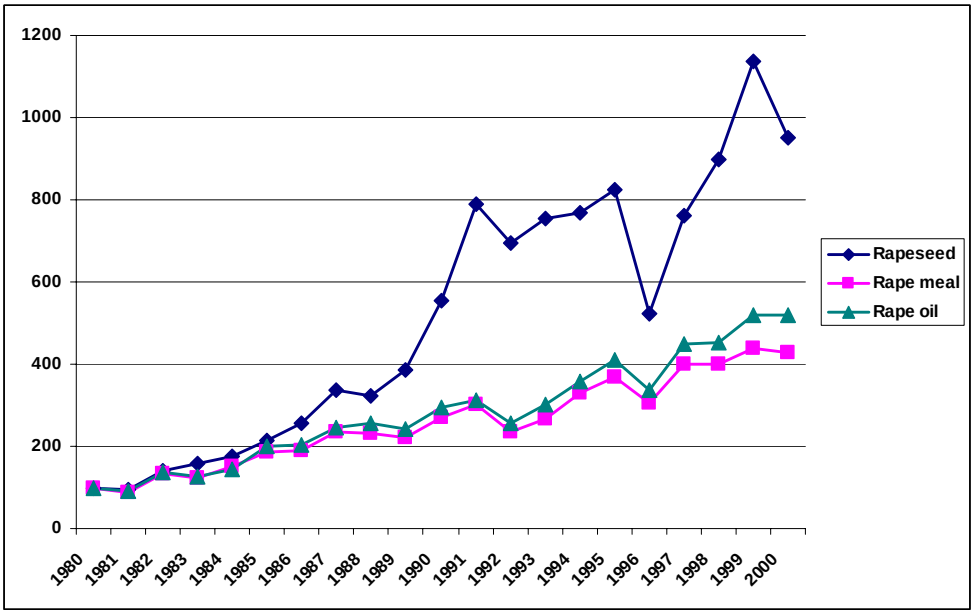


Figure A1. 13: Rapeseed consumption in Germany (index 100 in 1980)

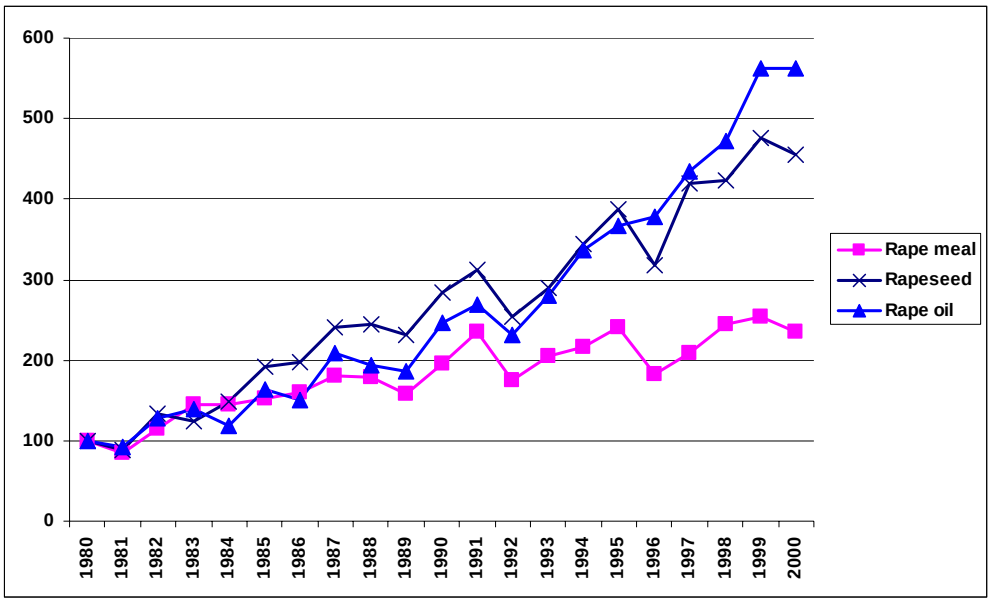


Figure A1. 14: Sunseed production in Germany (index 100 in 1980,
for seed 100 in 1986 right scala)

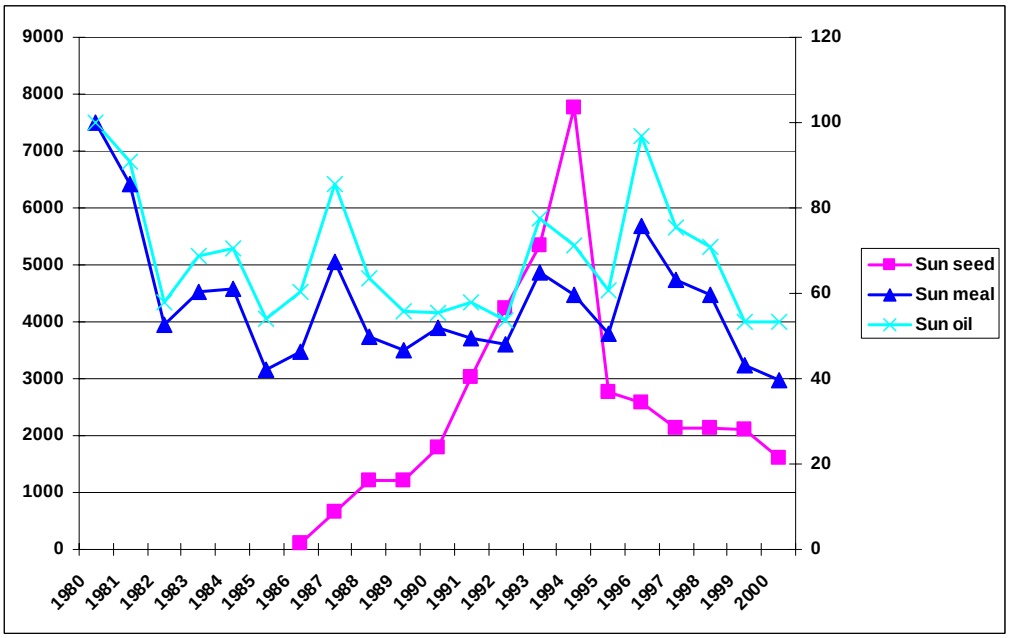


Figure A1. 15: Sunseed consumption in Germany (index 100 in 1980)

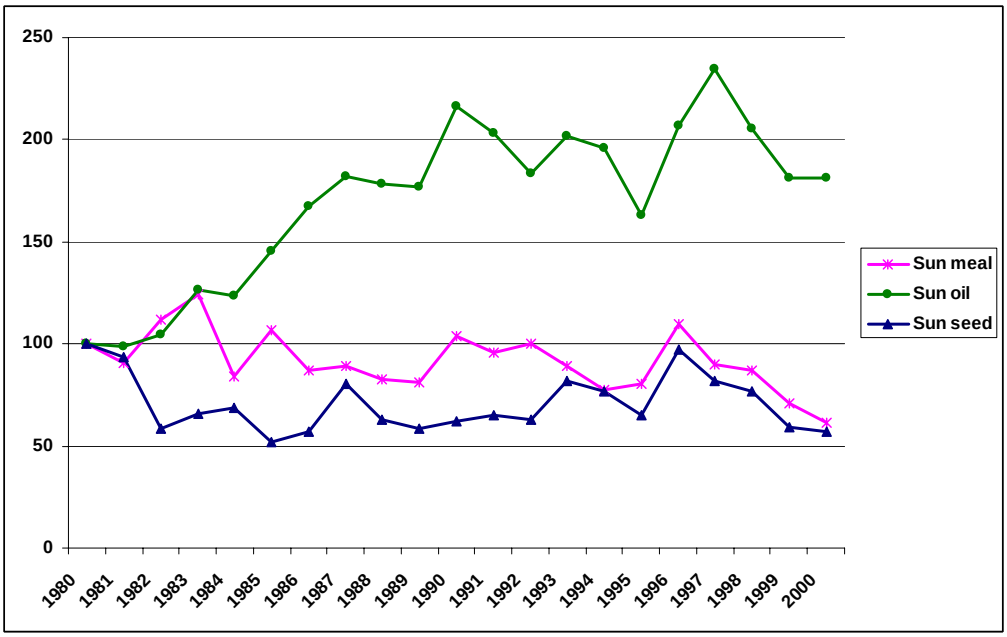


Figure A1. 16: Soybean production in Germany (index 100 in 1980)

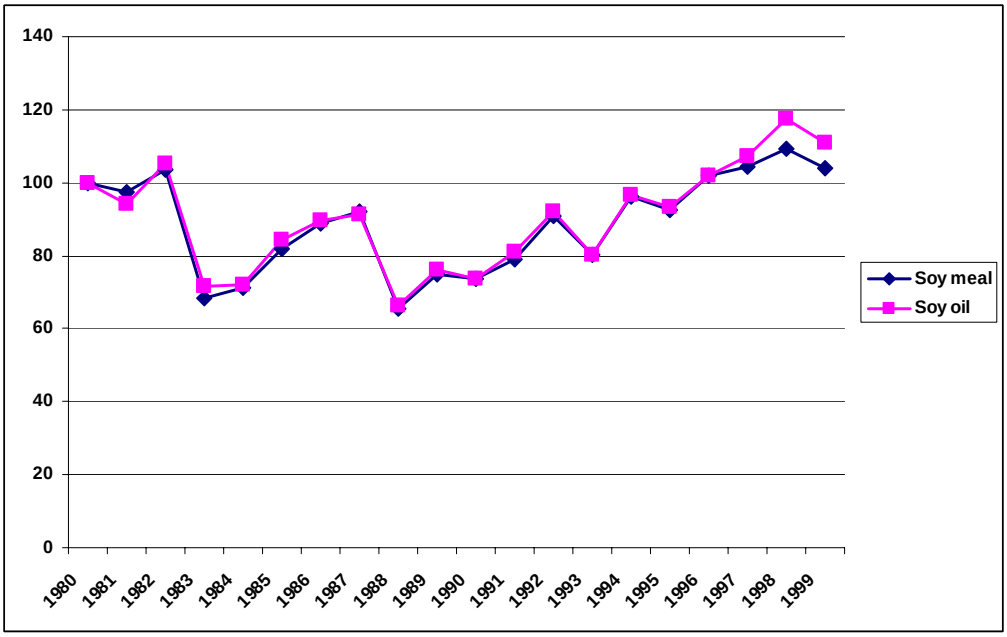


Figure A1. 17: Soybean consumption in Germany (index 100 in 1980)

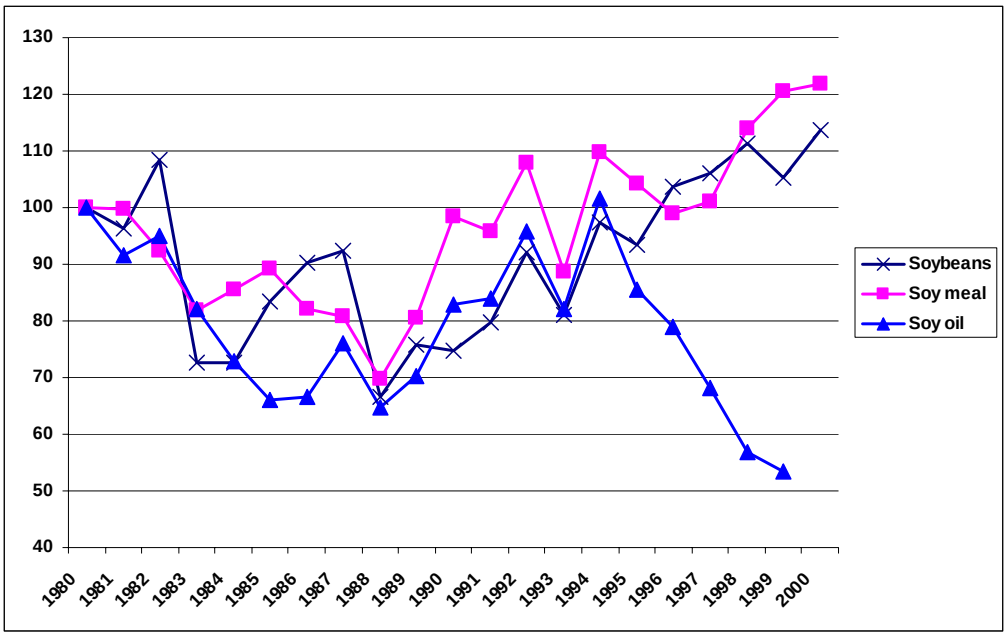


Figure A1. 18: Root crop production in Germany (index 100 in 1980)

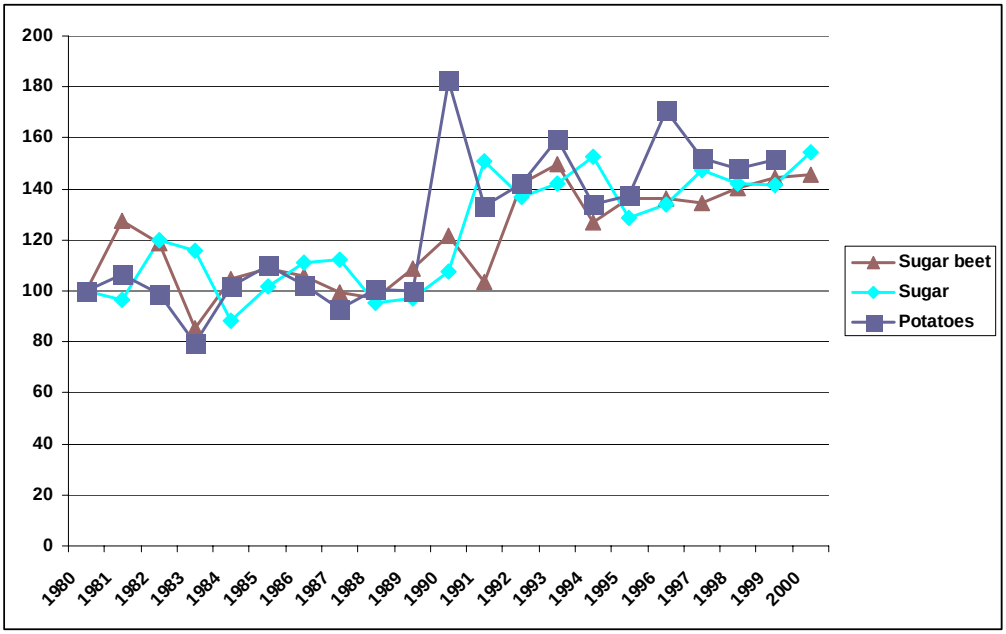


Figure A1. 19: Root crop consumption in Germany (index 100 in 1980)

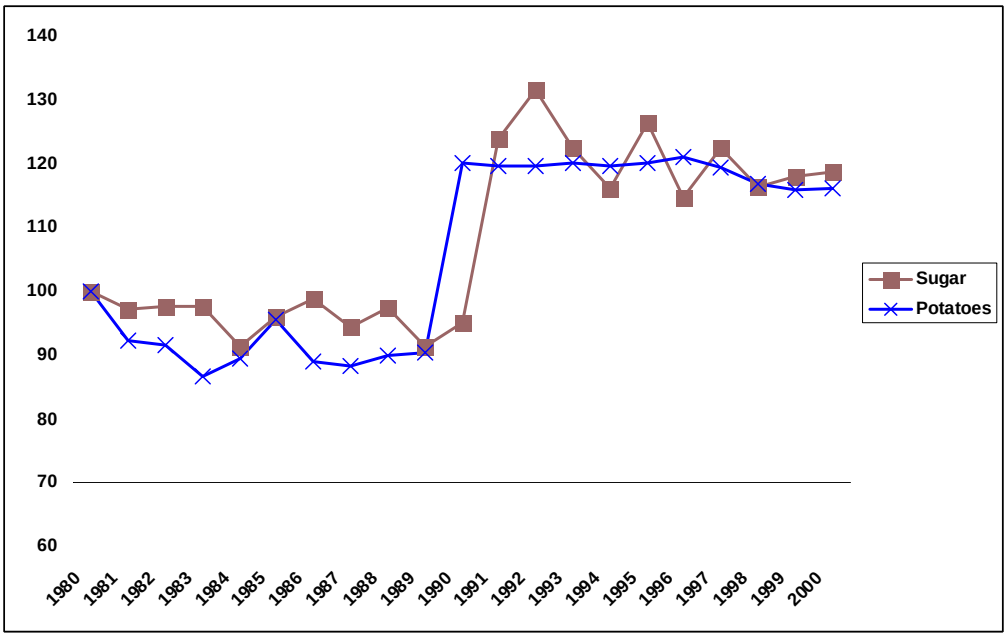


Figure A1. 20: Meat production in Germany (index 100 in 1980)

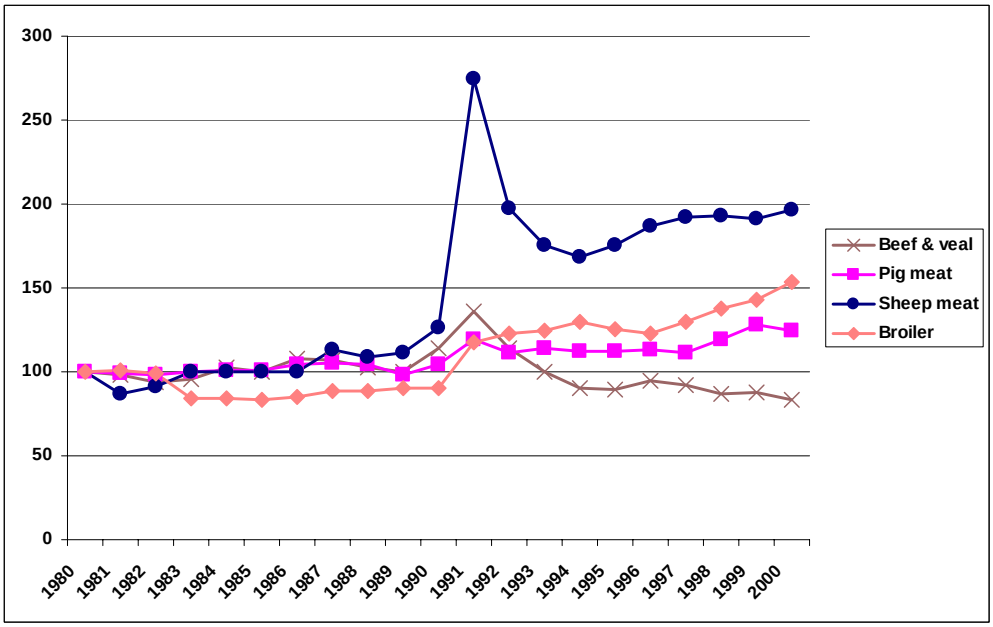


Figure A1. 21: Meat consumption in Germany (index 100 in 1980)

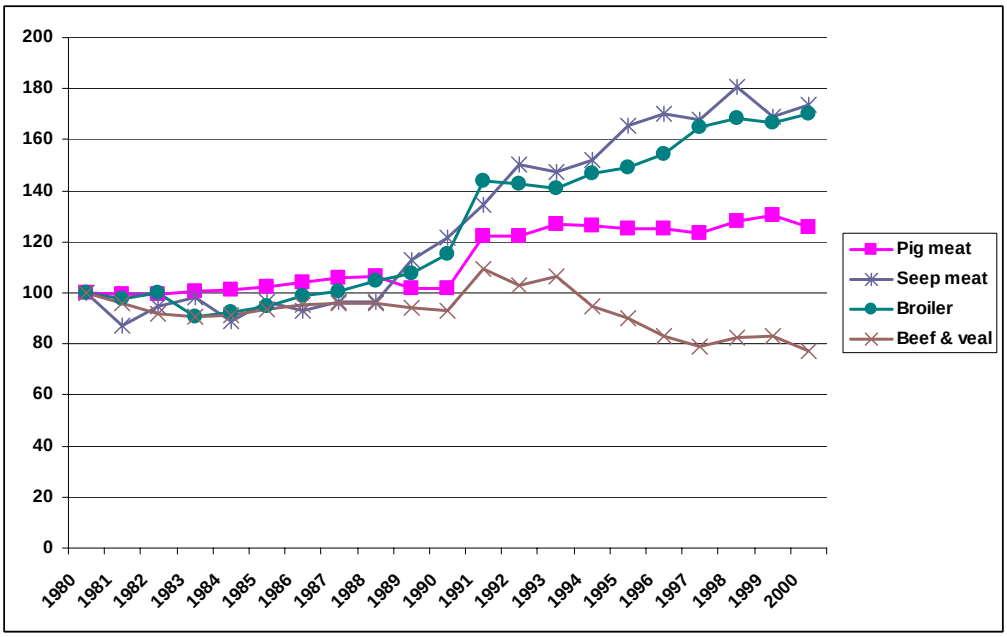


Figure A1. 22: Production of dairy products in Germany (index 100 in 1980)

