JRC Scientific and Technical Reports

Commodity Modelling in an Enlarged Europe

November 2006 Workshop Proceedings

AGMEMOD Report V

Editors: Lubica Bartova, Robert M'barek

EUR 22940 EN/5 - 2008

JRC EUROPEAN COMMISSION

ipts Institute for Prospective Technological Studies

The mission of the IPTS is to provide customer-driven support to the EU policy-making process by researching science-based responses to policy challenges that have both a socio-economic and a scientific or technological dimension.

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Contact information
Address: Edificio Expo. c/ Inca Garcilaso, s/n. E-41092 Seville (Spain)
E-mail: jrc-ipts-secretariat@ec.europa.eu
Tel.: +34 954488318
Fax: +34 954488300

http://ipts.jrc.ec.europa.eu/
http://www.jrc.ec.europa.eu/

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Commodity Modelling in an Enlarged Europe

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Editors:
Lubica Bartova and Robert M'barek

2008

■ Foreword

Quantitative models are important tools to analyse the impact of agricultural policies. Validated projections and scenario analysis are crucial for policy makers in the context of EU enlargement, the ongoing Common Agricultural Policy reform and dynamic agricultural commodity markets.

The European Commission's Joint Research Centre - Institute for Prospective Technological Studies (JRC-IPTS) and DG AGRI jointly organised a workshop on "Commodity Modelling in an Enlarged Europe" which was held in November 2006 at the JRC-IPTS venue in Seville. The main objective of the workshop was to validate the results of a JRC-IPTS study "Impact Analysis of CAP reform on the main agricultural commodities" on projections of agricultural commodity markets with modellers and national experts, in particular from the new Member States (2004 and 2007 EU enlargements), and to discuss model scenarios with policy-makers from respective Commission Services.

The above mentioned study has been carried out by the AGMEMOD Partnership under the management of the Agricultural Economics Research Institute (LEI, the Netherlands), in cooperation with the JRC-IPTS.
AGMEMOD (AGricultural MEmber states MODelling) is an econometric, dynamic, partial equilibrium, multi-country, multi-market modelling system, which provides detailed information on the agricultural sector in each EU Member State and the EU as a whole.

During this study the model has been improved, projections have been made for the main European agricultural commodity markets from 2005 until 2015 and the impact of selected policy scenarios assessed.

In addition to the AGMEMOD results, projections for commodity markets from other important models (FAPRI, ESIM, AGLINK and CAPSIM) were presented and discussed in the workshop. Furthermore, a tool for short term forecast and analysis was presented.

Valuable comments were given by modellers, policy makers and national experts on the strengths and weaknesses of the AGMEMOD modelling approach and on ways to improve the model.

Detailed documentation on the AGMEMOD modelling approach as well as the results of the study have been published in five reports within the JRC-IPTS Scientific and Technical Report Series (Box 1) under the heading "Impact analysis of CAP reform on the main agricultural commodities".

Box 1 Impact analysis of CAP reform on the main agricultural commodities

Report I AGMEMOD – Summary Report

This report presents the projections of agricultural commodity markets under the baseline, further CAP reform, enlargement scenarios and exchange rate change sensitivity analyses for the aggregates EU-10, EU-15, EU-25 and EU-27. It summarises the characteristics of the modelling tool used, focusing in particular on the features implemented in this study, and addresses issues that need further attention. (http://www.jrc.es/publications)

Report II AGMEMOD – Member States Results

This report outlines the results of the baseline projections of agricultural commodity markets, further CAP reform scenario impact analyses and exchange rate change sensitivity analyses for individual EU-27 Member States except Malta and Cyprus. For Bulgaria and Romania enlargement and non-enlargement scenarios are analysed. (http://www.jrc.es/publications)

Report III AGMEMOD – Model Description

This report describes the modelling techniques used by the AGMEMOD Partnership, with emphasis on new commodities modelled and policy modelling approaches.
(http://www.jrc.es/publications)

Report IV AGMEMOD – GSE Interface Manual

The manual gives an overview of the GAMS Simulation Environment (GSE) interface and its application with the AGMEMOD model. (http://www.jrc.es/publications)

Report V Commodity Modelling in an Enlarged Europe – November 2006 Workshop Proceedings

These proceedings include presentations and conclusions of a workshop held in November 2006. Presentations of the results of other models such as FAPRI, ESIM, AGLINK and CAPSIM are introduced in addition to the AGMEMOD approach.
(http://www.jrc.es/publications)

We acknowledge contributions made by all those who participated at the workshop.