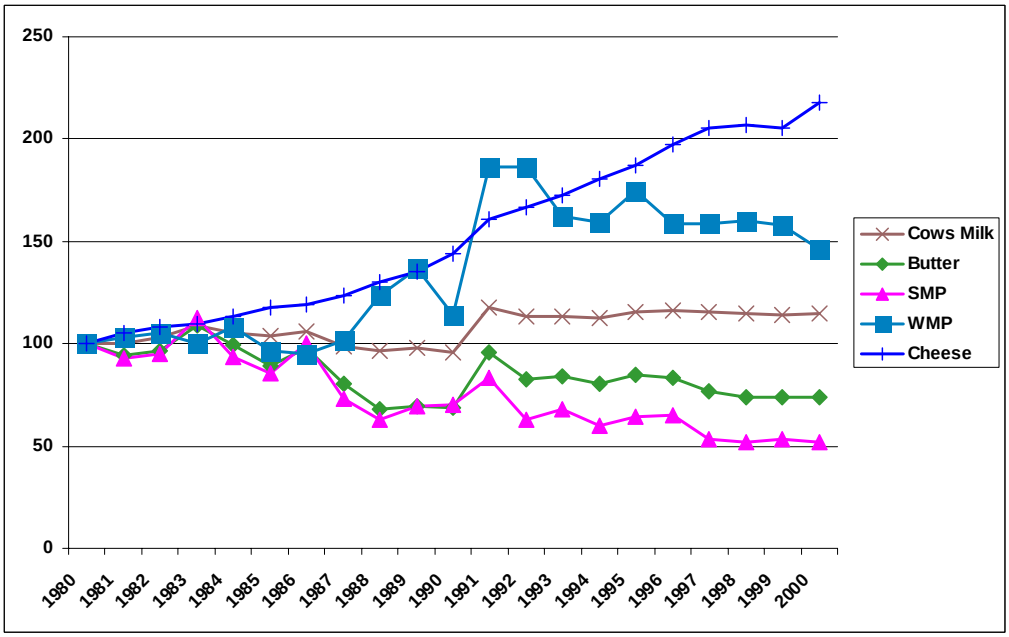
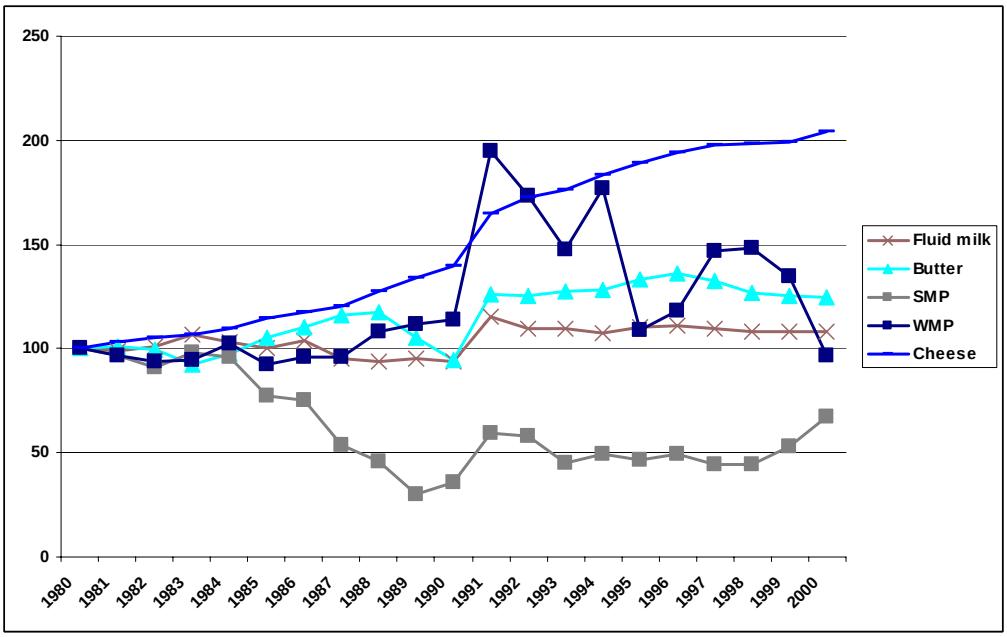


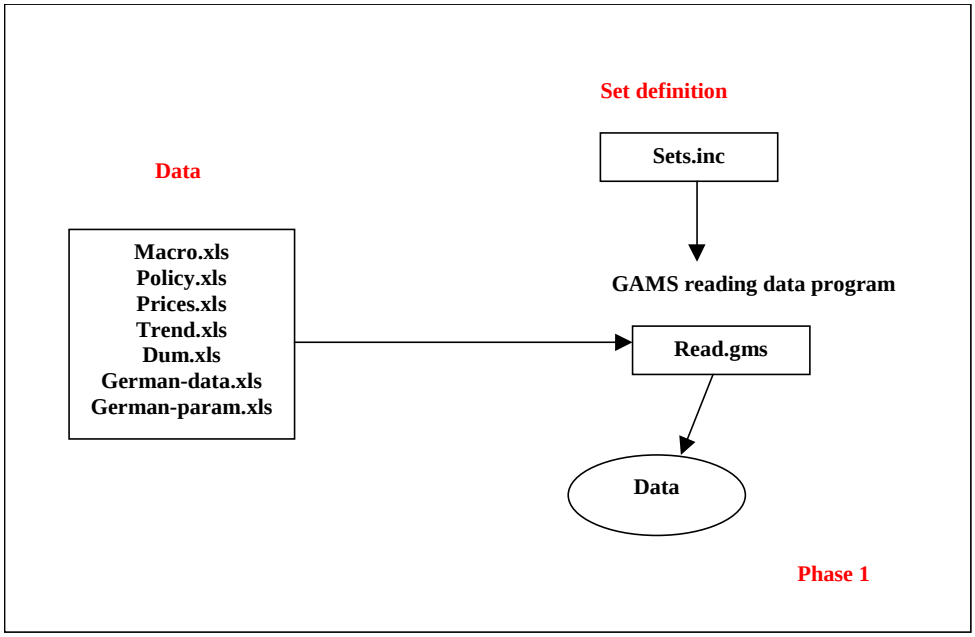
Figure A1. 23: Dairy products consumption in Germany (index 100 in 1980)



Annex 2: Structure of the German AG-MEMOD Model

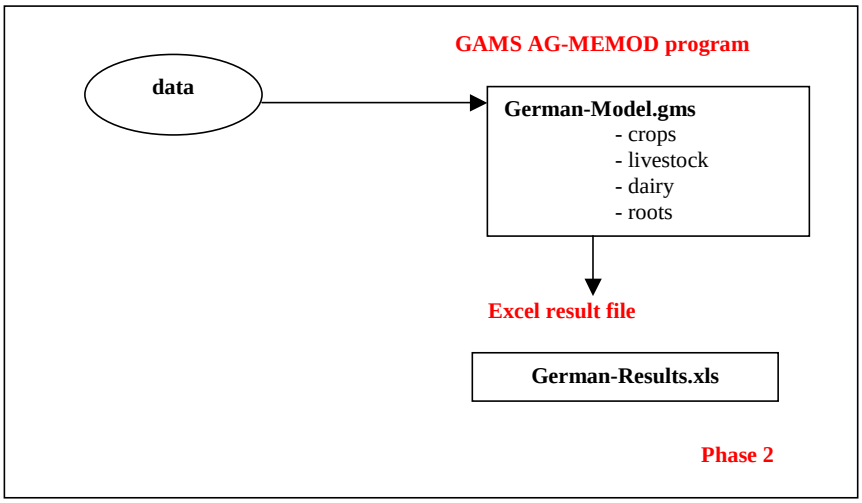
From a technical point of view, once the econometric model has been built, this model is implemented into GAMS code. The overall structure of the German AG-MEMOD model is shown in Figure A2.1.

Figure A2. 1: Global structure of the German AG-MEMOD model (phase 1)



On one side, there are the data in excel spreadsheets put in the same folder in order to be read by GAMS. These files are read by a first GAMS program called Read.GAMS. We have to give a list of all the codes for activity, commodity, country, time, …, described in a file finishing with the suffix dot include (inc). When we run this GAMS program, we obtain all the data in a GAMS specific format inside a set of files that we called phase1.

Figure A2. 2: Global structure of the German AG-MEMOD model (phase 2)

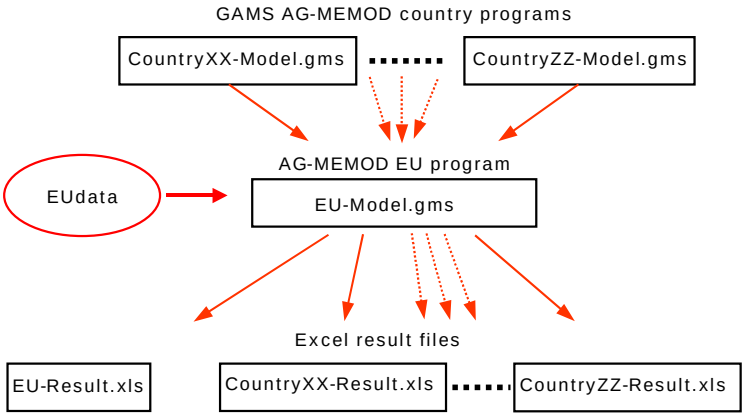


Running the GAMS program entitled "German-Model.gms", we solve the model using the data introduced in phase1. Once the solver finds a solution, results are directly exported in an MS-Excel spreadsheet.

The model can also be combined with AG-MEMOD models for countries of the EU15. This combined EU15 model is depicted in Figure A2.3 and described in Chantreuil and Levert (2003). Solving this model gives the equilibrium paths for agricultural variables in the various models. In particular, it generates projections for the Key Prices.

To analyse the effects of a policy change the model is first run with the settings of policy variables reflecting current policy, the baseline scenario. The results are then compared with those from running the model with policy variables set to reflect a policy change, such as that agreed at Luxembourg in 2003.

Figure A2. 3 Global structure of the EU model



Annex 3: Occurrence of Behavioural Equations in the Model

Table A3. 1: Behavioural equations of the grains, oilseeds and root crops sub-models

Equations	Total Grains Total oilseeds Total root crops	Soft wheat Durum wheat Barley Maize	Rapeseed Sunseed Soybean	Rape oil Sun oil Soy oil	Rape meal Sun meal Soy meal	Potatoes	Sugarbeet	Sugar
Area harvested	X	X	X			X	X	
Share of area		X				X	X	
Yield		X	X			X	X	
Production		X	X	X	X	X	X	X
Feed use		X				X		
Food use per capita		X		X		X		X
Food use		X				X		X
Domestic use		X	X	X	X	X	X	X
Industrial use			X				X	
Stocks Change		X	X	X	X	X	X	X
Imports		X	X	X	X	X		X
Exports		X	X	X	X	X		X
Feed and seed use								
Crush demand			X					

Note: The specific specification of the equations is given the model documentation.

Table A3. 2: Behavioural equations of livestock sub-models

Equations	Cattle	Beef+veal	Pig	Pig meat	Sheep	Sheep meat	Poultry
Ending numbers	X		X		X		
Crop	X		X		X		
Exports	X	X	X	X	X	X	X
Imports	X	X	X	X	X	X	X
Slaughter	X		X		X		
Slaughter weight	X		X		X		
Production		X		X		X	X
Stocks	X	X	X	X	X		
Consumption per capita		X		X		X	X
Domestic consumption		X		X		X	X
Piglets per sow			X				

Table A3. 3: Behavioural equations of dairy sub-model

Equation	Milk	Skim milk Powder	Whole milk powder	Cheese	Butter
Dairy cows ending number	X				
Yield per cow	X				
Production	X	X	X	X	X
Stocks		X	X	X	X
Exports		X	X	X	X
Imports		X	X	X	X
Factory use	X				
Food consumption per capita		X	X	X	X
Food consumption		X	X	X	X
Animal feed use	X	X			
Protein in collected milk	X				
Protein in fluid milk use	X				
Fat in fluid milk use	X				
Fat in collected milk	X				
Fat in whole milk powder	X				
Fat in cheese	X				
Fat in other use	X				
Fat in butter	X				
Protein in cheese					
Protein in other use	X				
Protein in skim milk powder	X				
Protein in whole milk powder	X				

Table A3. 4: List of AG-MEMOD Key Markets and Key Prices

Commodity	Key Market	Key Price	Source	Unit	Year starting in month of:
Wheat: soft	France	Average paid by producer co-ops	ONIC and NewCronos	euro/ton	July
Wheat: durum	Italy	Price paid to producers	NewCronos	euro/ton	July
Barley (feed)	France	Average paid by producer co-ops	ONIC and NewCronos	euro/ton	July
Maize (grain)	France	Average paid by producer co-ops	NewCronos	euro/ton	July
Rapeseed	Hamburg	"00" cif Hamburg	UN Food & Agriculture Organization	US$/ton	October
Rapeseed Cake	Hamburg	34%, fob Hamburg	UN Food & Agriculture Organization	US$/ton	October
Rapeseed Oil	Netherlands	Dutch ex mill	UN Food & Agriculture Organization	US$/ton	October
Soybean	Rotterdam	US No2 yellow, bulk, cif Rotterdam	UN Food & Agriculture Organization	US$/ton	October
Soyameal	Rotterdam	45% pellets Argentine. cif Rotterdam	UN Food & Agriculture Organization	US$/ton	October
Soybean Oil	Netherlands	Dutch ex mill	UN Food & Agriculture Organization	US$/ton	October
Sunflower seed	Rotterdam	EU/US/Can., cif Lower Rhine/Rotterdam	UN Food & Agriculture Organization	US$/ton	October
Sunflower Meal	Rotterdam	38% pellets Argentine, cif Rotterdam	UN Food & Agriculture Organization	US$/ton	October
Sunflower oil	Rotterdam	ex tank Rotterdam	UN Food & Agriculture Organization	US$/ton	October
Beef	Germany	Young Bulls R3 cdw	DG Agri, Ministry of Agriculture Germany NewCronos	euro/100kg cdw	January
Pig meat	Germany	Carcasses Grade II	NewCronos	euro/100kg cdw	January
Lamb Meat	Ireland	Fattening lambs	NewCronos	euro/100kg lw	January
Broiler	Germany	Young Broilers	NewCronos	euro/100kg dw	January

Table:A3. 4: List AG-MEMOD Key Markets and Key Prices, continued

Commodity	Key Market	Key Price	Source	Units	Year starting in month of:
Butter	Germany	Packed butter	NewCronos	euro/100kg	Jan.
SMP	Netherlands	Export quality for human consumption, ex factory	Netherlands Comm. For Official Dairy Quotes,NewCronos	euro/100kg	Jan.
Cheese	France	Emmenthal 45%	NewCronos	euro/100kg	
Additional Commodities					
Sugar (raw)	World	New York 96%, fob Caribbean ports	New York exchange, Contract No11 & ISO	UScents/lb	October
Potatoes (main crop)	Netherlands	Main crop food, EU std., ex farm	LEI, NewCronos	euro/100kg	
Oranges	Spain				
Olive Oil (IT)	Italy	Extra virgine	NewCronos	euro/100 litres	January
Tomato Paste	Italy	Italian TP export price	FAO	euro/100kg	June
Cotton Lint	World	COTLOOK 'A' Index	Cootlook Ltd, FAO	US$/kg cif	Aug
Tobacco	World	Tobacco leaf weighted average export unit values	NKUA	US$/kg	

Annex 4: Policy Instruments in the Models

Table A4. 1: Policy variables used in the German model

Market	Policy instrument
Grains	Set-aside rate Compensation Compensation reference yield Intervention price (in Interv. price comparison ratios)
Oilseeds	Set-aside rate Compensation Compensation reference yield
Sugar	A-Quota Sugar Levy Price of B-Quota sugar (sugar beets) Price of A-Quota sugar (sugar beets) A-Quota Sugar (sugar beets) B quota sugar (sugar beets) B-Quota Sugar Levy Intervention price
Livestock	Suckler cow premium Suckler cow quota Beef intervention price (bvpin) Buying-up pigs rights
Dairy	Milk quota (adjusted) NF intervention price Butter intervention price SMP intervention price Butter consumption subsidy SMP feed subsidy

Annex 5: Market closure variables

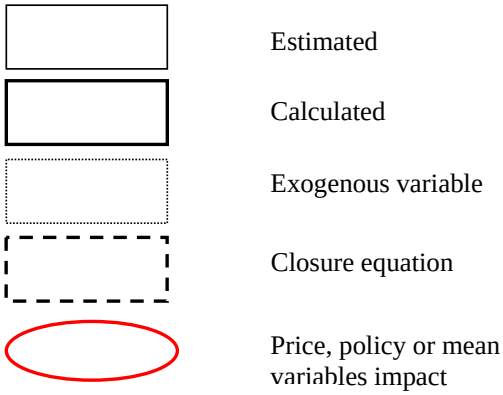
Table A5. 1

Market	Closure variables	Key market in AG-MEMOD
Soft wheat	Exports	France
Durum wheat	Other uses	Italy
Barley	Exports	France
Corn	Exports	France
Sunflower seed	Exports	World market price
Rapeseed	Exports	World market price
Soybean	Imports	World market price
Rapeseed meal	Imports	World market price
Sunflower meal	Imports	World market price
Soya meal	Exports	World market price
Rapeseed oil	Exports	World market price
Sunflower oil	Imports	World market price
Soybean oil	Imports	World market price
Sugar beet	Imports	EU
Potatoes	Other use	Netherlands
Sugar (refined)	Exports	EU

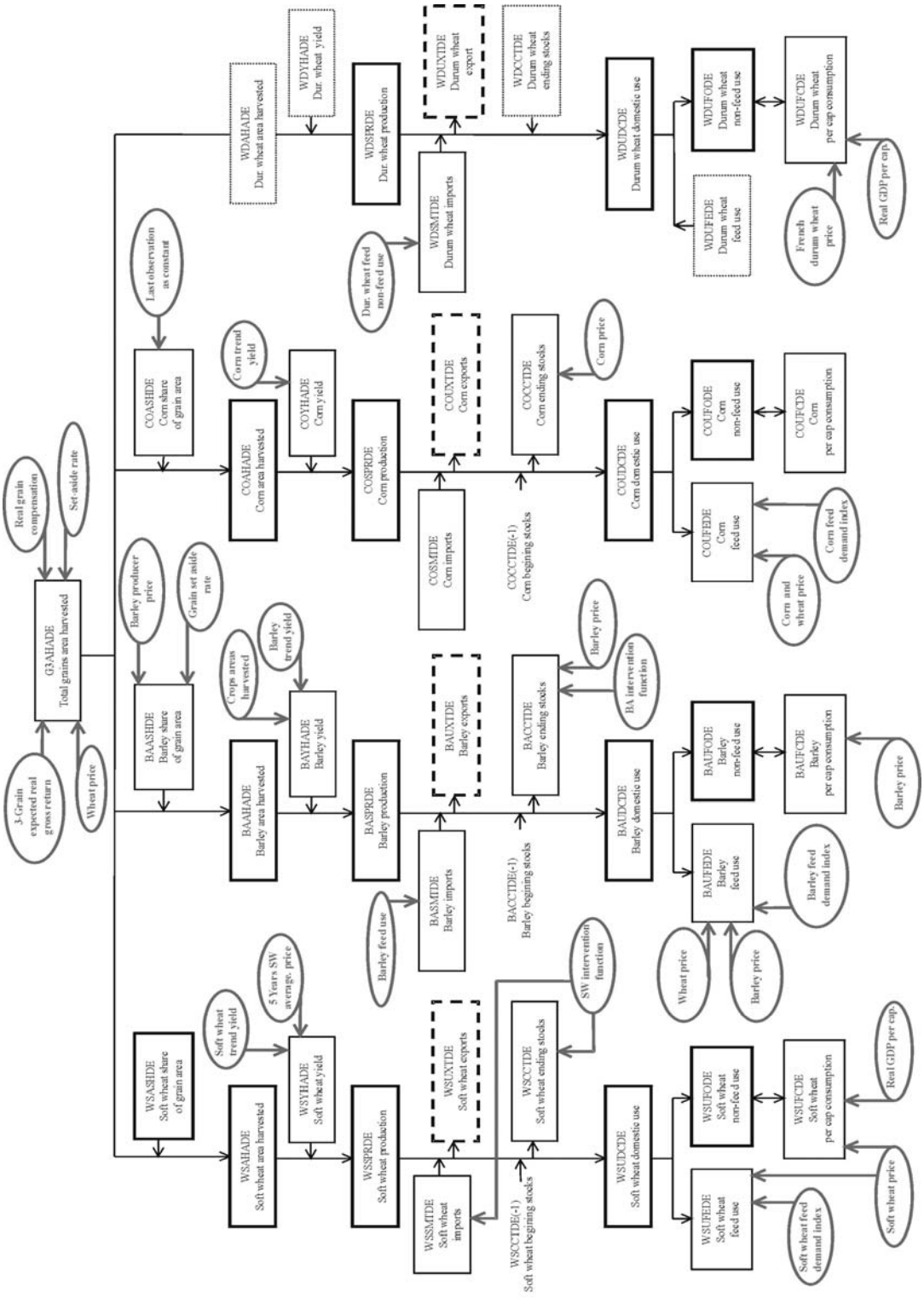
Market	Closure variables	Key market in AG-MEMOD
Cattle	Ending stock	
Pigs	Ending stock	
Sheep	Ending stock	
Beef and veal	Exports	France
Pig meat	Imports	Germany
Lamb meat	Imports	Ireland
Other poultry	Imports	Germany
Broiler	Imports	Germany
Milk	Fluid milk factory use	
Protein in dairy	Protein in other use	
Fat in dairy	Fat in other use	
Cheese	Exports	France
Butter	Imports	Germany
Skim milk powder	Ending stocks	Netherlands
Whole milk powder	Imports	Germany