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Acronyms

AGMEMOD:	AGricultural MEmber states MODelling
AGMEMOD 2020:	The EU 6th Framework Programme project
CAP:	Common Agricultural Policy
CEECs:	Central and Eastern European Countries
CNDP:	Complementary National Direct Payments (top-ups)
EU-10:	8 EU Member States of 2004 enlargement, Malta and Cyprus not included
EU-15:	15 EU Member States before 2004 enlargement
EU-25:	23 EU Member States after 2004 enlargement, Malta and Cyprus not included
EU-27:	25 EU Member States after 2007 enlargement, Malta and Cyprus not included
FAPRI:	Food and Agricultural Policy Research Institute, USA
GAMS:	General Algebraic Modelling System
GDP:	Gross Domestic Product
GSE:	GAMS Simulation Environment
JRC-IPTS:	Joint Research Centre - Institute for Prospective Technological Studies (Spain)
OECD:	Organisation for Economic Co-operation and Development
PSE:	Producer Support Estimate
SAPS:	Single Area Payment Scheme
SFP:	Single Farm Payment
USD:	U.S. Dollar
WTO:	World Trade Organisation

1. R. M'barek - L. Bartova (European Commission, JRC – IPTS): Commodity Modelling in an Enlarged Europe

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Workshop

Commodity Modelling in an enlarged Europe

Jointly organised by and DG JRC and DG RTD
Seville, 06.11.2006

R. M'barek, L. Bartova

Institute for Prospective Technological Studies (IPTS)
Seville, Spain

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Background of workshop

- Commodity markets in a dynamic development
  - "Old" driving factors: weather, emerging countries, exchange rate, policy (WTO, US farm bill, EU health check)
  - "New" driving factors: biofuel, ethanol
  - Developments in new MS and CC
- Decision makers and economicagents in agriculture need information on commodity markets
- European Commission expands its own research capacities

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JRC-IPTS support

- Model platform
  - To ensure that models financed under FP and developed for the EC are maintained, updated and used for policy relevant analysis
  - To ensure that successful pan-European networks, integrating particularly NMS, continue
- Complementary models: AGMEMOD, CAPRI, CGE, CAPSIM
- Possibilities and shortcomings of projections
  - Horizon of projections
  - Assumptions
  - Approaches: one model for one/all countries?

Workshop on commodity modelling, DG JRC, Seville, 6.11.2006 3

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AGMEMOD project

- "Agro-food projections for the EU member states"
- Research project, funded by IPTS(Nov 05 – Jan 06)
- FP6 research project*AGMEMOD 2020* (Jan 2006 – Dec 2008)
- Pan-European network, with strong NMS basis
- Bottom up approach, country expertise
- State of the art:
  - Country models now in GAMS code; combined model for EU15
  - **G**ams **S**imulation **E**nvironment as interface and quality control
  - Baseline until 2015 for EU25 MS, Bulgaria and Romania
  - Scenarios

Workshop on commodity modelling, DG JRC, Seville, 6.11.2006 4

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Objectives of workshop

- Overview on current and expected developments on the European and global commodity markets
- Validation of projections of AGMEMOD project by country, commodity and modelling experts
- Crosscheck results with other models
- Discuss the possibilities and shortcomings of models
- Discuss natural sciences based approach
- Further development of AGMEMOD

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Agenda

- Introduction: (Policy research in FP7, Background of workshop)
- Session 1: Agricultural commodity market prospective (FAPRI, USDA ERS, DG AGRI)
- Session 2: Modelling approaches and baseline results for EU 25/27 (AGLINK, AGLINK-COSIMO, ESIM, CAPSIM, AGMEMOD)
- Session 3: Commodity markets in detail EU25/27 (AGMEMOD) (Cereals/Oilseeds, Meat/Dairy)
- Session 4: Development of commodity markets in NMS/CC (AGMEMOD, ESIM, CAPSIM)
- Final discussion
  (Agrometeorological model; further development of AGMEMOD)

1

2. H. J. Lutzeyer (European Commission, DG RTD): Policy Research in the 7th Research Framework Programme (2007-2013)

Policy Research in the 7th Research Framework Programme (2007-2013)

Hans-Jörg Lutzeyer
Directorate E: Biotechnology, Agriculture and Food Research
DG Research - European Commission