Annex 6: Sub-models flow diagrams

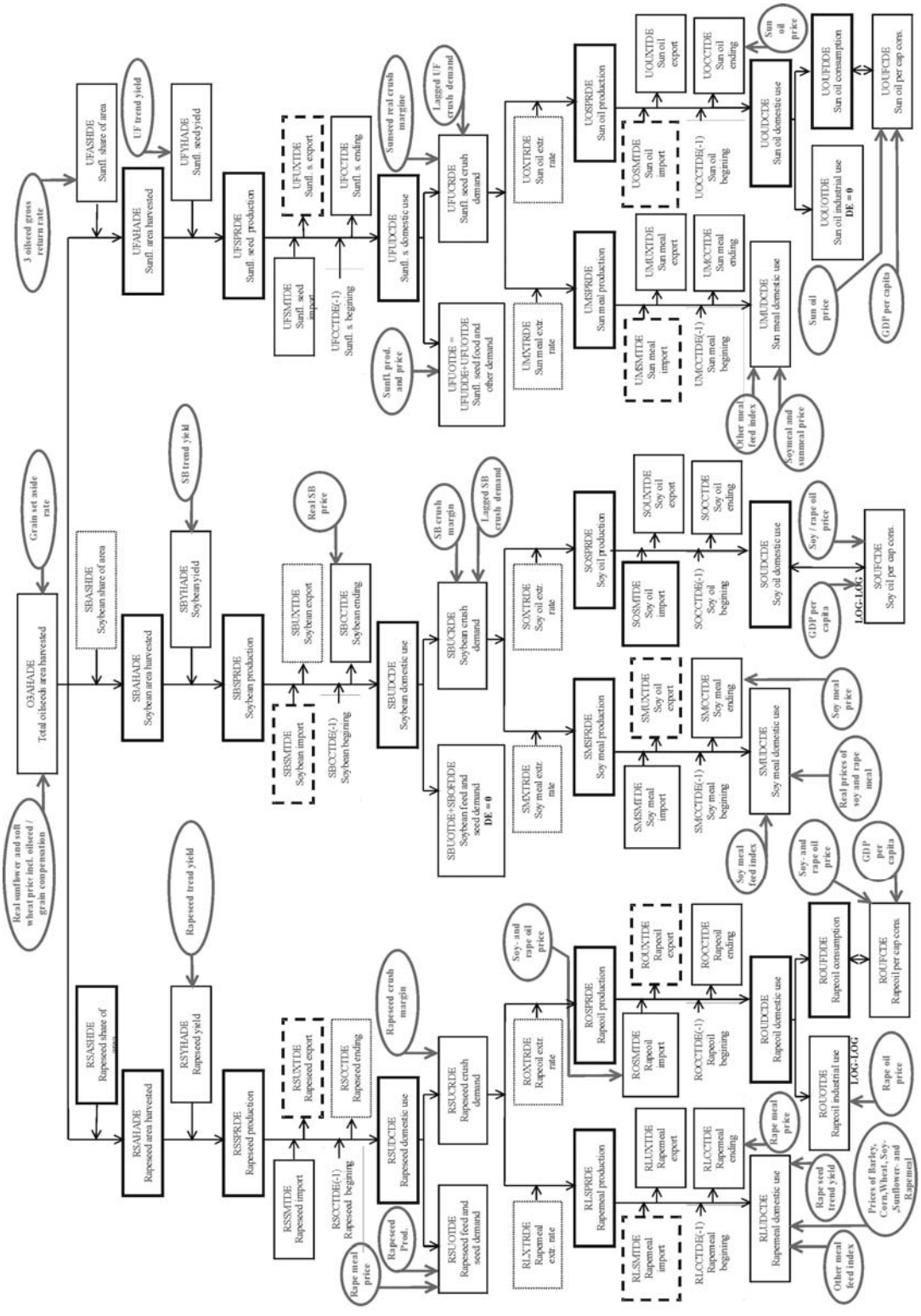
German AG-MEMOD Model Flow Diagrams



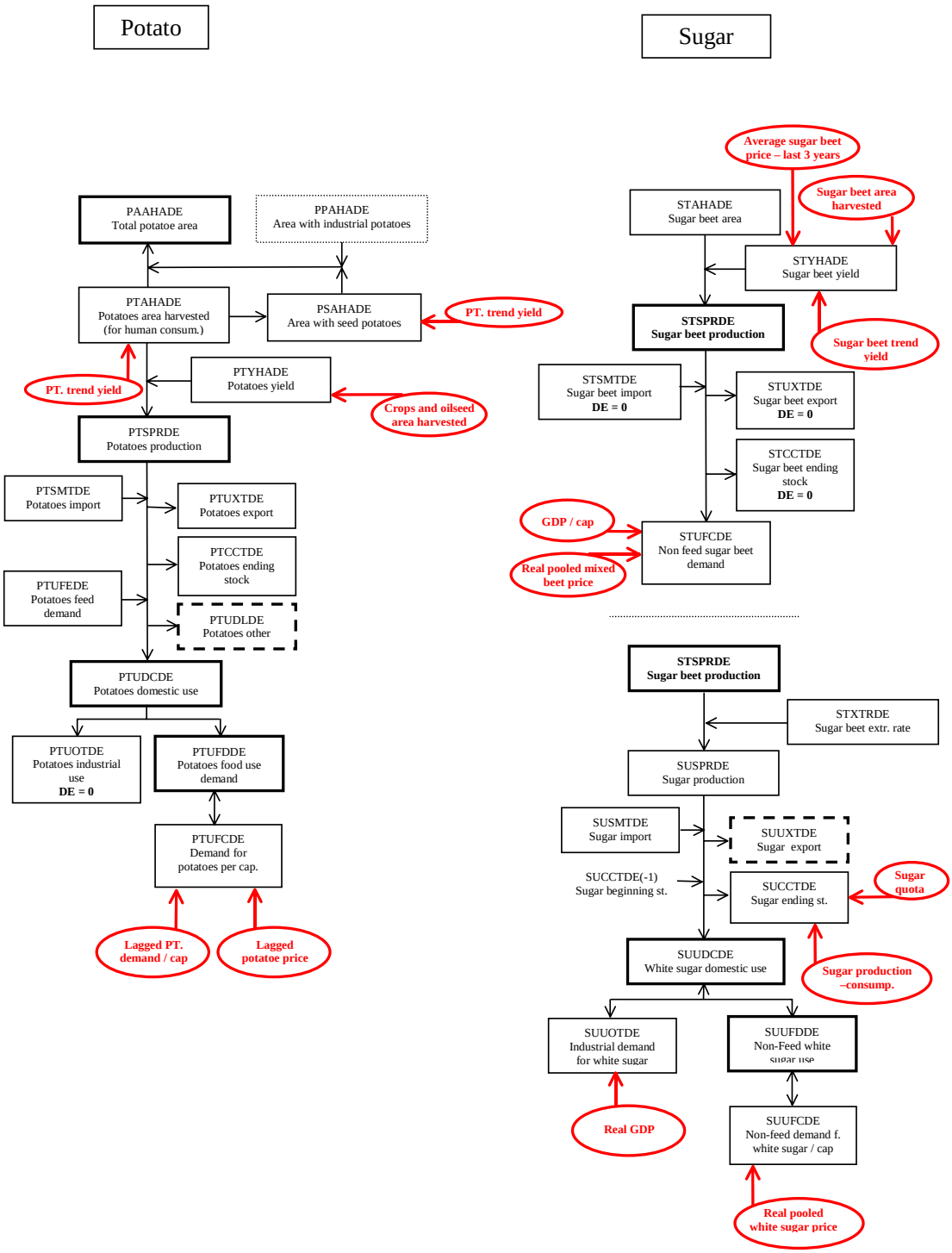
FD- 1: The Grain sub modell



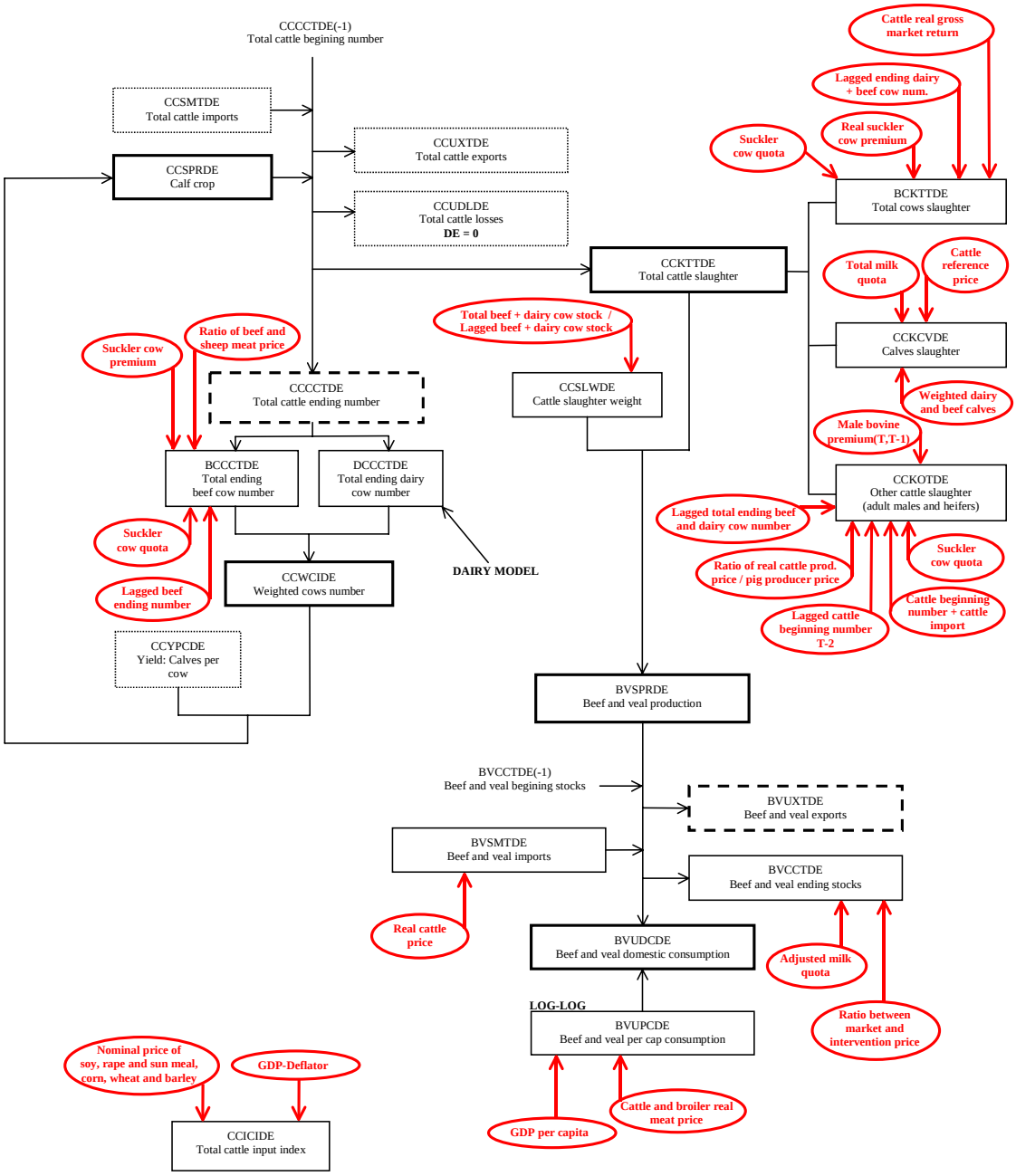
FD- 2: The Oilseed sub-model



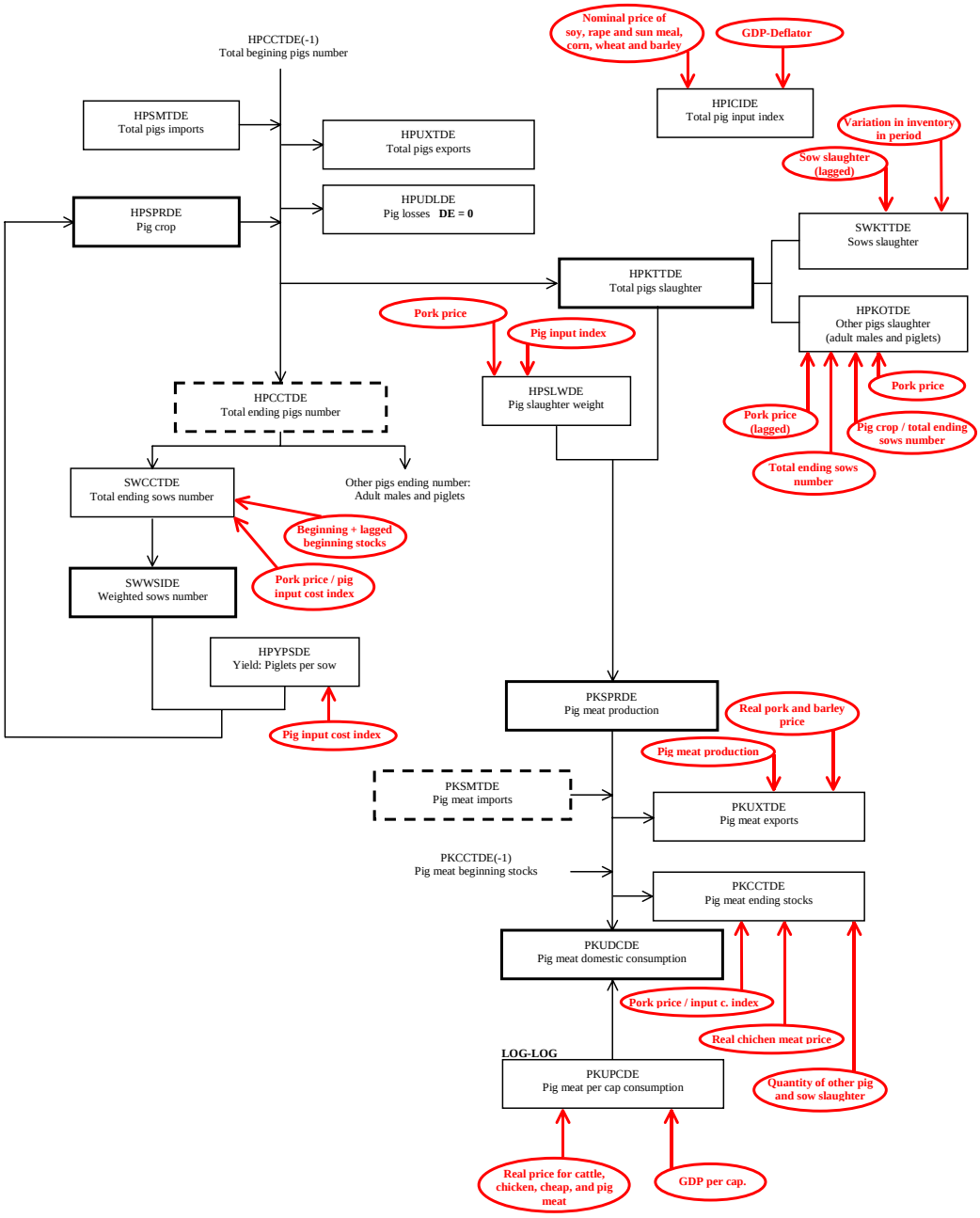
FD- 3: The Root sub-model



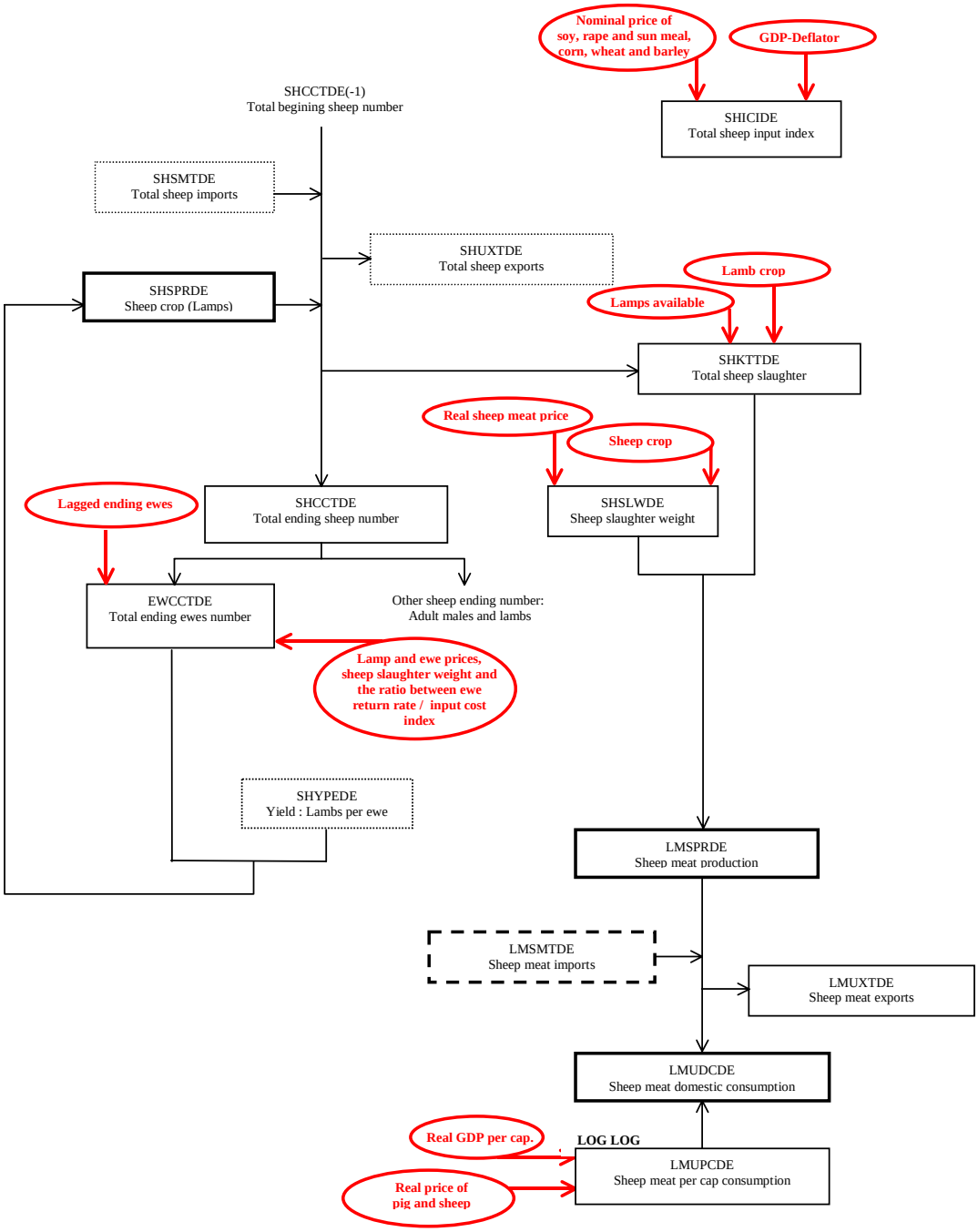
FD- 4: The Cattle and Beef sub-model



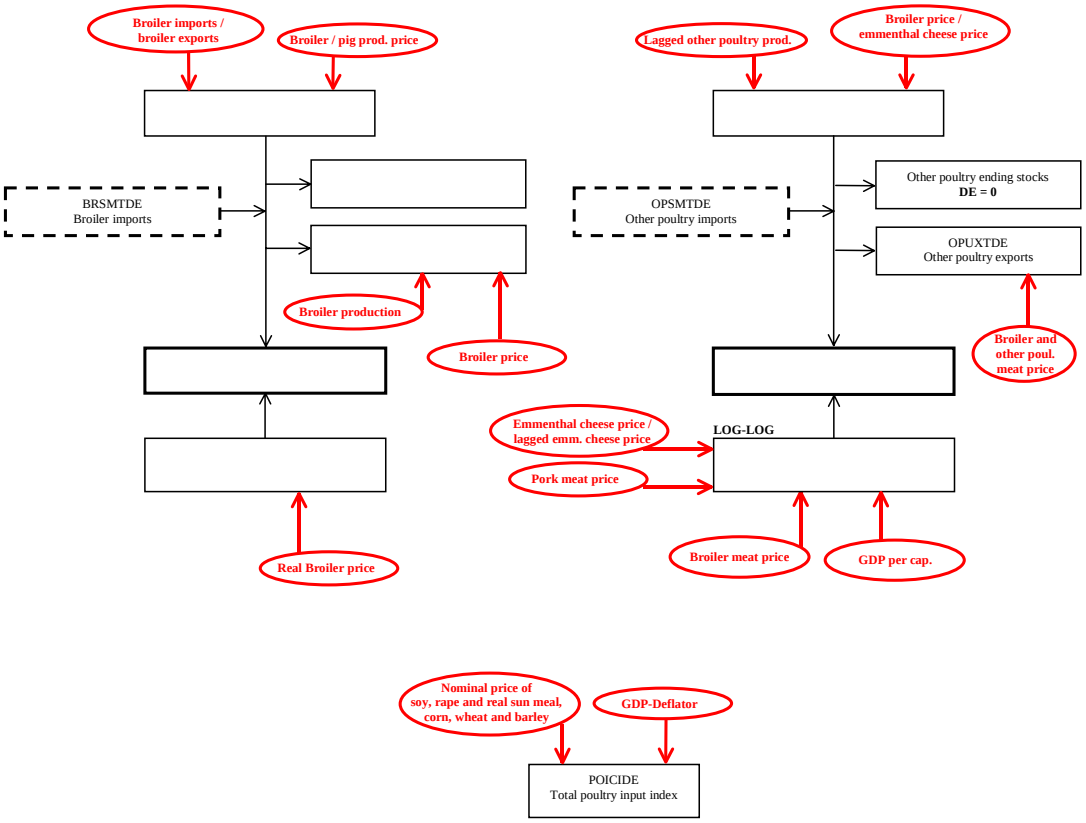
FD- 5: The Pig sub-model



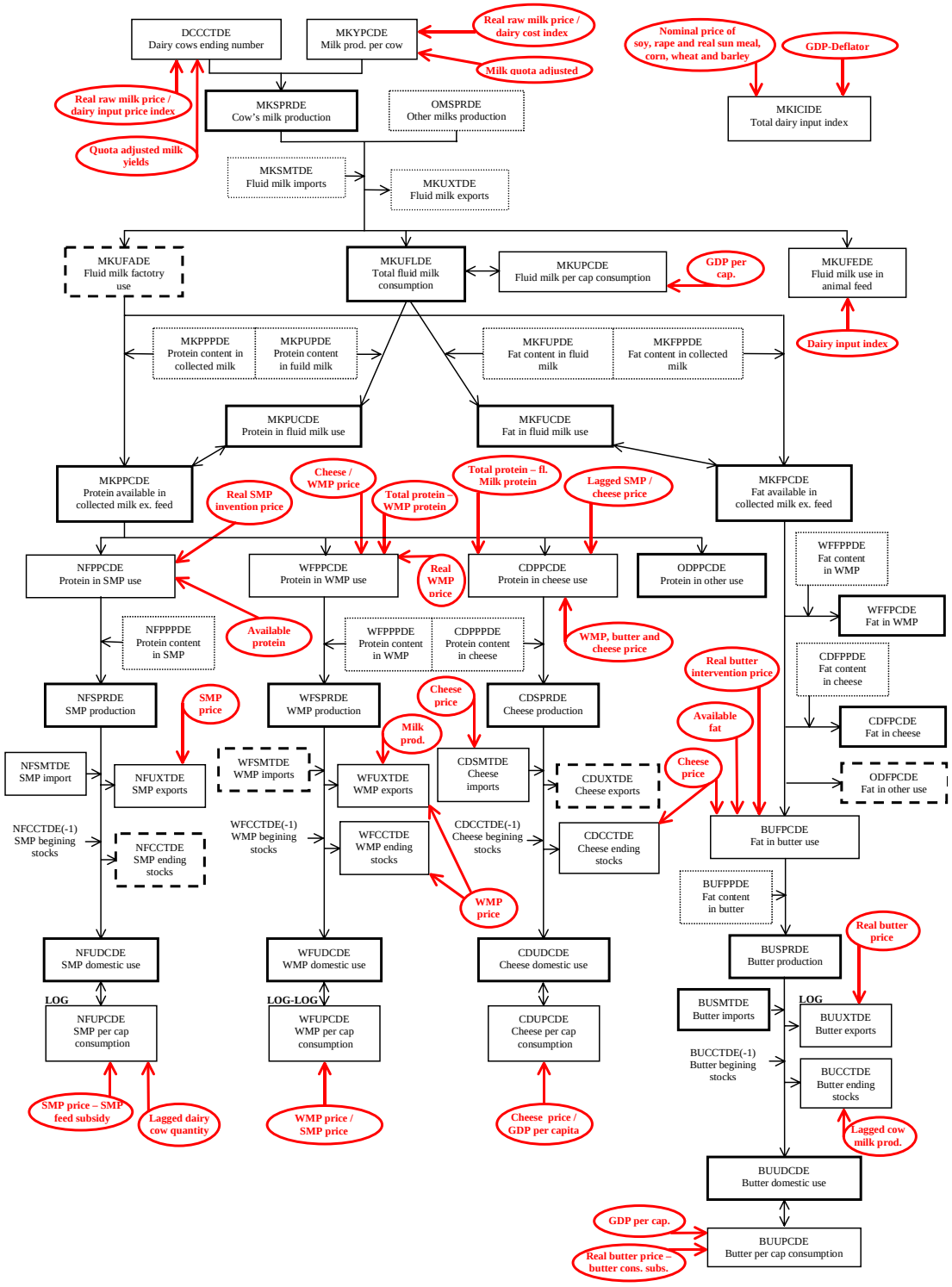
FD- 6: The Sheep and sheep meat sub-model



FD- 7: The Poultry and poultry meat sub-model



FD- 8: The Dairy sub-model



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Soft Wheat, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Price (farm gate)				**€/ton**				
Baseline	111.18	111.12	109.88	110.12	109.04	108.94	109.12	109.42
Scenario	111.18	111.12	110.20	110.46	109.39	109.30	109.48	109.78
Change from baseline	+00.00%	-00.00%	**+00.30%**	**+00.30%**	**+00.32%**	**+00.33%**	**+00.33%**	**+00.33%**
Area harvested				**Thousand hectars**				
Baseline	2804.11	2794.34	2807.15	2816.13	2838.30	2851.41	2863.44	2876.91
Scenario	2804.11	2794.34	2733.25	2741.32	2765.50	2780.99	2794.80	2809.91
Change from baseline	+00.00%	+00.00%	**-02.63%**	**-02.66%**	**-02.56%**	**-02.47%**	**-02.40%**	**-02.33%**
Yield				**Tonnes per hectar**				
Baseline	7.70	7.81	7.91	8.01	8.11	8.21	8.32	8.43
Scenario	7.70	7.81	7.91	8.01	8.11	8.21	8.32	8.43
Change from baseline	-00.00%	+00.00%	-00.00%	+00.01%	+00.01%	+00.02%	+00.02%	+00.02%
Production				**Thousand tonnes**				
Baseline	21593.04	21812.80	22198.30	22549.23	23029.53	23412.23	23824.48	24253.38
Scenario	21593.04	21812.80	21613.87	21951.29	22441.09	22837.49	23258.02	23694.36
Change from baseline	+00.00%	+00.00%	**-02.63%**	**-02.65%**	**-02.56%**	**-02.45%**	**-02.38%**	**-02.30%**
Exports								
Baseline	7136.97	7356.36	7600.09	7818.15	8094.88	8363.71	8667.59	8963.05
Scenario	7136.97	7356.36	7231.84	7333.65	7642.04	7928.60	8241.90	8542.82
Change from baseline	-00.00%	-00.00%	**-04.85%**	**-06.20%**	**-05.59%**	**-05.20%**	**-04.91%**	**-04.69%**
Imports								
Baseline	2230.46	2218.05	2208.23	2208.24	2199.90	2186.48	2158.52	2138.56
Scenario	2230.46	2218.05	2295.76	2316.62	2272.61	2241.19	2204.33	2180.28
Change from baseline	+00.00%	+00.00%	**+03.96%**	**+04.91%**	**+03.31%**	**+02.50%**	**+02.12%**	**+01.95%**
Net exp								
Baseline	4906.51	5138.31	5391.86	5609.91	5894.98	6177.24	6509.07	6824.49
Scenario	4906.51	5138.31	4936.08	5017.02	5369.43	5687.40	6037.57	6362.53
Change from baseline	-00.00%	-00.00%	**-08.45%**	**-10.57%**	**-08.92%**	**-07.93%**	**-07.24%**	**-06.77%**
Domestic use								
Baseline	16533.72	16554.94	16680.26	16814.70	16991.03	17095.76	17174.07	17283.82
Scenario	16533.72	16554.94	16640.98	16861.98	16956.11	17024.50	17085.51	17189.23
Change from baseline	+00.00%	+00.00%	**-00.24%**	**+00.28%**	**-00.21%**	**-00.42%**	**-00.52%**	**-00.55%**
Ending stocks								
Baseline	3239.90	3359.44	3485.62	3610.23	3753.75	3892.98	4034.31	4179.38
Scenario	3239.90	3359.44	3396.26	3468.56	3584.10	3709.70	3844.63	3987.23
Change from baseline	+00.00%	+00.00%	**-02.56%**	**-03.92%**	**-04.52%**	**-04.71%**	**-04.70%**	**-04.60%**
Feed use								
Baseline	9213.03	9177.93	9248.93	9328.96	9450.20	9503.73	9533.18	9596.79
Scenario	9213.03	9177.93	9209.91	9376.51	9415.56	9432.75	9444.90	9502.47
Change from baseline	+00.00%	+00.00%	**-00.42%**	**+00.51%**	**-00.37%**	**-00.75%**	**-00.93%**	**-00.98%**
Food use								
Baseline	7320.69	7377.01	7431.33	7485.74	7540.83	7592.03	7640.89	7687.04
Scenario	7320.69	7377.01	7431.06	7485.46	7540.55	7591.75	7640.61	7686.76
Change from baseline	-00.00%	+00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%

Source: Own calculations.

Durum Wheat, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Price (farm gate)				**€/ton**				
Baseline	137.40	132.92	128.66	124.21	119.77	115.11	110.54	106.14
Scenario	137.40	132.92	128.85	124.37	119.82	115.03	110.33	105.85
Change from baseline	+00.00%	+00.00%	**+00.14%**	**+00.13%**	+00.04%	-00.08%	**-00.18%**	**-00.27%**
Area harvested				**Thousand hectars**				
Baseline	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62
Scenario	8.62	8.62	8.62	8.62	8.62	8.62	8.62	8.62
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Yield				**Tonnes per hectar**				
Baseline	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41
Scenario	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Production				**Thousand tonnes**				
Baseline	46.60	46.60	46.60	46.60	46.60	46.60	46.60	46.60
Scenario	46.60	46.60	46.60	46.60	46.60	46.60	46.60	46.60
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Exports								
Baseline	143.78	148.65	153.42	158.24	163.04	167.81	172.51	177.11
Scenario	143.78	148.65	153.38	158.21	163.03	167.82	172.55	177.16
Change from baseline	-00.00%	-00.00%	-00.02%	-00.02%	-00.01%	+00.01%	+00.02%	+00.03%
Imports								
Baseline	855.35	887.05	918.09	949.46	980.69	1011.75	1042.37	1072.30
Scenario	855.35	887.05	917.87	949.27	980.64	1011.86	1042.61	1072.65
Change from baseline	-00.00%	-00.00%	-00.02%	-00.02%	-00.01%	+00.01%	+00.02%	+00.03%
Net exp								
Baseline	-711.57	-738.40	-764.67	-791.22	-817.66	-843.95	-869.86	-895.19
Scenario	-711.57	-738.40	-764.49	-791.06	-817.61	-844.03	-870.06	-895.48
Change from baseline	-00.00%	-00.00%	-00.02%	-00.02%	-00.01%	+00.01%	+00.02%	+00.03%
Domestic use								
Baseline	758.17	785.00	811.27	837.82	864.26	890.55	916.46	941.79
Scenario	758.17	785.00	811.09	837.66	864.21	890.63	916.66	942.08
Change from baseline	-00.00%	-00.00%	-00.02%	-00.02%	-00.01%	+00.01%	+00.02%	+00.03%
Ending stocks								
Baseline	77.00	77.00	77.00	77.00	77.00	77.00	77.00	77.00
Scenario	77.00	77.00	77.00	77.00	77.00	77.00	77.00	77.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Feed use								
Baseline	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00
Scenario	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Food use								
Baseline	721.17	748.00	774.27	800.82	827.26	853.55	879.46	904.79
Scenario	721.17	748.00	774.09	800.66	827.21	853.63	879.66	905.08
Change from baseline	-00.00%	-00.00%	-00.02%	-00.02%	-00.01%	+00.01%	+00.02%	+00.03%

Source: Own calculation.

Barley, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Price (farm gate)				**€/ton**				
Baseline	99.35	97.15	95.52	95.20	94.33	94.07	93.79	93.65
Scenario	99.35	97.15	95.67	95.38	94.49	94.19	93.89	93.73
Change from baseline	-00.00%	-00.00%	**+00.16%**	**+00.19%**	**+00.17%**	**+00.13%**	**+00.10%**	+00.09%
Area harvested				**Thousand hectars**				
Baseline	2136.25	2149.68	2135.86	2131.75	2109.71	2100.68	2093.16	2084.41
Scenario	2136.25	2149.68	2079.63	2071.50	2049.35	2039.82	2032.42	2023.95
Change from baseline	-00.00%	-00.00%	**-02.63%**	**-02.83%**	**-02.86%**	**-02.90%**	**-02.90%**	**-02.90%**
Yield				**Tonnes per hectar**				
Baseline	6.24	6.33	6.42	6.51	6.60	6.69	6.78	6.87
Scenario	6.24	6.33	6.43	6.52	6.61	6.70	6.79	6.88
Change from baseline	-00.00%	+00.00%	**+00.18%**	**+00.21%**	**+00.21%**	**+00.20%**	**+00.19%**	**+00.19%**
Production				**Thousand tonnes**				
Baseline	13330.66	13601.11	13706.76	13871.82	13920.11	14048.88	14186.87	14314.56
Scenario	13330.66	13601.11	13370.02	13508.16	13549.61	13669.10	13801.92	13925.58
Change from baseline	-00.00%	-00.00%	**-02.46%**	**-02.62%**	**-02.66%**	**-02.70%**	**-02.71%**	**-02.72%**
Exports								
Baseline	4036.67	4171.33	4348.24	4622.47	4740.04	4952.77	5154.32	5338.01
Scenario	4036.67	4171.33	4156.54	4321.52	4441.88	4651.42	4851.45	5033.06
Change from baseline	-00.00%	-00.00%	**-04.41%**	**-06.51%**	**-06.29%**	**-06.08%**	**-05.88%**	**-05.71%**
Imports								
Baseline	1030.06	990.88	975.28	958.29	953.56	936.61	917.74	903.27
Scenario	1030.06	990.88	1016.54	1010.37	999.64	980.87	961.24	946.78
Change from baseline	+00.00%	+00.00%	**+04.23%**	**+05.44%**	**+04.83%**	**+04.73%**	**+04.74%**	**+04.82%**
Net exp								
Baseline	3006.61	3180.45	3372.96	3664.18	3786.48	4016.17	4236.59	4434.74
Scenario	3006.61	3180.45	3140.00	3311.14	3442.24	3670.55	3890.21	4086.28
Change from baseline	-00.00%	-00.00%	**-06.91%**	**-09.63%**	**-09.09%**	**-08.61%**	**-08.18%**	**-07.86%**
Domestic use								
Baseline	10225.78	10144.71	10073.35	10034.72	9981.94	9913.62	9840.37	9785.40
Scenario	10225.78	10144.71	10060.81	10068.07	9972.46	9885.55	9803.53	9745.43
Change from baseline	+00.00%	+00.00%	**-00.12%**	**+00.33%**	-00.09%	**-00.28%**	**-00.37%**	**-00.41%**
Ending stocks								
Baseline	3872.69	4148.64	4409.08	4582.00	4733.69	4852.78	4962.69	5057.11
Scenario	3872.69	4148.64	4317.85	4446.79	4581.69	4694.69	4802.88	4896.75
Change from baseline	+00.00%	+00.00%	**-02.07%**	**-02.95%**	**-03.21%**	**-03.26%**	**-03.22%**	**-03.17%**
Feed use								
Baseline	7545.63	7517.41	7504.50	7530.52	7539.61	7536.80	7529.39	7541.24
Scenario	7545.63	7517.41	7492.70	7564.76	7530.89	7509.31	7493.00	7501.64
Change from baseline	+00.00%	+00.00%	**-00.16%**	**+00.45%**	**-00.12%**	**-00.36%**	**-00.48%**	**-00.53%**
Food use								
Baseline	2680.15	2627.30	2568.85	2504.20	2442.33	2376.82	2310.98	2244.16
Scenario	2680.15	2627.30	2568.11	2503.31	2441.58	2376.24	2310.53	2243.79
Change from baseline	+00.00%	+00.00%	-00.03%	-00.04%	-00.03%	-00.02%	-00.02%	-00.02%

Source: Own calculation.

Maize, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Price (farm gate)				**€/ton**				
Baseline	116.26	114.01	112.35	112.18	111.02	110.58	110.25	110.13
Scenario	116.26	114.01	113.43	113.74	112.76	112.39	112.08	111.97
Change from baseline	+00.00%	+00.00%	**+00.96%**	**+01.39%**	**+01.58%**	**+01.64%**	**+01.66%**	**+01.67%**
Area harvested				**Thousand hectars**				
Baseline	383.41	383.70	383.62	384.00	384.01	384.32	384.67	385.04
Scenario	383.41	383.70	373.52	373.51	373.67	374.13	374.63	375.15
Change from baseline	+00.00%	-00.00%	**-02.63%**	**-02.73%**	**-02.69%**	**-02.65%**	**-02.61%**	**-02.57%**
Yield				**Tonnes per hectar**				
Baseline	8.66	8.78	8.90	9.01	9.13	9.25	9.37	9.48
Scenario	8.66	8.78	8.90	9.01	9.13	9.25	9.37	9.48
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Production				**Thousand tonnes**				
Baseline	3322.05	3369.33	3413.46	3461.69	3506.64	3554.42	3602.60	3651.02
Scenario	3322.05	3369.33	3323.59	3367.19	3412.27	3460.20	3508.57	3557.22
Change from baseline	+00.00%	-00.00%	**-02.63%**	**-02.73%**	**-02.69%**	**-02.65%**	**-02.61%**	**-02.57%**
Exports								
Baseline	1563.23	1600.13	1636.28	1672.55	1710.32	1745.69	1780.61	1816.55
Scenario	1563.23	1600.13	1644.77	1684.27	1718.24	1752.05	1786.28	1822.00
Change from baseline	+00.00%	+00.00%	**+00.52%**	**+00.70%**	**+00.46%**	**+00.36%**	**+00.32%**	**+00.30%**
Imports								
Baseline	2563.30	2563.72	2557.91	2553.09	2560.68	2548.48	2532.52	2525.04
Scenario	2563.30	2563.72	2628.03	2649.96	2626.09	2601.04	2579.35	2570.04
Change from baseline	+00.00%	+00.00%	**+02.74%**	**+03.79%**	**+02.55%**	**+02.06%**	**+01.85%**	**+01.78%**
Net exp								
Baseline	-1000.07	-963.59	-921.63	-880.54	-850.36	-802.79	-751.91	-708.49
Scenario	-1000.07	-963.59	-983.26	-965.68	-907.86	-848.99	-793.07	-748.04
Change from baseline	+00.00%	+00.00%	**+06.69%**	**+09.67%**	**+06.76%**	**+05.75%**	**+05.47%**	**+05.58%**
Domestic use								
Baseline	4290.26	4305.35	4312.66	4326.94	4341.92	4344.40	4343.02	4349.08
Scenario	4290.26	4305.35	4287.69	4320.55	4306.95	4297.38	4290.59	4294.98
Change from baseline	+00.00%	+00.00%	**-00.58%**	**-00.15%**	**-00.81%**	**-01.08%**	**-01.21%**	**-01.24%**
Ending stocks								
Baseline	745.85	773.42	795.84	811.13	826.21	839.02	850.52	860.96
Scenario	745.85	773.42	792.58	804.91	818.09	829.91	840.95	851.23
Change from baseline	-00.00%	-00.00%	**-00.41%**	**-00.77%**	**-00.98%**	**-01.09%**	**-01.13%**	**-01.13%**
Feed use								
Baseline	2989.20	3017.38	3038.28	3065.93	3094.36	3110.73	3123.54	3144.18
Scenario	2989.20	3017.38	3013.31	3059.54	3059.39	3063.71	3071.12	3090.08
Change from baseline	+00.00%	+00.00%	**-00.82%**	**-00.21%**	**-01.13%**	**-01.51%**	**-01.68%**	**-01.72%**
Food use								
Baseline	1301.06	1287.97	1274.38	1261.01	1247.56	1233.67	1219.47	1204.89
Scenario	1301.06	1287.97	1274.38	1261.01	1247.56	1233.67	1219.47	1204.89
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Rapeseed, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Representative Price				**€/ton**				
Baseline	248.56	253.82	243.48	246.81	236.43	236.58	237.10	236.74
Scenario	248.56	253.82	243.48	246.81	236.43	236.58	237.10	236.74
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Area harvested				**Thousand hectars**				
Baseline	1044.00	1080.22	1083.76	1080.60	1072.84	1075.10	1073.66	1074.50
Scenario	1044.00	1080.22	1083.76	1060.75	1053.20	1055.68	1054.46	1055.53
Change from baseline	+00.00%	+00.00%	+00.00%	**-01.84%**	**-01.83%**	**-01.81%**	**-01.79%**	**-01.77%**
Yield				**Tonnes per hectar**				
Baseline	3.78	3.83	3.91	4.00	4.09	4.16	4.25	4.33
Scenario	3.78	3.83	3.91	4.01	4.10	4.18	4.27	4.35
Change from baseline	+00.00%	+00.00%	+00.00%	**+00.45%**	**+00.44%**	**+00.43%**	**+00.41%**	**+00.40%**
Production				**Thousand tonnes**				
Baseline	3951.45	4140.95	4239.55	4318.60	4382.89	4477.73	4560.88	4651.40
Scenario	3951.45	4140.95	4239.55	4258.58	4321.60	4415.62	4497.86	4587.63
Change from baseline	+00.00%	+00.00%	+00.00%	**-01.39%**	**-01.40%**	**-01.39%**	**-01.38%**	**-01.37%**
Exports								
Baseline	731.81	795.88	817.74	829.63	836.88	856.94	871.93	890.28
Scenario	731.81	795.88	817.74	801.76	808.43	828.10	842.67	860.67
Change from baseline	+00.00%	+00.00%	+00.00%	**-03.36%**	**-03.40%**	**-03.37%**	**-03.36%**	**-03.33%**
Imports								
Baseline	1526.82	1529.76	1578.85	1641.57	1702.57	1753.81	1809.49	1861.68
Scenario	1526.82	1529.76	1578.85	1672.01	1733.66	1785.32	1841.46	1894.03
Change from baseline	+00.00%	+00.00%	+00.00%	**+01.85%**	**+01.83%**	**+01.80%**	**+01.77%**	**+01.74%**
Net exp								
Baseline	-795.01	-733.88	-761.11	-811.94	-865.68	-896.87	-937.57	-971.40
Scenario	-795.01	-733.88	-761.11	-870.25	-925.23	-957.21	-998.79	-1033.36
Change from baseline	+00.00%	+00.00%	+00.00%	**+07.18%**	**+06.88%**	**+06.73%**	**+06.53%**	**+06.38%**
Domestic use								
Baseline	4746.46	4874.83	5000.66	5130.54	5248.58	5374.61	5498.45	5622.81
Scenario	4746.46	4874.83	5000.66	5128.83	5246.83	5372.83	5496.65	5620.99
Change from baseline	+00.00%	+00.00%	+00.00%	-00.03%	-00.03%	-00.03%	-00.03%	-00.03%
Crushed								
Baseline	4635.92	4758.89	4881.79	5009.42	5125.51	5248.81	5370.26	5492.00
Scenario	4635.92	4758.89	4881.79	5009.42	5125.51	5248.81	5370.26	5492.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Rape meal, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Production				**Thousand tonnes**				
Baseline	2565.88	2633.94	2701.97	2772.61	2836.86	2905.10	2972.32	3039.70
Scenario	2565.88	2633.94	2701.97	2772.61	2836.86	2905.10	2972.32	3039.70
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Exports								
Baseline	927.65	987.54	1016.66	1056.08	1068.36	1099.32	1130.45	1156.37
Scenario	927.65	987.54	1018.58	1052.55	1069.95	1103.17	1135.37	1161.66
Change from baseline	-00.00%	-00.00%	**+00.19%**	**-00.33%**	**+00.15%**	**+00.35%**	**+00.43%**	**+00.46%**
Imports								
Baseline	305.42	311.10	313.86	317.60	318.76	321.70	324.65	327.11
Scenario	305.42	311.10	314.04	317.27	318.91	322.07	325.12	327.61
Change from baseline	-00.00%	-00.00%	+00.06%	**-00.11%**	+00.05%	**+00.11%**	**+00.14%**	**+00.15%**
Net exp								
Baseline	895.00	895.00	895.00	895.00	895.00	895.00	895.00	895.00
Scenario	895.00	895.00	895.00	895.00	895.00	895.00	895.00	895.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Domestic use								
Baseline	1935.43	1956.22	1997.05	2032.87	2084.94	2125.70	2164.76	2208.64
Scenario	1935.43	1956.22	1995.31	2036.07	2083.51	2122.22	2160.31	2203.85
Change from baseline	+00.00%	+00.00%	-00.09%	**+00.16%**	-00.07%	**-00.16%**	**-00.21%**	**-00.22%**

Source: Own calculation.