Scientific support to policy (SSP) in FP 7

- Supports the formulation and implementation of Policies (CAP, CFP, Food Safety, Environment, others)
- Integrated into the Thematic Priorities
- No specific budget for SSP, competing with all other research opportunities in a Thematic Priority
- Part of a call for research proposals on a sharedcost basis (no public procurement for services!)
- Research themes are targeted precisely to policy needs

Scientific support to policy (SSP) in FP 7

- Evaluation based on independent experts, their assessment alone decides on the ranking of proposals
- The highest scored projects will be funded, one ranking list for all topics
- How to deal adequately with multi-disciplinary projects?
- Commission negotiates the research projects based on expert comments and comments from the policy directorates (DG Agriculture, DG SANCO, DG Environment)

Cooperation – Collaborative research

9 Thematic Priorities		***€ M***
1.	Health	5.984
2.	**Food, agriculture and biotechnology (FAB)**	**1.935**
3.	Information and communication technologies	9.110
4.	Nanosciences, nanotechnologies, materials and new production technologies	3.467
1.	Energy	2.265
2.	Environment (including climate change)	1.886
3.	Transport (including aeronautics)	4.180
4.	Socio-economic sciences and the humanities	607
5.	Security and space	2.858

+ Euratom: Fusion energy research, nuclear fission and radiation protection

2. Food, Agriculture and Biotechnology

- Sustainable production and management of biological resources from land, forest, and aquatic environments
- "Fork to farm": Food, health and well being
- Life sciences and biotechnology for sustainable non-food products and processes

ACTIVITY 1: Sustainable production and management of biological resources from land, forest and aquatic environments

1. Enabling research for micro-organism, plants and animals
2. Sustainable, competitive and multifunctional agriculture, forestry, aquaculture and rural development
3. Animal welfare, breeding and production
4. Policy tools for agriculture and rural development

Activity 1:
Sustainable production and management of biological resources from land, forest and aquatic environments

4. Policy tools for agriculture and rural development, some draft topics of the first call

- The Farm of Tomorrow – increasing the competitiveness through optimized processes and technologies, while addressing the multifunctional European farming model delivering public goods (Small collaborative project (SCA))
- GMO coexistance measures (SCA)
- Enlargement network – Agro-economic policy analysis of the accession and the candidate states and the countries of Western Balkan (Coordination and support action)
- Comparative analysis of factor markets for agriculture across the Member States (SCA)

Activity 1:
Sustainable production and management of biological resources from land, forest and aquatic environments

4. Policy tools for agriculture and rural development, some topics of the first call

- Costs of different standard setting and certifications systems for organic food and farming (SCA)
- Drivers and limits of enhanced trade in agricultural and food products (SCA)
- Trade and agricultural policies – India (SCA)
- Assessing the impact of Rural Development policies (including Leader) (SCA)
- Policy and institutional aspects of sustainable agriculture and rural development in the Mediterranean partner countries (SCA)
- New sources of employment in rural areas (SCA)
- Costs of production using FADN data (SCA)

Roadmap and More information

Tentative Roadmap:

- **publication of call: 22 Dec. 2006**

CORDIS:

- ww.cordis.lu/	**General**
- http://cordis.europa.eu.int/fp7/	**FP7**
- www.cordis.lu/food/	**FP6 / Food**
- www.cordis.lu/food/ inco.htm	**FP6 / INCO and Food**
- http://cordis.europa.eu.int/inco/home_en.html	**INCO portal**

EUROPA:

- http://europa.eu.int/comm/research/fp6/	**FP6**
- http://europa.eu.int/comm/research/future/index_en.cfm	**FP7**

Data base evaluators :

- https://emmfp6.cordis.lu/index.cfm?fuseaction=wel.welcome

3. P. Westhoff (FAPRI, Missouri): Commodity Market Perspective

FAPRI Commodity Market Perspective

Pat Westhoff (westhoffp@missouri.edu)
FAPRI-Missouri (www.fapri.missouri.edu)
"Commodity Modeling in an Enlarged Europe"
IPTS, Seville
November 6, 2006

FAPRI At the University of Missouri Food and Agricultural Policy Research Institute

College of Agriculture, Food and Natural Resources

Agenda

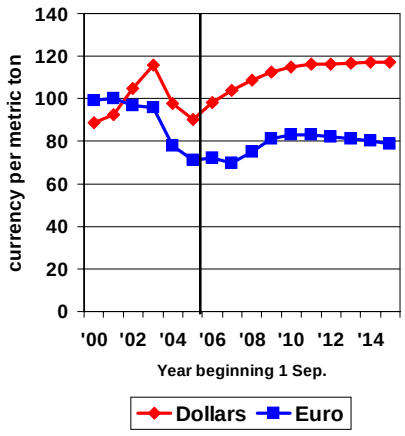
- Highlights of FAPRI outlook
- Major factors driving the outlook
  - Biofuels
  - Everything else