Rape oil, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Production			**Thousand tonnes**					
Baseline	1883.45	1933.41	1983.34	2035.19	2082.36	2132.45	2181.79	2231.25
Scenario	1883.45	1933.41	1983.34	2035.19	2082.36	2132.45	2181.79	2231.25
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Exports								
Baseline	810.27	830.66	776.25	736.88	649.55	568.04	465.02	339.59
Scenario	810.27	830.66	776.25	736.88	649.55	568.04	465.02	339.59
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Imports								
Baseline	65.23	123.79	135.29	157.76	176.42	198.48	221.36	249.09
Scenario	65.23	123.79	135.29	157.76	176.42	198.48	221.36	249.09
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Net exp								
Baseline	900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00
Scenario	900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Domestic use								
Baseline	1135.56	1224.47	1340.34	1453.96	1607.29	1760.85	1936.11	2138.74
Scenario	1135.56	1224.47	1340.34	1453.96	1607.29	1760.85	1936.11	2138.74
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Ending stocks								
Baseline	173.24	175.31	177.35	179.47	181.40	183.44	185.45	187.47
Scenario	173.24	175.31	177.35	179.47	181.40	183.44	185.45	187.47
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Food use								
Baseline	684.13	704.86	725.28	745.78	766.19	786.28	806.10	825.57
Scenario	684.13	704.86	725.28	745.78	766.19	786.28	806.10	825.57
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Industrial use								
Baseline	451.43	519.61	615.06	708.18	841.10	974.57	1130.02	1313.17
Scenario	451.43	519.61	615.06	708.18	841.10	974.57	1130.02	1313.17
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Sunflower seeds, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Representative Price				**€/ton**				
Baseline	274.26	274.71	266.30	267.73	254.34	254.18	254.10	252.00
Scenario	274.26	274.71	266.30	267.73	254.34	254.18	254.10	252.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Area harvested				**Thousand hectars**				
Baseline	35.36	33.98	27.24	28.07	25.62	23.51	21.25	19.27
Scenario	35.36	33.98	27.24	27.55	25.15	23.08	20.87	18.93
Change from baseline	+00.00%	+00.00%	+00.00%	**-01.84%**	**-01.83%**	**-01.81%**	**-01.79%**	**-01.77%**
Yield				**Tonnes per hectar**				
Baseline	3.39	3.40	3.43	3.43	3.44	3.45	3.46	3.47
Scenario	3.39	3.40	3.43	3.43	3.44	3.45	3.46	3.47
Change from baseline	+00.00%	+00.00%	+00.00%	+00.07%	+00.06%	+00.06%	+00.05%	+00.05%
Production				**Thousand tonnes**				
Baseline	119.95	115.50	93.43	96.18	88.10	81.06	73.50	66.82
Scenario	119.95	115.50	93.43	94.48	86.54	79.64	72.23	65.67
Change from baseline	+00.00%	+00.00%	+00.00%	**-01.77%**	**-01.77%**	**-01.75%**	**-01.74%**	**-01.72%**
Exports								
Baseline	44.30	29.20	5.15	5.79	-2.09	-3.49	-4.44	-6.55
Scenario	44.30	29.20	5.15	4.28	-3.48	-4.75	-5.58	-7.58
Change from baseline	+00.00%	+00.00%	+00.00%	**-26.16%**	**+66.37%**	**+36.25%**	**+25.65%**	**+15.64%**
Imports								
Baseline	416.98	427.79	438.60	449.41	460.23	471.04	481.85	492.66
Scenario	416.98	427.79	438.60	449.41	460.23	471.04	481.85	492.66
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Net exp								
Baseline	-372.68	-398.59	-433.45	-443.62	-462.32	-474.53	-486.29	-499.21
Scenario	-372.68	-398.59	-433.45	-445.14	-463.71	-475.79	-487.43	-500.24
Change from baseline	+00.00%	+00.00%	+00.00%	**+00.34%**	**+00.30%**	**+00.27%**	**+00.23%**	**+00.21%**
Domestic use								
Baseline	488.25	513.13	525.23	538.89	548.51	554.57	558.79	564.89
Scenario	488.25	513.13	525.23	538.71	548.35	554.42	558.65	564.77
Change from baseline	+00.00%	+00.00%	+00.00%	-00.03%	-00.03%	-00.03%	-00.02%	-00.02%
Ending stocks								
Baseline	89.12	90.09	91.74	92.65	94.55	95.56	96.57	97.72
Scenario	89.12	90.09	91.74	92.65	94.55	95.56	96.57	97.72
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Crushed								
Baseline	409.62	431.33	442.17	451.87	458.72	461.88	463.26	466.43
Scenario	409.62	431.33	442.17	451.87	458.72	461.88	463.26	466.43
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Sunflower meal, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Production			**Thousand tonnes**					
Baseline	192.19	199.72	203.49	206.86	209.23	210.33	210.81	211.91
Scenario	192.19	199.72	203.49	206.86	209.23	210.33	210.81	211.91
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Exports								
Baseline	107.99	111.68	114.34	116.88	119.15	121.07	122.82	124.74
Scenario	107.99	111.68	114.34	116.88	119.15	121.07	122.82	124.74
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Imports								
Baseline	328.62	284.64	262.18	252.35	243.03	226.33	206.50	192.78
Scenario	328.62	284.64	260.36	255.69	241.53	222.68	201.84	187.77
Change from baseline	+00.00%	+00.00%	**-00.69%**	**+01.32%**	**-00.62%**	**-01.61%**	**-02.26%**	**-02.60%**
Net exp								
Baseline	-133.00	-133.00	-133.00	-133.00	-133.00	-133.00	-133.00	-133.00
Scenario	-133.00	-133.00	-133.00	-133.00	-133.00	-133.00	-133.00	-133.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Domestic use								
Baseline	411.93	372.19	350.82	341.88	332.55	315.12	294.03	279.48
Scenario	411.93	372.19	349.01	345.22	331.05	311.48	289.37	274.47
Change from baseline	+00.00%	+00.00%	**-00.52%**	**+00.98%**	**-00.45%**	**-01.16%**	**-01.58%**	**-01.79%**
Ending stocks								
Baseline	14.32	14.81	15.32	15.76	16.32	16.78	17.24	17.71
Scenario	14.32	14.81	15.32	15.76	16.32	16.78	17.24	17.71
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation

Sunflower oil, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Production			Thousand tonnes					
Baseline	142.19	149.72	153.49	156.86	159.23	160.33	160.81	161.91
Scenario	142.19	149.72	153.49	156.86	159.23	160.33	160.81	161.91
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Exports								
Baseline	34.42	34.52	32.96	31.21	29.03	26.33	23.40	20.82
Scenario	34.42	34.52	32.96	31.21	29.03	26.33	23.40	20.82
Change from baseline	+00.00%	+00.00%	-00.00%	+00.00%	+00.00%	-00.00%	+00.00%	+00.00%
Imports								
Baseline	199.17	199.06	200.92	203.01	205.62	208.85	212.36	215.44
Scenario	199.17	199.06	200.92	203.01	205.62	208.85	212.36	215.44
Change from baseline	+00.00%	-00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Net exp								
Baseline	-83.00	-83.00	-83.00	-83.00	-83.00	-83.00	-83.00	-83.00
Scenario	-83.00	-83.00	-83.00	-83.00	-83.00	-83.00	-83.00	-83.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Domestic use								
Baseline	305.99	313.28	320.44	327.64	334.81	341.83	348.75	355.52
Scenario	305.99	313.28	320.44	327.64	334.81	341.83	348.75	355.52
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Ending stocks								
Baseline	45.16	46.14	47.15	48.15	49.17	50.19	51.21	52.21
Scenario	45.16	46.14	47.15	48.15	49.17	50.19	51.21	52.21
Change from baseline	+00.00%	-00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Food use								
Baseline	305.99	313.28	320.44	327.64	334.81	341.83	348.75	355.52
Scenario	305.99	313.28	320.44	327.64	334.81	341.83	348.75	355.52
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Industrial use								
Baseline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenario	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Soybeans, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Area harvested				**Thousand hectars**				
Baseline	2.60	2.68	2.67	2.67	2.64	2.64	2.63	2.63
Scenario	2.60	2.68	2.67	2.62	2.59	2.60	2.59	2.58
Change from baseline	+00.00%	+00.00%	+00.00%	**-01.84%**	**-01.83%**	**-01.81%**	**-01.79%**	**-01.77%**
Yield				**Tonnes per hectar**				
Baseline	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Scenario	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Production				**Thousand tonnes**				
Baseline	2.60	2.68	2.67	2.67	2.64	2.64	2.63	2.63
Scenario	2.60	2.68	2.67	2.62	2.59	2.60	2.59	2.58
Change from baseline	+00.00%	+00.00%	+00.00%	**-01.84%**	**-01.83%**	**-01.81%**	**-01.79%**	**-01.77%**
Exports								
Baseline	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Scenario	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Imports								
Baseline	4761.95	4872.81	4907.13	4970.78	5017.03	5068.24	5144.24	5219.36
Scenario	4761.95	4872.81	4907.13	4970.83	5017.08	5068.29	5144.29	5219.41
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Net exp								
Baseline	-4749.95	-4860.81	-4895.13	-4958.78	-5005.03	-5056.24	-5132.24	-5207.36
Scenario	-4749.95	-4860.81	-4895.13	-4958.83	-5005.08	-5056.29	-5132.29	-5207.41
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Domestic use								
Baseline	4646.04	4819.23	4849.98	4926.97	4951.69	5016.35	5091.30	5166.70
Scenario	4646.04	4819.23	4849.98	4926.97	4951.69	5016.35	5091.30	5166.70
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Ending stocks								
Baseline	1424.53	1468.78	1516.61	1551.08	1607.06	1649.60	1693.17	1736.47
Scenario	1424.53	1468.78	1516.61	1551.08	1607.06	1649.60	1693.17	1736.47
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Crushed								
Baseline	4646.04	4819.23	4849.98	4926.97	4951.69	5016.35	5091.30	5166.70
Scenario	4646.04	4819.23	4849.98	4926.97	4951.69	5016.35	5091.30	5166.70
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Industrial use								
Baseline	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Scenario	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Soy meal, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Production			**Thousand tonnes**					
Baseline	3720.40	3859.08	3883.70	3945.35	3965.15	4016.92	4076.94	4137.32
Scenario	3720.40	3859.08	3883.70	3945.35	3965.15	4016.92	4076.94	4137.32
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Exports								
Baseline	1961.11	2068.79	2083.93	2113.30	2087.77	2077.03	2099.45	2122.39
Scenario	1961.11	2068.79	2086.43	2198.80	2179.94	2172.16	2195.97	2219.39
Change from baseline	-00.00%	-00.00%	**+00.12%**	**+04.05%**	**+04.42%**	**+04.58%**	**+04.60%**	**+04.57%**
Imports								
Baseline	2606.74	2548.08	2523.83	2487.50	2497.78	2443.19	2415.54	2404.68
Scenario	2606.74	2548.08	2517.46	2589.35	2582.65	2520.56	2489.36	2477.27
Change from baseline	+00.00%	+00.00%	**-00.25%**	**+04.09%**	**+03.40%**	**+03.17%**	**+03.06%**	**+03.02%**
Net exp								
Baseline	-1029.00	-1029.00	-1029.00	-1029.00	-1029.00	-1029.00	-1029.00	-1029.00
Scenario	-1029.00	-1029.00	-1029.00	-1029.00	-1029.00	-1029.00	-1029.00	-1029.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Domestic use								
Baseline	4347.87	4331.00	4315.79	4314.04	4366.00	4375.82	4385.55	4412.19
Scenario	4347.87	4331.00	4306.92	4330.39	4358.70	4358.06	4362.85	4387.76
Change from baseline	+00.00%	+00.00%	**-00.21%**	**+00.38%**	**-00.17%**	**-00.41%**	**-00.52%**	**-00.55%**
Ending stocks								
Baseline	175.00	182.37	190.17	195.69	204.84	212.11	219.60	227.03
Scenario	175.00	182.37	190.17	195.69	204.84	212.11	219.60	227.03
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Soy oil, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Production			Thousand tonnes					
Baseline	877.07	909.76	915.56	930.10	934.76	946.97	961.12	975.35
Scenario	877.07	909.76	915.56	930.10	934.76	946.97	961.12	975.35
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Net exp								
Baseline	449.00	449.00	449.00	449.00	449.00	449.00	449.00	449.00
Scenario	449.00	449.00	449.00	449.00	449.00	449.00	449.00	449.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Domestic use								
Baseline	222.16	212.57	202.47	193.83	185.89	177.73	169.73	161.85
Scenario	222.16	212.57	202.47	193.83	185.89	177.73	169.73	161.85
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Ending stocks								
Baseline	81.99	85.79	88.72	91.93	94.82	97.95	101.15	104.35
Scenario	81.99	85.79	88.72	91.93	94.82	97.95	101.15	104.35
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Food use								
Baseline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenario	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Cattle, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Beginning stocks (beef cattle)				**Thousand heads**				
Baseline	12218.88	11787.03	11318.34	10847.90	10394.22	9974.25	9590.11	9247.64
Scenario	12218.86	11787.02	11318.33	10942.78	10215.39	9757.98	9434.57	9198.27
Change from baseline	-00.00%	-00.00%	-00.00%	**+00.87%**	**-01.72%**	**-02.17%**	**-01.62%**	**-00.53%**
Beginning stocks (dairy cows)								
Baseline	4490.93	4391.37	4324.80	4290.55	4260.31	4228.54	4169.76	4111.87
Scenario	4490.94	4391.38	4324.78	4293.73	4265.97	4236.49	4182.17	4123.66
Change from baseline	+00.00%	+00.00%	-00.00%	+00.07%	**+00.13%**	**+00.19%**	**+00.30%**	**+00.29%**
Beginning stocks (suckler cows)								
Baseline	909.73	942.05	968.89	989.19	1002.86	1011.62	1017.72	1024.56
Scenario	909.73	942.05	968.89	896.21	853.47	828.48	814.82	810.36
Change from baseline	+00.00%	+00.00%	+00.00%	**-09.40%**	**-14.90%**	**-18.10%**	**-19.94%**	**-20.91%**
Production (calf)								
Baseline	4438.89	4388.02	4359.54	4347.61	4332.90	4309.05	4265.91	4224.14
Scenario	4438.90	4388.02	4344.72	4264.73	4209.28	4162.17	4106.98	4056.36
Change from baseline	+00.00%	+00.00%	**-00.34%**	**-01.91%**	**-02.85%**	**-03.41%**	**-03.73%**	**-03.97%**
Slaughter (total cattle)								
Baseline	4472.61	4458.59	4431.85	4403.16	4354.73	4295.06	4210.25	4139.52
Scenario	4472.61	4458.59	4322.14	4593.99	4268.56	4087.45	3945.16	3854.70
Change from baseline	+00.00%	+00.00%	**-02.48%**	**+04.33%**	**-01.98%**	**-04.83%**	**-06.30%**	**-06.88%**
Slaughter (suckler cows)								
Baseline	1678.43	1702.11	1720.31	1738.32	1741.27	1743.41	1736.83	1732.81
Scenario	1678.44	1702.12	2138.88	2019.02	1936.25	1884.99	1845.42	1819.12
Change from baseline	+00.00%	+00.00%	**+24.33%**	**+16.15%**	**+11.20%**	**+08.12%**	**+06.25%**	**+04.98%**
Slaughter weight				**Kg per head**				
Baseline	299.51	300.68	301.82	302.94	304.02	305.12	306.23	307.35
Scenario	299.51	300.68	302.10	303.13	304.18	305.26	306.35	307.46
Change from baseline	+00.00%	+00.00%	+00.09%	+00.06%	+00.05%	+00.05%	+00.04%	+00.04%

Source: Own calculation.

Pigs, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Beginning stocks (total pigs)				**Thousand heads**				
Baseline	33341.50	32769.02	31827.45	30799.91	29506.95	27842.42	25731.84	23434.89
Scenario	33341.50	32769.02	31827.45	30797.57	29501.26	27834.27	25722.18	23423.70
Change from baseline	+00.00%	+00.00%	+00.00%	-00.01%	-00.02%	-00.03%	-00.04%	-00.05%
Beginning stocks (sows)								
Baseline	2644.96	2509.57	2434.84	2402.57	2367.57	2320.12	2266.71	2241.18
Scenario	2644.96	2509.57	2434.84	2402.82	2368.02	2320.73	2267.46	2242.02
Change from baseline	+00.00%	+00.00%	-00.00%	+00.01%	+00.02%	+00.03%	+00.03%	+00.04%
Production (pigglet)								
Baseline	42359.53	40541.86	39618.36	39043.87	38422.02	37602.09	36905.98	36693.49
Scenario	42359.53	40541.86	39615.54	39043.89	38424.91	37607.67	36913.69	36702.41
Change from baseline	+00.00%	+00.00%	-00.01%	+00.00%	+00.01%	+00.01%	+00.02%	+00.02%
Slaughter								
Baseline	45033.34	43584.76	42747.22	42438.15	42187.87	41814.00	41304.25	41074.62
Scenario	45033.34	43584.76	42746.74	42441.52	42193.23	41821.09	41313.50	41085.56
Change from baseline	+00.00%	+00.00%	-00.00%	+00.01%	+00.01%	+00.02%	+00.02%	+00.03%
Slaughter weight				**Kg per head**				
Baseline	94.07	94.69	95.20	95.51	95.88	96.28	96.86	97.43
Scenario	94.07	94.69	95.20	95.50	95.88	96.28	96.86	97.42
Change from baseline	+00.00%	+00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%

Source: Own calculation.

Sheep, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Beginning stocks (total sheeps)				**Thousand heads**				
Baseline	2322.25	2330.05	2339.25	2345.91	2351.02	2354.97	2358.00	2360.21
Scenario	2322.25	2330.05	2339.25	2342.05	2327.61	2311.63	2298.49	2288.68
Change from baseline	+00.00%	+00.00%	+00.00%	**-00.16%**	**-01.00%**	**-01.84%**	**-02.52%**	**-03.03%**
Beginning stocks (ewes)								
Baseline	1616.00	1627.33	1628.28	1629.80	1631.05	1632.02	1632.50	1632.44
Scenario	1616.00	1627.33	1628.28	1584.54	1567.81	1561.45	1558.95	1557.90
Change from baseline	+00.00%	+00.00%	-00.00%	**-02.78%**	**-03.88%**	**-04.32%**	**-04.51%**	**-04.57%**
Production								
Baseline	2206.83	2219.44	2220.90	2222.90	2224.53	2225.72	2226.23	2225.89
Scenario	2206.83	2219.44	2208.55	2156.27	2136.29	2128.67	2125.65	2124.36
Change from baseline	+00.00%	+00.00%	**-00.56%**	**-03.00%**	**-03.97%**	**-04.36%**	**-04.52%**	**-04.56%**
Slaughter (ewes)								
Baseline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenario	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Slaughter (lambs and other sheeps)								
Baseline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scenario	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Slaughter weight				**Kg per head**				
Baseline	20.76	20.71	20.69	20.65	20.62	20.59	20.55	20.52
Scenario	20.76	20.71	20.64	20.40	20.28	20.22	20.17	20.13
Change from baseline	+00.00%	+00.00%	**-00.23%**	**-01.23%**	**-01.63%**	**-01.79%**	**-01.86%**	**-01.88%**

Source: Own calculation.

Beef and veal, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Representative Price (livestock) € per 100 kg								
Baseline	277.29	277.79	274.44	271.66	263.94	260.45	257.92	256.16
Scenario	277.29	277.79	291.14	288.35	280.63	277.15	274.61	272.86
Change from baseline	+00.00%	+00.00%	**+06.08%**	**+06.15%**	**+06.33%**	**+06.41%**	**+06.47%**	**+06.52%**
Production			**Thousand tonnes**					
Baseline	1339.59	1340.60	1337.62	1333.90	1323.92	1310.51	1289.29	1272.29
Scenario	1339.59	1340.60	1305.72	1392.58	1298.40	1247.72	1208.60	1185.17
Change from baseline	+00.00%	+00.00%	**-02.38%**	**+04.40%**	**-01.93%**	**-04.79%**	**-06.26%**	**-06.85%**
Exports								
Baseline	448.91	464.05	467.94	476.33	462.84	464.18	455.08	450.15
Scenario	448.91	464.05	486.82	545.14	453.36	419.93	394.01	382.91
Change from baseline	+00.00%	+00.00%	**+04.03%**	**+14.45%**	**-02.05%**	**-09.53%**	**-13.42%**	**-14.94%**
Imports								
Baseline	349.38	345.81	343.45	339.62	336.84	330.67	328.17	325.54
Scenario	349.38	345.81	346.64	347.30	350.39	346.73	345.33	342.99
Change from baseline	-00.00%	-00.00%	**+00.93%**	**+02.26%**	**+04.02%**	**+04.85%**	**+05.23%**	**+05.36%**
Net exp								
Baseline	99.53	118.23	124.49	136.70	126.00	133.51	126.91	124.61
Scenario	99.53	118.23	140.18	197.85	102.97	73.20	48.68	39.93
Change from baseline	+00.00%	+00.00%	**+12.61%**	**+44.73%**	**-18.27%**	**-45.17%**	**-61.64%**	**-67.96%**
Domestic use								
Baseline	1225.09	1212.00	1199.35	1185.44	1172.98	1158.83	1146.67	1133.67
Scenario	1225.09	1212.00	1196.33	1182.42	1169.92	1155.77	1143.61	1130.61
Change from baseline	-00.00%	-00.00%	**-00.25%**	**-00.25%**	**-00.26%**	**-00.26%**	**-00.27%**	**-00.27%**
Ending stocks								
Baseline	162.60	172.96	186.74	198.50	223.44	241.60	257.32	271.33
Scenario	162.60	172.96	142.17	154.48	179.99	198.74	215.05	229.68
Change from baseline	+00.00%	+00.00%	**-23.87%**	**-22.18%**	**-19.45%**	**-17.74%**	**-16.43%**	**-15.35%**

Source: Own calculation.

Pig meat, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Representative Price (livestock) € per 100 kg								
Baseline	103.40	111.06	111.90	105.33	98.48	95.19	101.22	106.78
Scenario	103.40	111.06	112.14	105.57	98.72	95.43	101.46	107.02
Change from baseline	-00.00%	-00.00%	**+00.22%**	**+00.23%**	**+00.25%**	**+00.25%**	**+00.24%**	**+00.23%**
Production			**Thousand tonnes**					
Baseline	4236.42	4127.04	4069.50	4053.08	4044.95	4025.79	4000.65	4001.71
Scenario	4236.42	4127.04	4069.43	4053.33	4045.38	4026.39	4001.47	4002.71
Change from baseline	+00.00%	+00.00%	-00.00%	+00.01%	+00.01%	+00.01%	+00.02%	+00.03%
Exports								
Baseline	754.35	710.51	686.58	677.99	672.81	663.90	654.63	656.10
Scenario	754.35	710.51	686.61	678.15	673.04	664.20	655.03	656.57
Change from baseline	+00.00%	+00.00%	+00.00%	+00.02%	+00.03%	+00.05%	+00.06%	+00.07%
Imports								
Baseline	1331.51	1317.55	1322.20	1345.97	1359.46	1363.53	1310.10	1247.65
Scenario	1331.51	1317.55	1353.81	1377.75	1392.03	1396.36	1342.71	1279.99
Change from baseline	-00.00%	-00.00%	**+02.39%**	**+02.36%**	**+02.40%**	**+02.41%**	**+02.49%**	**+02.59%**
Net exp								
Baseline	-577.16	-607.04	-635.62	-667.98	-686.65	-699.64	-655.46	-591.55
Scenario	-577.16	-607.04	-667.20	-699.60	-718.99	-732.15	-687.67	-623.42
Change from baseline	-00.00%	-00.00%	**+04.97%**	**+04.73%**	**+04.71%**	**+04.65%**	**+04.91%**	**+05.39%**
Domestic use								
Baseline	4814.07	4734.68	4705.61	4721.24	4731.65	4725.45	4656.36	4593.62
Scenario	4814.07	4734.68	4737.12	4753.12	4764.42	4758.56	4689.39	4626.50
Change from baseline	+00.00%	+00.00%	**+00.67%**	**+00.68%**	**+00.69%**	**+00.70%**	**+00.71%**	**+00.72%**
Ending stocks								
Baseline	8.52	7.92	7.42	7.23	7.19	7.17	6.93	6.56
Scenario	8.52	7.92	7.42	7.23	7.19	7.17	6.93	6.56
Change from baseline	-00.00%	-00.00%	-00.02%	-00.02%	-00.02%	-00.02%	-00.02%	-00.02%

Source: Own calculation.

Sheep meat, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Representative Price (livestock) € per 100 kg								
Baseline	155.36	152.54	152.82	152.33	151.84	151.92	151.92	152.28
Scenario	155.36	152.54	152.82	152.33	151.84	151.92	151.92	152.28
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Production				**Thousand tonnes**				
Baseline	46.29	46.50	46.59	46.63	46.64	46.65	46.63	46.60
Scenario	46.29	46.50	47.02	45.97	45.26	44.78	44.44	44.19
Change from baseline	+00.00%	+00.00%	**+00.93%**	**-01.43%**	**-02.97%**	**-04.00%**	**-04.70%**	**-05.17%**
Exports								
Baseline	11.17	11.36	11.71	12.22	12.74	13.20	13.40	13.63
Scenario	11.17	11.36	11.71	12.21	12.74	13.19	13.40	13.62
Change from baseline	+00.00%	+00.00%	-00.05%	-00.05%	-00.05%	-00.05%	-00.05%	-00.05%
Imports								
Baseline	61.59	64.70	66.94	68.32	69.63	71.37	74.58	77.69
Scenario	61.59	64.70	66.54	69.02	71.05	73.27	76.81	80.14
Change from baseline	-00.00%	-00.00%	**-00.60%**	**+01.03%**	**+02.04%**	**+02.67%**	**+02.99%**	**+03.15%**
Net exp								
Baseline	-50.42	-53.34	-55.23	-56.10	-56.89	-58.17	-61.18	-64.06
Scenario	-50.42	-53.34	-54.83	-56.81	-58.32	-60.08	-63.41	-66.52
Change from baseline	-00.00%	-00.00%	**-00.72%**	**+01.26%**	**+02.51%**	**+03.29%**	**+03.66%**	**+03.83%**
Domestic use								
Baseline	96.71	99.83	101.82	102.73	103.53	104.82	107.81	110.66
Scenario	96.71	99.83	101.86	102.77	103.57	104.87	107.85	110.71
Change from baseline	-00.00%	-00.00%	+00.04%	+00.04%	+00.04%	+00.04%	+00.04%	+00.04%

Source: Own calculation.

Broiler meat, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Representative Price (livestock)				**€/100 kg dw.**				
Baseline	159.13	157.62	155.61	152.21	149.26	146.18	145.12	143.79
Scenario	159.13	157.62	155.64	152.25	149.30	146.22	145.16	143.82
Change from baseline	-00.00%	-00.00%	+00.02%	+00.02%	+00.03%	+00.03%	+00.03%	+00.02%
Production				**Thousand tonnes**				
Baseline	419.96	426.75	436.84	449.67	462.96	474.47	481.80	489.84
Scenario	419.96	426.75	436.75	449.57	462.85	474.35	481.69	489.74
Change from baseline	+00.00%	+00.00%	-00.02%	-00.02%	-00.02%	-00.02%	-00.02%	-00.02%
Exports								
Baseline	138.34	141.57	146.05	151.78	157.60	162.77	166.03	169.61
Scenario	138.34	141.57	146.01	151.73	157.56	162.72	165.99	169.57
Change from baseline	+00.00%	+00.00%	-00.03%	-00.03%	-00.03%	-00.03%	-00.03%	-00.02%
Imports								
Baseline	387.98	392.42	394.49	395.72	396.35	397.86	400.55	402.73
Scenario	387.98	392.42	394.53	395.76	396.39	397.90	400.60	402.77
Change from baseline	-00.00%	-00.00%	+00.01%	+00.01%	+00.01%	+00.01%	+00.01%	+00.01%
Net exp								
Baseline	-249.64	-250.84	-248.44	-243.95	-238.75	-235.09	-234.52	-233.11
Scenario	-249.64	-250.84	-248.52	-244.03	-238.84	-235.18	-234.61	-233.19
Change from baseline	-00.00%	-00.00%	+00.03%	+00.03%	+00.04%	+00.04%	+00.04%	+00.03%
Domestic use								
Baseline	669.60	677.59	685.28	693.62	701.71	709.56	716.32	722.95
Scenario	669.60	677.59	685.26	693.60	701.69	709.54	716.30	722.93
Change from baseline	+00.00%	+00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%

Source: Own calculation.

Other poultry meat, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Production			Thousand tonnes					
Baseline	533.07	559.79	586.70	612.28	638.74	664.70	692.07	719.27
Scenario	533.07	559.79	586.72	612.30	638.77	664.73	692.10	719.30
Change from baseline	-00.00%	-00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Exports								
Baseline	176.49	187.00	198.10	208.43	219.49	229.77	240.40	250.97
Scenario	176.49	187.00	198.11	208.43	219.49	229.77	240.40	250.97
Change from baseline	-00.00%	-00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Imports								
Baseline	313.19	316.56	316.17	319.95	320.13	324.63	326.97	329.82
Scenario	313.19	316.56	316.17	319.94	320.12	324.61	326.96	329.82
Change from baseline	+00.00%	+00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%
Net exp								
Baseline	-136.70	-129.55	-118.07	-111.53	-100.65	-94.86	-86.57	-78.85
Scenario	-136.70	-129.55	-118.06	-111.52	-100.63	-94.84	-86.56	-78.84
Change from baseline	+00.00%	+00.00%	-00.01%	-00.01%	-00.02%	-00.02%	-00.01%	-00.01%
Domestic use								
Baseline	669.77	689.35	704.77	723.80	739.39	759.56	778.64	798.12
Scenario	669.77	689.35	704.78	723.82	739.40	759.57	778.65	798.14
Change from baseline	-00.00%	-00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Fluid milk, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Price (farm gate,cow milk 3.7% fat)				**€/100 kg**				
Baseline	28.07	27.90	27.10	26.34	25.50	25.27	25.10	24.96
Scenario	28.07	27.90	26.95	26.05	25.06	24.53	24.38	24.24
Change from baseline	-00.00%	+00.01%	**-00.55%**	**-01.12%**	**-01.73%**	**-02.92%**	**-02.88%**	**-02.87%**
Production				**Thousand tonnes**				
Baseline	27964.37	27964.22	28104.28	28244.81	28384.85	28384.66	28384.47	28384.28
Scenario	27964.37	27964.22	28104.25	28244.77	28384.79	28384.56	28384.37	28384.18
Change from baseline	-00.00%	+00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%
Fluid use								
Baseline	3162.71	3144.87	3125.80	3107.24	3088.46	3068.57	3047.88	3026.19
Scenario	3162.71	3144.87	3125.80	3107.24	3088.46	3068.57	3047.88	3026.19
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Butter, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Price (wholesale market)				**€/100 kg**				
Baseline	318.13	317.98	302.85	288.86	273.32	273.35	273.34	273.31
Scenario	318.13	317.98	297.10	277.52	256.26	244.78	244.77	244.73
Change from baseline	+00.00%	+00.00%	**-01.90%**	**-03.93%**	**-06.24%**	**-10.45%**	**-10.45%**	**-10.46%**
Production				**Thousand tonnes**				
Baseline	464.70	465.47	462.28	457.94	454.56	456.05	457.36	458.74
Scenario	464.70	465.46	457.90	449.39	441.84	434.98	436.59	438.27
Change from baseline	-00.00%	-00.00%	**-00.95%**	**-01.87%**	**-02.80%**	**-04.62%**	**-04.54%**	**-04.46%**
Exports								
Baseline	69.24	71.08	76.39	81.27	87.03	88.79	90.31	91.74
Scenario	69.24	71.08	77.09	82.72	89.32	92.67	94.21	95.64
Change from baseline	-00.00%	-00.00%	**+00.91%**	**+01.78%**	**+02.63%**	**+04.37%**	**+04.31%**	**+04.25%**
Imports								
Baseline	160.36	161.11	168.68	176.56	184.66	183.91	183.88	183.51
Scenario	160.37	161.11	173.75	186.55	199.67	208.87	208.55	207.88
Change from baseline	+00.00%	+00.00%	**+03.01%**	**+05.66%**	**+08.13%**	**+13.57%**	**+13.42%**	**+13.28%**
Net exp								
Baseline	-91.13	-90.03	-92.29	-95.29	-97.63	-95.13	-93.57	-91.77
Scenario	-91.13	-90.03	-96.66	-103.83	-110.36	-116.20	-114.35	-112.23
Change from baseline	+00.00%	+00.00%	**+04.74%**	**+08.97%**	**+13.03%**	**+22.15%**	**+22.20%**	**+22.31%**
Domestic use								
Baseline	553.50	553.27	552.87	552.66	552.50	552.15	551.67	551.07
Scenario	553.50	553.27	552.87	552.66	552.50	552.15	551.67	551.07
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Ending stocks								
Baseline	53.53	55.75	57.45	58.02	57.71	56.74	56.00	55.44
Scenario	53.53	55.75	57.45	58.02	57.71	56.74	56.00	55.44
Change from baseline	-00.00%	-00.00%	-00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Milk powder, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Price (wholesale market) €/100 kg				**SMP price**				
Baseline	207.02	206.01	201.76	196.96	192.46	190.66	189.86	189.55
Scenario	207.02	206.04	201.89	197.17	192.86	191.33	190.77	190.58
Change from baseline	-00.00%	+00.01%	+00.06%	**+00.11%**	**+00.21%**	**+00.35%**	**+00.48%**	**+00.55%**
Price (wholesale market) €/100 kg				**WMP price**				
Baseline	251.65	248.41	243.44	244.00	238.47	236.51	234.58	232.57
Scenario	251.65	248.41	243.44	244.00	238.47	236.51	234.58	232.57
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Production (SMP)				**Thousand tonnes**				
Baseline	306.15	298.31	275.49	253.20	229.77	224.33	218.98	213.65
Scenario	306.15	298.31	273.57	249.27	223.99	214.79	209.67	204.59
Change from baseline	-00.00%	-00.00%	**-00.70%**	**-01.55%**	**-02.52%**	**-04.25%**	**-04.25%**	**-04.24%**
Domestic use (SMP)								
Baseline	122.28	122.04	119.56	117.21	114.93	114.75	114.53	114.27
Scenario	122.28	122.04	119.56	117.21	114.93	114.75	114.53	114.27
Change from baseline	+00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%
Production (WMP)								
Baseline	178.52	181.92	182.22	182.99	184.81	184.67	185.66	186.63
Scenario	178.52	181.92	182.22	182.99	184.82	184.67	185.66	186.64
Change from baseline	-00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Exports								
Baseline	142.26	145.37	150.16	156.53	160.55	163.87	166.53	168.69
Scenario	142.27	145.36	150.12	156.46	160.41	163.63	166.19	168.29
Change from baseline	+00.00%	-00.01%	-00.03%	-00.04%	-00.09%	**-00.15%**	**-00.20%**	**-00.24%**
Imports								
Baseline	87.43	92.25	99.56	102.88	108.46	114.88	120.77	127.25
Scenario	87.43	92.26	99.62	102.99	108.69	115.28	121.34	127.93
Change from baseline	-00.00%	+00.01%	+00.07%	**+00.11%**	**+00.21%**	**+00.35%**	**+00.47%**	**+00.53%**
Net exp (WMP)								
Baseline	54.84	53.12	50.61	53.66	52.09	48.99	45.75	41.43
Scenario	54.84	53.10	50.50	53.47	51.72	48.35	44.84	40.36
Change from baseline	+00.01%	-00.04%	**-00.22%**	**-00.34%**	**-00.71%**	**-01.31%**	**-01.99%**	**-02.60%**
Domestic use (WMP)								
Baseline	122.51	127.78	130.59	128.81	131.95	135.08	139.40	144.73
Scenario	122.50	127.80	130.71	129.00	132.32	135.73	140.31	145.81
Change from baseline	-00.00%	+00.02%	+00.09%	**+00.15%**	**+00.28%**	**+00.48%**	**+00.65%**	**+00.75%**

Source: Own calculation.

Fluid milk, Germany, variation: cheese price transmission

	2003	2004	2005	2006	2007	2008	2009	2010
Price (farm gate)				**(cow milk 3.7% fat)**				
Baseline	28.51	28.45	27.40	26.37	25.29	25.19	25.14	25.13
Scenario	28.51	28.45	27.21	25.98	24.72	24.24	24.21	24.20
Change from baseline	-00.00%	+00.00%	**-00.70%**	**-01.45%**	**-02.25%**	**-03.78%**	**-03.73%**	**-03.70%**
Production				**Thousand tonnes**				
Baseline	27964.43	27964.29	28104.31	28244.81	28384.82	28384.65	28384.48	28384.30
Scenario	27964.43	27964.29	28104.29	28244.76	28384.75	28384.52	28384.35	28384.17
Change from baseline	-00.00%	+00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%
Fluid use								
Baseline	3162.71	3144.87	3125.80	3107.24	3088.46	3068.57	3047.88	3026.19
Scenario	3162.71	3144.87	3125.80	3107.24	3088.46	3068.57	3047.88	3026.19
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Cheese, Germany, variation: cheese price transmission

	2003	2004	2005	2006	2007	2008	2009	2010
Price (wholesale market)				**€/100 kg**				
Baseline	404.68	404.66	388.35	372.40	356.14	356.23	356.15	356.10
Scenario	404.68	404.66	386.60	368.84	350.85	347.38	347.36	347.32
Change from baseline	-00.00%	-00.00%	**-00.45%**	**-00.95%**	**-01.48%**	**-02.48%**	**-02.47%**	**-02.47%**
Production				**Thousand tonnes**				
Baseline	1702.63	1726.43	1720.22	1703.62	1694.23	1710.19	1733.10	1754.29
Scenario	1702.64	1726.44	1721.33	1704.28	1694.58	1710.82	1730.94	1751.81
Change from baseline	+00.00%	+00.00%	+00.06%	+00.04%	+00.02%	+00.04%	**-00.12%**	**-00.14%**
Exports								
Baseline	479.07	486.73	460.81	424.82	395.57	397.34	406.24	414.20
Scenario	479.08	486.74	461.26	424.34	394.30	395.25	401.69	409.31
Change from baseline	+00.00%	+00.00%	+00.10%	**-00.11%**	**-00.32%**	**-00.53%**	**-01.12%**	**-01.18%**
Imports								
Baseline	541.75	549.44	553.28	557.39	561.39	569.13	576.66	583.95
Scenario	541.75	549.44	552.85	556.53	560.13	567.04	574.61	581.92
Change from baseline	-00.00%	-00.00%	-00.08%	**-00.15%**	**-00.23%**	**-00.37%**	**-00.36%**	**-00.35%**
Net exp								
Baseline	-62.68	-62.71	-92.47	-132.56	-165.83	-171.79	-170.42	-169.74
Scenario	-62.67	-62.70	-91.59	-132.19	-165.83	-171.79	-172.92	-172.61
Change from baseline	-00.01%	-00.01%	**-00.96%**	**-00.28%**	+00.00%	-00.00%	**+01.47%**	**+01.69%**
Domestic use								
Baseline	1764.37	1788.00	1811.77	1835.66	1859.29	1881.19	1902.49	1923.04
Scenario	1764.37	1788.00	1811.87	1835.86	1859.58	1881.65	1902.93	1923.46
Change from baseline	+00.00%	+00.00%	+00.01%	+00.01%	+00.02%	+00.02%	+00.02%	+00.02%
Ending stocks								
Baseline	38.67	39.82	40.74	41.27	42.02	42.81	43.83	44.82
Scenario	38.67	39.82	40.86	41.47	42.30	43.27	44.20	45.17
Change from baseline	+00.00%	+00.00%	**+00.31%**	**+00.50%**	**+00.67%**	**+01.08%**	**+00.84%**	**+00.78%**

Source: Own calculation.