A word about FAPRI

- Food and Agricultural Policy Research Institute
  - Joint institute of University of Missouri and Iowa State University
  - Work with Texas A&M, Univ. of Arkansas, Arizona State, Univ. of Wisconsin, USDA, Teagasc, Queens University, OECD, FAO, European Commission…
- Mission: provide objective, quantitative analysis of agricultural markets and policies
- Funding primarily from annual USDA grants mandated by the U.S. Congress

U.S. export prices for maize:
January 2006 projections

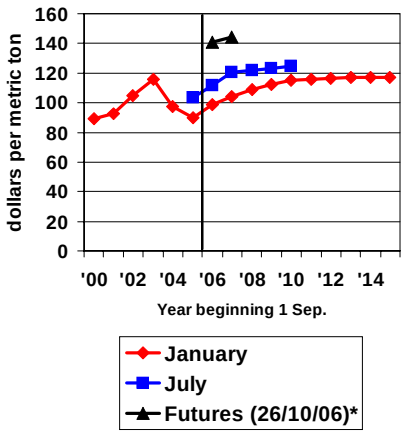
- FAPRI January 2006 baseline showed rising dollar prices for maize and other cereals
- Increase was primarily due to growth in U.S. ethanol demand, with some growth in global feed demand
- Euro was assumed to strengthen vs. dollar ($1.41/euro by 2007), so projected change in prices measured in euro was modest
- Note that January projected U.S. export price for maize is below EU cereal intervention price



Source: FAPRI Jan. 2006 baseline

U.S. export prices for maize:
Comparing projections and recent futures prices

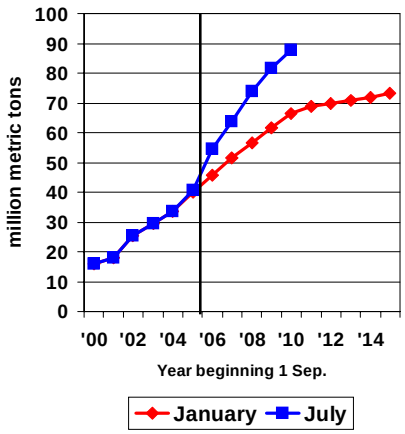
- 5-year FAPRI baseline update in July showed higher prices for maize and other cereals
- 26 Oct. futures prices were noticeably higher
- Some supply issues (e.g., failure of Australian wheat crop, U.S. corn crop smaller than earlier estimated)
- But mostly caused by very strong demand, especially to produce ethanol in U.S.



Sources: FAPRI Jan. 2006 baseline and Jul. 2006 baseline update, Dec. CBOT futures on 26 Oct. 2006, with assumed basis to convert to U.S. Gulf Port prices

U.S. maize used to produce ethanol

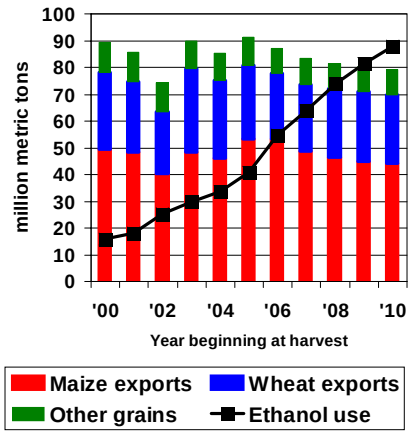
- Ethanol production doubled between 2001 and 2005
- In July update, FAPRI projects another doubling between 2005 and 2009
- Capacity expansion plans indicate even faster ethanol production growth is possible



Source: FAPRI Jan. 2006 baseline and Jul. 2006 baseline update

FAPRI July 2006 projections of U.S. grain exports and maize used for ethanol

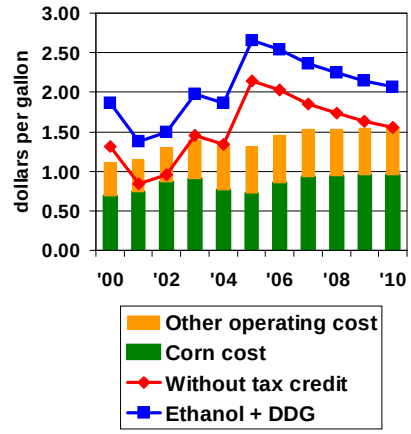
- In July projections, U.S. ethanol use of maize exceeds U.S. maize exports in 2007/08
- By 2010/11, ethanol use of maize exceeds total U.S. grain exports
- Growth in ethanol use limits grain available for export, in spite of area shifts to maize from other crops