Butter, Germany, variation: cheese price transmission

	2003	2004	2005	2006	2007	2008	2009	2010
Price (wholesale market)				**€/100 kg**				
Baseline	318.97	318.99	303.43	288.94	272.96	273.18	273.40	273.59
Scenario	318.97	318.99	297.61	277.44	255.67	244.24	244.44	244.63
Change from baseline	+00.00%	+00.00%	**-01.92%**	**-03.98%**	**-06.33%**	**-10.59%**	**-10.59%**	**-10.59%**
Production				**Thousand tonnes**				
Baseline	439.93	435.36	444.97	455.71	465.10	461.02	455.64	450.39
Scenario	439.93	435.36	442.77	451.71	459.18	451.18	446.30	441.22
Change from baseline	-00.00%	-00.00%	**-00.49%**	**-00.88%**	**-01.27%**	**-02.13%**	**-02.05%**	**-02.04%**
Exports								
Baseline	64.08	64.70	72.37	80.71	89.93	90.17	89.83	89.39
Scenario	64.08	64.70	73.53	83.32	94.29	97.47	97.10	96.53
Change from baseline	-00.00%	-00.00%	**+01.60%**	**+03.23%**	**+04.84%**	**+08.09%**	**+08.10%**	**+07.99%**
Imports								
Baseline	179.97	184.83	181.96	178.22	177.03	180.33	185.12	189.49
Scenario	179.97	184.83	185.32	184.84	187.30	197.47	201.74	205.81
Change from baseline	+00.00%	+00.00%	**+01.84%**	**+03.71%**	**+05.80%**	**+09.50%**	**+08.98%**	**+08.61%**
Net exp								
Baseline	-115.90	-120.14	-109.59	-97.51	-87.10	-90.16	-95.30	-100.11
Scenario	-115.90	-120.14	-111.79	-101.52	-93.02	-100.00	-104.63	-109.28
Change from baseline	+00.00%	+00.00%	**+02.00%**	**+04.11%**	**+06.80%**	**+10.91%**	**+09.80%**	**+09.17%**
Domestic use								
Baseline	553.50	553.27	552.87	552.66	552.50	552.15	551.67	551.07
Scenario	553.50	553.27	552.87	552.66	552.50	552.15	551.67	551.07
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Ending stocks								
Baseline	53.53	55.75	57.45	58.02	57.71	56.74	56.00	55.44
Scenario	53.53	55.75	57.45	58.02	57.71	56.74	56.00	55.44
Change from baseline	-00.00%	-00.00%	-00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Milk powder, Germany, variation: cheese price transmission

	2003	2004	2005	2006	2007	2008	2009	2010
Price (wholesale market) € per 100kg				**SMP price**				
Baseline	207.02	206.01	201.76	196.96	192.46	190.66	189.86	189.55
Scenario	207.02	206.04	201.89	197.17	192.86	191.33	190.77	190.58
Change from baseline	-00.00%	+00.01%	+00.06%	**+00.11%**	**+00.21%**	**+00.35%**	**+00.48%**	**+00.55%**
Price (wholesale market) € per 100Kg				**WMP price**				
Baseline	251.65	248.41	243.44	244.00	238.47	236.51	234.58	232.57
Scenario	251.65	248.41	243.44	244.00	238.47	236.51	234.58	232.57
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Production (SMP)				**Thousand tonnes**				
Baseline	285.78	273.27	259.75	250.06	237.63	229.19	218.11	207.17
Scenario	285.77	273.27	259.48	249.77	237.42	228.82	218.59	207.74
Change from baseline	-00.00%	-00.00%	**-00.10%**	**-00.12%**	-00.09%	**-00.16%**	**+00.22%**	**+00.27%**
Domestic use (SMP)								
Baseline	122.28	122.04	119.56	117.21	114.93	114.75	114.53	114.27
Scenario	122.28	122.04	119.56	117.21	114.93	114.75	114.53	114.27
Change from baseline	+00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%	-00.00%
Production (WMP)								
Baseline	176.66	179.63	180.95	182.90	185.74	185.03	185.47	185.88
Scenario	176.66	179.63	181.14	183.27	186.30	185.98	186.42	186.84
Change from baseline	+00.00%	+00.00%	**+00.10%**	**+00.20%**	**+00.30%**	**+00.51%**	**+00.51%**	**+00.51%**
Exports								
Baseline	142.27	145.37	150.16	156.53	160.55	163.87	166.53	168.69
Scenario	142.27	145.36	150.12	156.46	160.41	163.63	166.19	168.29
Change from baseline	+00.00%	-00.01%	-00.03%	-00.04%	-00.09%	**-00.15%**	**-00.20%**	**-00.24%**
Imports								
Baseline	89.29	94.54	100.82	102.96	107.53	114.52	120.96	128.01
Scenario	89.28	94.55	100.71	102.71	107.21	113.98	120.59	127.73
Change from baseline	-00.00%	+00.01%	**-00.11%**	**-00.25%**	**-00.31%**	**-00.47%**	**-00.31%**	**-00.22%**
Net exp (WMP)								
Baseline	52.98	50.82	49.34	53.57	53.01	49.35	45.57	40.68
Scenario	52.98	50.80	49.41	53.75	53.21	49.65	45.60	40.56
Change from baseline	+00.01%	-00.04%	**+00.14%**	**+00.34%**	**+00.36%**	**+00.61%**	+00.08%	**-00.31%**
Domestic use (WMP)								
Baseline	122.51	127.78	130.59	128.81	131.95	135.08	139.40	144.73
Scenario	122.50	127.80	130.71	129.00	132.32	135.73	140.31	145.81
Change from baseline	-00.00%	+00.02%	+00.09%	**+00.15%**	**+00.28%**	**+00.48%**	**+00.65%**	**+00.75%**

Source: Own calculation.

Sugar, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Price (wholesale market)				**€/100 kg**				
Baseline	66.50	66.50	66.50	66.50	66.50	66.50	66.50	66.50
Scenario	66.50	66.50	66.50	66.50	66.50	66.50	66.50	66.50
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Area harvested (Sugar beet)				**Thousand hectars**				
Baseline	493.95	492.75	491.55	490.35	489.15	487.95	486.75	485.56
Scenario	493.95	492.75	491.55	490.35	489.15	487.95	486.75	485.56
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Yield (Sugar beet)				**Tonnes per hectar**				
Baseline	56.70	57.03	57.36	57.68	58.01	58.34	58.67	59.00
Scenario	56.70	57.03	57.36	57.68	58.01	58.34	58.67	59.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Production (Sugar beet)				**Thousand tonnes**				
Baseline	28007.42	28100.94	28193.68	28285.63	28376.79	28467.17	28556.76	28645.56
Scenario	28007.42	28100.94	28193.68	28285.63	28376.79	28467.17	28556.76	28645.56
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Production								
Baseline	4422.68	4437.45	4452.10	4466.62	4481.01	4495.28	4509.43	4523.45
Scenario	4422.68	4437.45	4452.10	4466.62	4481.01	4495.28	4509.43	4523.45
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Exports								
Baseline	2369.76	2394.31	2419.54	2444.03	2468.63	2494.06	2519.84	2546.17
Scenario	2369.76	2394.31	2419.54	2444.03	2468.63	2494.06	2519.84	2546.17
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Imports								
Baseline	985.30	1001.47	1018.03	1034.56	1050.97	1067.66	1084.68	1102.03
Scenario	985.30	1001.47	1018.03	1034.56	1050.97	1067.66	1084.68	1102.03
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Net exp								
Baseline	1460.00	1460.00	1460.00	1460.00	1460.00	1460.00	1460.00	1460.00
Scenario	1460.00	1460.00	1460.00	1460.00	1460.00	1460.00	1460.00	1460.00
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Domestic use								
Baseline	2700.74	2683.88	2666.06	2648.74	2631.29	2612.85	2593.76	2573.86
Scenario	2700.74	2683.88	2666.06	2648.74	2631.29	2612.85	2593.76	2573.86
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%

Source: Own calculation.

Potato, Germany

	2003	2004	2005	2006	2007	2008	2009	2010
Price (farm gate)				**€/ton**				
Baseline	105.58	105.21	104.99	104.46	103.98	103.48	103.10	102.71
Scenario	105.58	105.21	104.99	103.32	102.64	102.44	102.14	101.71
Change from baseline	-00.00%	+00.00%	-00.00%	**-01.09%**	**-01.28%**	**-01.00%**	**-00.94%**	**-00.98%**
Area harvested				**Thousand hectars**				
Baseline	176.37	174.34	172.32	170.29	168.26	166.24	164.21	162.19
Scenario	176.37	174.34	172.32	170.29	168.26	166.24	164.21	162.19
Change from baseline	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%	+00.00%
Yield				**Tonnes per hectar**				
Baseline	62.81	63.99	65.80	67.51	69.41	71.09	72.83	74.52
Scenario	62.81	63.99	67.86	69.95	71.81	73.46	75.16	76.82
Change from baseline	-00.00%	+00.00%	**+03.13%**	**+03.61%**	**+03.46%**	**+03.34%**	**+03.21%**	**+03.09%**
Production				**Thousand tonnes**				
Baseline	11077.40	11155.75	11338.62	11496.10	11678.80	11818.10	11958.70	12085.67
Scenario	11077.40	11155.75	11693.73	11911.39	12083.44	12212.27	12342.50	12459.17
Change from baseline	-00.00%	+00.00%	**+03.13%**	**+03.61%**	**+03.46%**	**+03.34%**	**+03.21%**	**+03.09%**
Exports								
Baseline	1741.91	1792.66	1852.53	1910.13	1969.97	2026.29	2082.85	2138.41
Scenario	1741.91	1792.66	1882.89	1945.64	2004.73	2060.20	2115.84	2170.50
Change from baseline	-00.00%	+00.00%	**+01.64%**	**+01.86%**	**+01.76%**	**+01.67%**	**+01.58%**	**+01.50%**
Imports								
Baseline	1561.69	1565.39	1557.11	1551.90	1543.69	1539.72	1535.23	1531.78
Scenario	1561.69	1565.39	1518.25	1506.44	1498.95	1495.99	1492.73	1490.46
Change from baseline	+00.00%	-00.00%	**-02.50%**	**-02.93%**	**-02.90%**	**-02.84%**	**-02.77%**	**-02.70%**
Net exp								
Baseline	180.23	227.27	295.42	358.23	426.28	486.56	547.62	606.62
Scenario	180.23	227.27	364.65	439.20	505.78	564.21	623.11	680.05
Change from baseline	-00.00%	+00.00%	**+23.43%**	**+22.60%**	**+18.65%**	**+15.96%**	**+13.79%**	**+12.10%**
Domestic use								
Baseline	5910.27	5906.88	5901.21	5896.73	5891.30	5883.70	5874.46	5863.40
Scenario	5910.27	5906.88	5901.21	5896.73	5889.38	5881.21	5872.41	5861.52
Change from baseline	-00.00%	-00.00%	+00.00%	-00.00%	-00.03%	-00.04%	-00.04%	-00.03%

Source: Own calculation.

Land, Germany

	Item	2003	2004	2005	2006	2007	2008	2009	2010
					Thousand hectars				
Agricultural Land	Baseline	16996.84	17032.83	17062.35	17091.69	17123.41	17156.44	17191.16	17228.5
	Scenario	16996.84	17032.83	17062.35	17091.69	17123.41	17156.44	17191.16	17228.5
	Change from baseline	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Land Forrest	Baseline	10546.75	10556.07	10565.39	10574.73	10584.07	10593.43	10602.79	10612.16
	Scenario	10546.75	10556.07	10565.39	10574.73	10584.07	10593.43	10602.79	10612.16
	Change from baseline	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Land Total	Baseline	34894.64	34923.3	34923.3	34923.3	34923.3	34923.3	34923.3	34923.3
	Scenario	34894.64	34923.3	34923.3	34923.3	34923.3	34923.3	34923.3	34923.3
	Change from baseline	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other AG Land	Baseline	8903.531	8866.283	8893.044	8926.691	8977.033	9004.385	9040.34	9074.155
	Scenario	8903.531	8866.283	9033.281	9111.978	9159.855	9184.741	9218.213	9249.5
	Change from baseline	0.00%	0.00%	1.58%	2.08%	2.04%	2.00%	1.97%	1.93%

Source: Own calculation.

Germany: Agricultural Output, Input and Income in the Luxembourg Agreement Scenario

EAA code number	EAA items	2003	2004	2005	2006	2007	2008	2009	2010
		million euro							
	Commodity (valued at producer prices)								
18.A	**Livestock and livestock products**	**18147**	**18301**	**18098**	**17766**	**16994**	**16575**	**16638**	**16748**
16.A	**Livestock** (incl. Stock changes)	8507	8712	8774	8695	8207	7960	8074	8229
	of which:								
16.1.A	Cattle	2599	2605	2660	2809	2549	2419	2322	2262
16.2.A	Pigs	4672	4847	4829	4585	4340	4211	4397	4589
16.4.A	Sheep & Lambs	167	166	167	166	165	164	164	164
16.5.A	Poultry	1069	1094	1119	1134	1152	1166	1191	1214
17.A	**Livestock Products**	**9641**	**9588**	**9324**	**9071**	**8788**	**8615**	**8564**	**8519**
	of which:								
17.1.A	Milk	8281	8228	7964	7711	7428	7255	7204	7159
	Other livestock and products (horses+eggs+wool etc)	1360	1360	1360	1360	1360	1360	1360	1360
15.A	**Crops** (incl. stock changes)	**17671**	**17534**	**17260**	**17117**	**16913**	**16771**	**16636**	**16504**
01.1A	Wheat	2249	2268	2234	2269	2294	2328	2368	2413
01.3.A	Barley	1123	1121	1093	1099	1094	1098	1104	1110
01.5.A	Maize grain	437	435	428	434	436	440	444	449
05.1.1.A	Rape and turnip seed	794	846	832	846	824	841	858	872
04.1.A	Potatoes	944	945	959	960	963	966	969	970
04.2.A	Sugar Beet	1102	1106	1110	1114	1117	1121	1125	1129
	Other Crops	11022	10813	10604	10395	10186	9977	9768	9559
	of which:								
	Fresh Vegetables including mushrooms	3880	4001	4121	4242	4362	4483	4603	4724
	Fresh Fruit	867	908	950	991	1033	1074	1116	1157
	Forage plants	3773	3551	3296	3044	2786	2546	2324	2103
	Agricultural Output (of goods) at producer prices (15.A+18.A)	**35818**	**35834**	**35358**	**34883**	**33908**	**33346**	**33274**	**33252**
19.A	Contract work and output of agriculatural services	1416	1461	1505	1550	1595	1640	1685	1729
20.A	**Agricultural Output incl services (15.A+18.A+19.A)**	**37234**	**37295**	**36864**	**36433**	**35503**	**34986**	**34959**	**34981**
21.A	Secondary activities	**130**	**130**	**130**	**130**	**130**	**130**	**130**	**130**
22.A	**Output of the Agricultural 'Industry' (20.A+21.A)**	**37364**	**37425**	**36994**	**36563**	**35633**	**35116**	**35089**	**35111**
22.B	*Subsidies on products*	3863	4192	4522	4852	4852	4852	4852	4852
22.C	*Taxes on products*	334	335	322	309	283	268	266	266
	Subsidies less taxes on products (include in 'All Subsidies..' below)								
22.D	**Agricultural output at basic prices (22.A+22.B-22.C)**	**40893**	**41283**	**41194**	**41106**	**40202**	**39700**	**39674**	**39698**
23	**Total intermediate consumption (inputs of materials and**	**25462**	**25261**	**24941**	**24683**	**24222**	**23848**	**23597**	**23375**
23.6	Feeding stuffs	10868	10533	10166	9834	9394	8995	8660	8348
23.3	Fertilizers (incl. lime)	1571	1617	1633	1677	1723	1768	1815	1861
24	**Gross value added at basic prices (22.D-23)**	**15430**	**16021**	**16253**	**16423**	**15980**	**15852**	**16077**	**16323**
25	Fixed capital consumption (Depreciation)	7324	7312	7287	7262	7225	7198	7183	7170
26	Net value added at basic prices (24-25)	8106	8710	8966	9161	8755	8654	8894	9153
28	Taxes on production	770	770	770	770	770	770	770	770
29	Subsidies on production	1413	1313	1213	1113	1013	913	813	713
	Subsidies less taxes on production (29-28)								
30	**Factor income (agricultural income)(26-28+29)**	**8749**	**9253**	**9409**	**9504**	**8998**	**8797**	**8937**	**9096**
27	Wages & Salaries (incl. employers'	3369	3319	3269	3220	3172	3124	3077	3031
	contributions to social security)								
31	**Operating Surplus (self-employment income)(30-27)**	**5380**	**5934**	**6140**	**6284**	**5826**	**5673**	**5860**	**6065**
	INFORMATION NOTE								
	All subsidies on products and production less taxes								
	Interest paid								

Source: Own calculation.

Agricultural Emission of N_2O in the Baseline Scenario in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
				Gg per year				
Commodity								
Livestock and livestock products	8.56	8.42	8.24	8.04	7.84	7.63	7.39	7.14
Livestock								
of which:								
Cattle	2.46	2.35	2.24	2.11	1.97	1.85	1.74	1.64
Pigs	2.33	2.31	2.26	2.19	2.11	2.01	1.88	1.72
Sheep & Lambs	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.50
Poultry	0.79	0.82	0.85	0.88	0.91	0.95	0.97	1.00
Livestock Products								
of which:								
Milk	2.49	2.44	2.40	2.37	2.35	2.33	2.31	2.28
Crops	117.73	117.74	117.96	118.20	118.52	118.76	119.04	119.32
Wheat	20.50	20.43	20.52	20.59	20.75	20.84	20.93	21.03
Barley	13.07	13.16	13.07	13.05	12.91	12.86	12.81	12.76
Maize grain	3.48	3.48	3.48	3.49	3.49	3.49	3.49	3.50
Rape and turnip seed	8.67	8.97	9.00	8.97	8.90	8.92	8.91	8.92
Potatoes	1.31	1.30	1.28	1.27	1.25	1.24	1.22	1.21
Sugar Beet	3.93	3.92	3.91	3.90	3.89	3.88	3.87	3.86
Other Crops	66.78	66.50	66.70	66.95	67.33	67.53	67.80	68.06
Sum	126.30	126.16	126.19	126.24	126.36	126.39	126.43	126.46

Source: Own calculation.

Agricultural Emission of N_2O in the Luxembourg Agreement Scenario

Items	2003	2004	2005	2006	2007	2008	2009	2010
				Gg per year				
Commodity								
Livestock and livestock products	8.56	8.42	8.24	8.06	7.83	7.56	7.32	7.10
Livestock								
of which:								
Cattle	2.46	2.35	2.24	2.12	1.96	1.78	1.68	1.61
Pigs	2.33	2.31	2.26	2.19	2.11	2.01	1.87	1.72
Sheep & Lambs	0.49	0.49	0.49	0.49	0.49	0.49	0.48	0.48
Poultry	0.79	0.82	0.85	0.88	0.91	0.95	0.97	1.00
Livestock Products								
of which:								
Milk	2.49	2.44	2.40	2.37	2.35	2.34	2.32	2.28
Crops	117.73	117.74	116.98	117.03	117.36	117.62	117.91	118.22
Wheat	20.50	20.43	19.98	20.04	20.22	20.33	20.43	20.54
Barley	13.07	13.16	12.73	12.68	12.54	12.48	12.44	12.39
Maize grain	3.48	3.48	3.39	3.39	3.39	3.40	3.40	3.41
Rape and turnip seed	8.67	8.97	9.00	8.80	8.74	8.76	8.75	8.76
Potatoes	1.31	1.30	1.28	1.27	1.25	1.24	1.22	1.21
Sugar Beet	3.93	3.92	3.91	3.90	3.89	3.88	3.87	3.86
Other Crops	66.78	66.50	66.70	66.95	67.33	67.53	67.80	68.06
Sum	126.30	126.16	125.22	125.08	125.19	125.18	125.24	125.31

Source: Own calculation.

Impact of the Luxembourg Agreement Scenario on Emission of N_2O in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
			Percentage change from the Baseline					
Commodity								
Livestock and livestock products	**0.0%**	**0.0%**	**0.0%**	**0.2%**	**-0.2%**	**-0.9%**	**-0.9%**	**-0.6%**
Livestock								
of which:								
Cattle	**0.0%**	**0.0%**	**0.0%**	**0.7%**	**-0.7%**	**-3.4%**	**-3.5%**	**-2.2%**
Pigs	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sheep & Lambs	**0.0%**	**0.0%**	**0.0%**	**-0.1%**	**-0.6%**	**-1.4%**	**-2.2%**	**-2.8%**
Poultry	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Livestock Products								
of which:								
Milk	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.2%**	**0.2%**	**0.3%**
Crops	**0.0%**	**0.0%**	**-0.8%**	**-1.0%**	**-1.0%**	**-1.0%**	**-0.9%**	**-0.9%**
Wheat	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.6%**	**-2.5%**	**-2.4%**	**-2.3%**
Barley	**0.0%**	**0.0%**	**-2.6%**	**-2.8%**	**-2.9%**	**-2.9%**	**-2.9%**	**-2.9%**
Maize grain	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.7%**	**-2.7%**	**-2.6%**	**-2.6%**
Rape and turnip seed	**0.0%**	**0.0%**	**0.0%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**
Potatoes	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sugar Beet	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Other Crops	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sum	**0.0%**	**0.0%**	**-0.8%**	**-0.9%**	**-0.9%**	**-1.0%**	**-0.9%**	**-0.9%**

Source: Own calculation.

Agricultural Emission of NO in the Baseline Scenario in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
				Gg per year				
Commodity								
Livestock and livestock products	11.09	10.88	10.63	10.37	10.09	9.79	9.46	9.12
Livestock								
of which:								
Cattle	3.34	3.19	3.03	2.86	2.68	2.50	2.35	2.23
Pigs	3.24	3.22	3.14	3.05	2.94	2.79	2.61	2.39
Sheep & Lambs	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Poultry	1.04	1.08	1.12	1.16	1.21	1.25	1.29	1.33
Livestock Products								
of which:								
Milk	3.40	3.33	3.27	3.23	3.21	3.18	3.15	3.11
Crops	59.65	59.66	59.77	59.90	60.06	60.19	60.34	60.48
Wheat	10.33	10.30	10.34	10.38	10.46	10.51	10.55	10.60
Barley	5.83	5.86	5.83	5.81	5.75	5.73	5.71	5.69
Maize grain	1.96	1.96	1.96	1.96	1.96	1.96	1.97	1.97
Rape and turnip seed	4.67	4.83	4.85	4.84	4.80	4.81	4.80	4.81
Potatoes	0.67	0.66	0.65	0.64	0.64	0.63	0.62	0.61
Sugar Beet	2.07	2.07	2.06	2.06	2.05	2.05	2.04	2.04
Other Crops	34.12	33.97	34.08	34.21	34.40	34.50	34.64	34.77
Sum	70.74	70.54	70.41	70.26	70.16	69.99	69.80	69.60

Source: Own calculation.

Agricultural Emission of NO in the Luxembourg Agreement Scenario

Items	2003	2004	2005	2006	2007	2008	2009	2010
	Gg per year							
Commodity								
Livestock and livestock products	11.09	10.88	10.63	10.39	10.07	9.71	9.39	9.07
Livestock								
of which:								
Cattle	3.34	3.19	3.03	2.88	2.66	2.42	2.27	2.18
Pigs	3.24	3.22	3.14	3.05	2.94	2.79	2.61	2.39
Sheep & Lambs	0.06	0.07	0.07	0.07	0.07	0.06	0.06	0.06
Poultry	1.04	1.08	1.12	1.16	1.21	1.25	1.29	1.33
Livestock Products								
of which:								
Milk	3.40	3.33	3.27	3.23	3.21	3.19	3.16	3.11
Crops	59.65	59.66	59.29	59.31	59.49	59.63	59.78	59.94
Wheat	10.33	10.30	10.07	10.10	10.19	10.25	10.30	10.35
Barley	5.83	5.86	5.67	5.65	5.59	5.56	5.54	5.52
Maize grain	1.96	1.96	1.91	1.91	1.91	1.91	1.91	1.92
Rape and turnip seed	4.67	4.83	4.85	4.75	4.71	4.72	4.72	4.72
Potatoes	0.67	0.66	0.65	0.64	0.64	0.63	0.62	0.61
Sugar Beet	2.07	2.07	2.06	2.06	2.05	2.05	2.04	2.04
Other Crops	34.12	33.97	34.08	34.21	34.40	34.50	34.64	34.77
Sum	70.74	70.54	69.93	69.70	69.56	69.34	69.17	69.01

Source: Own calculation.

Impact of the Luxembourg Agreement Scenario on Emission of NO in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
			Percentage change from the Baseline					
Commodity								
Livestock and livestock products	**0.0%**	**0.0%**	**0.0%**	**0.2%**	**-0.2%**	**-0.8%**	**-0.8%**	**-0.5%**
Livestock								
of which:								
Cattle	**0.0%**	**0.0%**	**0.0%**	**0.7%**	**-0.7%**	**-3.4%**	**-3.5%**	**-2.2%**
Pigs	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sheep & Lambs	**0.0%**	**0.0%**	**0.0%**	**-0.1%**	**-0.6%**	**-1.4%**	**-2.2%**	**-2.8%**
Poultry	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Livestock Products								
of which:								
Milk	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.2%**	**0.2%**	**0.3%**
Crops	**0.0%**	**0.0%**	**-0.8%**	**-1.0%**	**-1.0%**	**-0.9%**	**-0.9%**	**-0.9%**
Wheat	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.6%**	**-2.5%**	**-2.4%**	**-2.3%**
Barley	**0.0%**	**0.0%**	**-2.6%**	**-2.8%**	**-2.9%**	**-2.9%**	**-2.9%**	**-2.9%**
Maize grain	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.7%**	**-2.7%**	**-2.6%**	**-2.6%**
Rape and turnip seed	**0.0%**	**0.0%**	**0.0%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**
Potatoes	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sugar Beet	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Other Crops	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sum	**0.0%**	**0.0%**	**-0.7%**	**-0.8%**	**-0.8%**	**-0.9%**	**-0.9%**	**-0.8%**

Source: Own calculation.

Agricultural Emission of NMVOC-C in the Baseline Scenario in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
	Gg per year							
Commodity								
Livestock and livestock products	282.17	277.71	270.93	263.46	255.47	246.14	234.88	222.18
Livestock								
of which:								
Cattle	39.04	37.28	35.47	33.40	31.28	29.28	27.52	26.02
Pigs	153.84	152.82	149.32	144.77	139.41	132.57	123.84	113.65
Sheep & Lambs	1.81	1.81	1.82	1.83	1.83	1.84	1.84	1.84
Poultry	2.22	2.30	2.38	2.47	2.57	2.65	2.73	2.82
Livestock Products								
of which:								
Milk	85.26	83.49	81.93	80.98	80.38	79.80	78.94	77.85
Crops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wheat	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maize grain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rape and turnip seed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Potatoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sugar Beet	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Crops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	282.17	277.71	270.93	263.46	255.47	246.14	234.88	222.18

Source: Own calculation.

Agricultural Emission of NMVOC-C in the Luxembourg Agreement Scenario

Items	2003	2004	2005	2006	2007	2008	2009	2010
				Gg per year				
Commodity								
Livestock and livestock products	282.17	277.71	270.93	263.71	255.29	245.20	234.03	221.74
Livestock								
of which:								
Cattle	39.04	37.28	35.47	33.63	31.06	28.28	26.56	25.46
Pigs	153.84	152.82	149.32	144.76	139.39	132.54	123.80	113.61
Sheep & Lambs	1.81	1.81	1.82	1.83	1.82	1.81	1.80	1.79
Poultry	2.22	2.30	2.38	2.47	2.57	2.65	2.73	2.82
Livestock Products								
of which:								
Milk	85.26	83.49	81.93	81.01	80.46	79.92	79.14	78.07
Crops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wheat	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Barley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maize grain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rape and turnip seed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Potatoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sugar Beet	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Crops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	282.17	277.71	270.93	263.71	255.29	245.20	234.03	221.74

Source: Own calculation.

Impact of the Luxembourg Agreement Scenario on Emission of NMVOC-C in Germany (

Items	2003	2004	2005	2006	2007	2008	2009	2010
			Percentage change from the Baseline					
Commodity								
Livestock and livestock products	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**-0.1%**	**-0.4%**	**-0.4%**	**-0.2%**
Livestock								
of which:								
Cattle	**0.0%**	**0.0%**	**0.0%**	**0.7%**	**-0.7%**	**-3.4%**	**-3.5%**	**-2.2%**
Pigs	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sheep & Lambs	**0.0%**	**0.0%**	**0.0%**	**-0.1%**	**-0.6%**	**-1.4%**	**-2.2%**	**-2.8%**
Poultry	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Livestock Products								
of which:								
Milk	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.2%**	**0.2%**	**0.3%**
Crops	**0.0%**	**0.0%**	**-0.9%**	**-1.0%**	**-1.0%**	**-1.0%**	**-1.0%**	**-1.0%**
Wheat	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.6%**	**-2.5%**	**-2.4%**	**-2.3%**
Barley	**0.0%**	**0.0%**	**-2.6%**	**-2.8%**	**-2.9%**	**-2.9%**	**-2.9%**	**-2.9%**
Maize grain	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.7%**	**-2.7%**	**-2.6%**	**-2.6%**
Rape and turnip seed	**0.0%**	**0.0%**	**0.0%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**
Potatoes	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sugar Beet	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Other Crops	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sum	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**-0.1%**	**-0.4%**	**-0.4%**	**-0.2%**

Source: Own calculation.

Agricultural Emission of CO_2 in the Baseline Scenario in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
				Gg per year				
Commodity								
Livestock and livestock products	3342.97	3279.23	3197.84	3110.69	3020.48	2920.99	2807.70	2685.08
Livestock								
of which:								
Cattle	834.16	796.49	757.81	713.66	668.39	625.65	588.07	555.94
Pigs	1228.77	1220.63	1192.67	1156.32	1113.47	1058.87	989.16	907.79
Sheep & Lambs	45.31	45.43	45.60	45.75	45.87	45.95	46.02	46.07
Poultry	134.67	139.41	144.63	150.06	155.68	160.97	165.88	170.86
Livestock Products								
of which:								
Milk	1100.06	1077.27	1057.12	1044.90	1037.07	1029.55	1018.57	1004.42
Crops	6953.18	6954.58	6966.77	6980.81	6998.55	7012.40	7028.34	7044.62
Wheat	1136.53	1132.57	1137.76	1141.40	1150.39	1155.70	1160.58	1166.04
Barley	787.82	792.77	787.67	786.16	778.03	774.70	771.93	768.70
Maize grain	165.12	165.24	165.20	165.37	165.37	165.51	165.66	165.82
Rape and turnip seed	537.83	556.49	558.31	556.68	552.69	553.85	553.11	553.54
Potatoes	95.66	94.56	93.46	92.36	91.26	90.16	89.07	87.97
Sugar Beet	241.38	240.79	240.21	239.62	239.04	238.45	237.86	237.28
Other Crops	3988.85	3972.16	3984.15	3999.22	4021.78	4034.03	4050.14	4065.29
Sum	10296.15	10233.80	10164.61	10091.50	10019.03	9933.39	9836.04	9729.70

Source: Own calculation.

Agricultural Emission of CO_2 in the Luxembourg Agreement Scenario in Germany

Items	2003	2004	2005	2006	2007	2008	2009	2010
	Gg per year							
Commodity								
Livestock and livestock products	3342.97	3279.23	3197.83	3115.81	3016.24	2900.20	2788.17	2674.28
Livestock								
of which:								
Cattle	834.16	796.49	757.81	718.49	663.50	604.12	567.41	543.88
Pigs	1228.77	1220.63	1192.67	1156.27	1113.32	1058.61	988.84	907.40
Sheep & Lambs	45.31	45.43	45.60	45.71	45.60	45.30	45.02	44.79
Poultry	134.67	139.41	144.62	150.05	155.67	160.96	165.87	170.85
Livestock Products								
of which:								
Milk	1100.06	1077.27	1057.12	1045.28	1038.15	1031.20	1021.04	1007.36
Crops	6953.18	6954.58	6911.73	6913.53	6932.22	6947.02	6963.90	6981.14
Wheat	1136.53	1132.57	1107.81	1111.08	1120.88	1127.16	1132.76	1138.88
Barley	787.82	792.77	766.94	763.94	755.77	752.26	749.53	746.40
Maize grain	165.12	165.24	160.85	160.85	160.92	161.12	161.33	161.56
Rape and turnip seed	537.83	556.49	558.31	546.46	542.57	543.84	543.22	543.77
Potatoes	95.66	94.56	93.46	92.36	91.26	90.16	89.07	87.97
Sugar Beet	241.38	240.79	240.21	239.62	239.04	238.45	237.86	237.28
Other Crops	3988.85	3972.16	3984.15	3999.22	4021.78	4034.03	4050.14	4065.29
Sum	10296.15	10233.80	10109.55	10029.34	9948.46	9847.22	9752.07	9655.41

Source: Own calculation.

Impact of the Luxembourg Agreement Scenario on Emission of CO_2 in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
			Percentage change from the Baseline					
Commodity								
Livestock and livestock products	**0.0%**	**0.0%**	**0.0%**	**0.2%**	**-0.1%**	**-0.7%**	**-0.7%**	**-0.4%**
Livestock								
of which:								
Cattle	**0.0%**	**0.0%**	**0.0%**	**0.7%**	**-0.7%**	**-3.4%**	**-3.5%**	**-2.2%**
Pigs	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sheep & Lambs	**0.0%**	**0.0%**	**0.0%**	**-0.1%**	**-0.6%**	**-1.4%**	**-2.2%**	**-2.8%**
Poultry	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Livestock Products								
of which:								
Milk	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.2%**	**0.2%**	**0.3%**
Crops	**0.0%**	**0.0%**	**-0.8%**	**-1.0%**	**-0.9%**	**-0.9%**	**-0.9%**	**-0.9%**
Wheat	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.6%**	**-2.5%**	**-2.4%**	**-2.3%**
Barley	**0.0%**	**0.0%**	**-2.6%**	**-2.8%**	**-2.9%**	**-2.9%**	**-2.9%**	**-2.9%**
Maize grain	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.7%**	**-2.7%**	**-2.6%**	**-2.6%**
Rape and turnip seed	**0.0%**	**0.0%**	**0.0%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**
Potatoes	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sugar Beet	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Other Crops	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sum	**0.0%**	**0.0%**	**-0.5%**	**-0.6%**	**-0.7%**	**-0.9%**	**-0.9%**	**-0.8%**

Source: Own calculation.

Agricultural Emission of CH_4 in the Baseline Scenario in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
				Gg per year				
Commodity								
Livestock and livestock products	2490.11	2429.75	2359.28	2285.55	2210.81	2131.92	2046.20	1956.21
Livestock								
of which:								
Cattle	801.32	765.13	727.98	685.57	642.08	601.01	564.91	534.06
Pigs	712.10	707.38	691.18	670.11	645.28	613.64	573.24	526.08
Sheep & Lambs	14.70	14.74	14.79	14.84	14.88	14.91	14.93	14.95
Poultry	7.81	8.08	8.38	8.70	9.02	9.33	9.61	9.90
Livestock Products								
of which:								
Milk	954.18	934.42	916.94	906.34	899.55	893.03	883.50	871.23
Crops	-28.71	-28.69	-28.75	-28.81	-28.90	-28.96	-29.03	-29.11
Wheat	-4.21	-4.19	-4.21	-4.22	-4.26	-4.28	-4.30	-4.32
Barley	-3.20	-3.22	-3.20	-3.20	-3.16	-3.15	-3.14	-3.13
Maize grain	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58	-0.58
Rape and turnip seed	-1.57	-1.62	-1.63	-1.62	-1.61	-1.61	-1.61	-1.61
Potatoes	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.24
Sugar Beet	-0.74	-0.74	-0.74	-0.74	-0.73	-0.73	-0.73	-0.73
Other Crops	-18.16	-18.08	-18.14	-18.20	-18.31	-18.36	-18.44	-18.50
Sum	2461.40	2401.06	2330.53	2256.74	2181.91	2102.96	2017.17	1927.11

Source: Own calculation.

Agricultural Emission of CH_4 in the Luxembourg Agreement Scenario in Germany

Items	2003	2004	2005	2006	2007	2008	2009	2010
				Gg per year				
Commodity								
Livestock and livestock products	2490.11	2429.75	2359.27	2290.49	2206.87	2112.31	2027.99	1946.53
Livestock								
of which:								
Cattle	801.32	765.13	727.98	690.21	637.38	580.34	545.07	522.46
Pigs	712.10	707.38	691.18	670.09	645.20	613.49	573.05	525.86
Sheep & Lambs	14.70	14.74	14.79	14.83	14.79	14.69	14.60	14.53
Poultry	7.81	8.08	8.38	8.70	9.02	9.33	9.61	9.90
Livestock Products								
of which:								
Milk	954.18	934.42	916.94	906.67	900.48	894.46	885.64	873.77
Crops	-28.71	-28.69	-28.54	-28.57	-28.66	-28.72	-28.80	-28.87
Wheat	-4.21	-4.19	-4.10	-4.11	-4.15	-4.17	-4.19	-4.21
Barley	-3.20	-3.22	-3.12	-3.11	-3.07	-3.06	-3.05	-3.04
Maize grain	-0.58	-0.58	-0.56	-0.56	-0.56	-0.56	-0.56	-0.56
Rape and turnip seed	-1.57	-1.62	-1.63	-1.59	-1.58	-1.58	-1.58	-1.58
Potatoes	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25	-0.25	-0.24
Sugar Beet	-0.74	-0.74	-0.74	-0.74	-0.73	-0.73	-0.73	-0.73
Other Crops	-18.16	-18.08	-18.14	-18.20	-18.31	-18.36	-18.44	-18.50
Sum	2461.39	2401.06	2330.74	2261.92	2178.22	2083.59	1999.19	1917.66

Source: Own calculation.

Impact of the Luxembourg Agreement Scenario on Emission of CH_4 in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
			Percentage change from the Baseline					
Commodity								
Livestock and livestock products	**0.0%**	**0.0%**	**0.0%**	**0.2%**	**-0.2%**	**-0.9%**	**-0.9%**	**-0.5%**
Livestock								
of which:								
Cattle	**0.0%**	**0.0%**	**0.0%**	**0.7%**	**-0.7%**	**-3.4%**	**-3.5%**	**-2.2%**
Pigs	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sheep & Lambs	**0.0%**	**0.0%**	**0.0%**	**-0.1%**	**-0.6%**	**-1.4%**	**-2.2%**	**-2.8%**
Poultry	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Livestock Products								
of which:								
Milk	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.2%**	**0.2%**	**0.3%**
Crops	**0.0%**	**0.0%**	**-0.7%**	**-0.9%**	**-0.8%**	**-0.8%**	**-0.8%**	**-0.8%**
Wheat	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.6%**	**-2.5%**	**-2.4%**	**-2.3%**
Barley	**0.0%**	**0.0%**	**-2.6%**	**-2.8%**	**-2.9%**	**-2.9%**	**-2.9%**	**-2.9%**
Maize grain	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.7%**	**-2.7%**	**-2.6%**	**-2.6%**
Rape and turnip seed	**0.0%**	**0.0%**	**0.0%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**
Potatoes	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sugar Beet	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Other Crops	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sum	**0.0%**	**0.0%**	**0.0%**	**0.2%**	**-0.2%**	**-0.9%**	**-0.9%**	**-0.5%**

Source: Own calculation.

Agricultural Emission of NH_3 in the Baseline Scenario in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
				Gg per year				
Commodity								
Livestock and livestock products	557.19	551.24	542.47	533.08	523.28	511.52	496.85	480.20
Livestock								
of which:								
Cattle	81.90	78.21	74.41	70.07	65.63	61.43	57.74	54.59
Pigs	214.39	212.97	208.09	201.75	194.27	184.75	172.59	158.39
Sheep & Lambs	2.78	2.79	2.80	2.81	2.82	2.82	2.83	2.83
Poultry	80.79	83.63	86.76	90.02	93.39	96.56	99.51	102.49
Livestock Products								
of which:								
Milk	177.32	173.65	170.40	168.43	167.17	165.96	164.19	161.91
Crops	102.18	102.33	102.53	102.72	102.95	103.17	103.40	103.64
Wheat	23.35	23.26	23.37	23.45	23.63	23.74	23.84	23.95
Barley	11.87	11.95	11.87	11.85	11.73	11.68	11.63	11.58
Maize grain	2.92	2.92	2.92	2.93	2.93	2.93	2.93	2.93
Rape and turnip seed	11.08	11.46	11.50	11.47	11.38	11.41	11.39	11.40
Potatoes	0.92	0.91	0.89	0.88	0.87	0.86	0.85	0.84
Sugar Beet	3.16	3.15	3.14	3.14	3.13	3.12	3.11	3.10
Other Crops	48.88	48.68	48.83	49.01	49.29	49.44	49.63	49.82
Sum	659.36	653.57	644.99	635.80	626.23	614.69	600.24	583.84

Source: Own calculation.

Agricultural Emission of NH_3 in the Luxembourg Agreement Scenario in Germany

Items	2003	2004	2005	2006	2007	2008	2009	2010
	Gg per year							
Commodity								
Livestock and livestock products	557.19	551.24	542.46	533.60	522.92	509.58	495.09	479.34
Livestock								
of which:								
Cattle	81.90	78.20	74.41	70.55	65.15	59.32	55.71	53.40
Pigs	214.39	212.97	208.09	201.74	194.25	184.70	172.53	158.32
Sheep & Lambs	2.78	2.79	2.80	2.81	2.80	2.78	2.77	2.75
Poultry	80.79	83.63	86.76	90.01	93.38	96.56	99.50	102.49
Livestock Products								
of which:								
Milk	177.32	173.65	170.40	168.49	167.34	166.22	164.58	162.38
Crops	102.18	102.33	101.52	101.47	101.73	101.96	102.21	102.47
Wheat	23.35	23.26	22.76	22.82	23.02	23.15	23.27	23.39
Barley	11.87	11.95	11.56	11.51	11.39	11.34	11.30	11.25
Maize grain	2.92	2.92	2.85	2.85	2.85	2.85	2.86	2.86
Rape and turnip seed	11.08	11.46	11.50	11.26	11.17	11.20	11.19	11.20
Potatoes	0.92	0.91	0.89	0.88	0.87	0.86	0.85	0.84
Sugar Beet	3.16	3.15	3.14	3.14	3.13	3.12	3.11	3.10
Other Crops	48.88	48.68	48.83	49.01	49.29	49.44	49.63	49.82
Sum	659.36	653.57	643.98	635.07	624.65	611.55	597.30	581.81

Source: Own calculation.

Impact of the Luxembourg Agreement Scenario on Emission of NH_3 in Germany (DE)

Items	2003	2004	2005	2006	2007	2008	2009	2010
			Percentage change from the Baseline					
Commodity								
Livestock and livestock products	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**-0.1%**	**-0.4%**	**-0.4%**	**-0.2%**
Livestock								
of which:								
Cattle	**0.0%**	**0.0%**	**0.0%**	**0.7%**	**-0.7%**	**-3.4%**	**-3.5%**	**-2.2%**
Pigs	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sheep & Lambs	**0.0%**	**0.0%**	**0.0%**	**-0.1%**	**-0.6%**	**-1.4%**	**-2.2%**	**-2.8%**
Poultry	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Livestock Products								
of which:								
Milk	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.2%**	**0.2%**	**0.3%**
Crops	**0.0%**	**0.0%**	**-1.0%**	**-1.2%**	**-1.2%**	**-1.2%**	**-1.2%**	**-1.1%**
Wheat	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.6%**	**-2.5%**	**-2.4%**	**-2.3%**
Barley	**0.0%**	**0.0%**	**-2.6%**	**-2.8%**	**-2.9%**	**-2.9%**	**-2.9%**	**-2.9%**
Maize grain	**0.0%**	**0.0%**	**-2.6%**	**-2.7%**	**-2.7%**	**-2.7%**	**-2.6%**	**-2.6%**
Rape and turnip seed	**0.0%**	**0.0%**	**0.0%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**	**-1.8%**
Potatoes	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sugar Beet	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Other Crops	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Sum	**0.0%**	**0.0%**	**-0.2%**	**-0.1%**	**-0.3%**	**-0.5%**	**-0.5%**	**-0.3%**

Source: Own calculation.