Source: FAPRI Jan. 2006 baseline and Jul. 2006 baseline update

U.S. ethanol plant net operating returns

- Until 2005/06, U.S. ethanol plants were usually profitable only because of tax credit ($0.51/gallon or $0.135/liter)
- With higher ethanol prices, plants made record profits in 2005/06, and would have had positive margin even without tax credit
- Projections assume declining oil prices ($53/barrel by 2010)
- Lower ethanol prices and rising maize prices shrink margin
- By 2010/11, positive margin again depends on tax credit



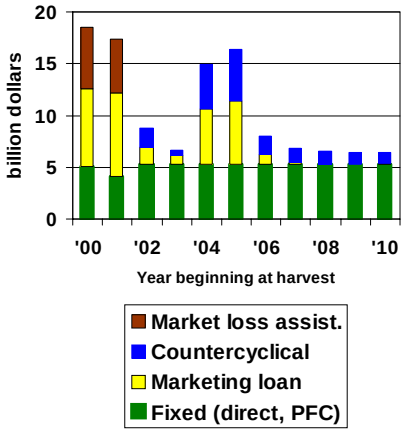
FAPRI estimates, July 2006 update.

Other ethanol implications

- More maize production in U.S. and elsewhere
- Less oilseed production in U.S. and elsewhere
- Higher world grain and sugar prices
- Increased co-product feed availability
- Lower protein meal prices
- Higher feed costs for those feeding grain
- Ambiguous feed cost changes for those using lots of protein meal or maize co-products
- Reduced fiscal cost of U.S. farm programs (offsetting cost of tax credits)

U.S. farm program subsidies to grain, oilseed, and cotton producers

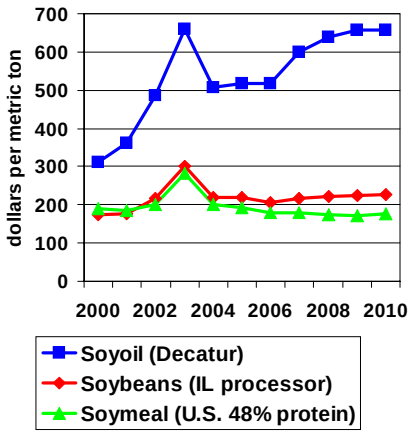
- U.S. producer subsidies were large in 2004/05 and 2005/06 due to low market prices
- At prices projected in FAPRI's July 2006 update, payments tied to prices (marketing loans, countercyclical payments) drop sharply
- These deterministic projections suggest low U.S. amber (and blue) support levels
- Dairy and sugar support programs (with AMS around $6 billion) would account for most of U.S. amber box
- Stochastic analysis indicates some probability of lower prices & higher payments—stochastic mean would exceed this deterministic estimate



Source: Unpublished July 2006 estimates

Biodiesel implications

- Sharp growth in production in Europe, beginning in U.S.
- New demand increases price for vegetable oil
- But resulting increase in crush results in increased supplies of oilseed meals
- Increase in supply and competition from corn co-products both depress prices for oilseed meals
- Rising vegetable oil prices could eventually make biodiesel less attractive



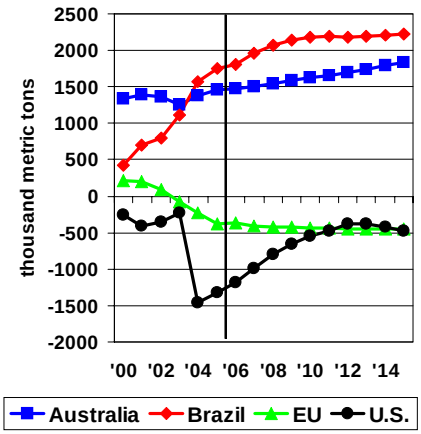
Source: FAPRI estimates, July 2006 baseline update

Other factors driving world grain and oilseed outlook

- Biggest factor in any given year: weather
  - Short Australian crop a major reason for wheat price rise
  - One reason we do stochastic estimates
- Livestock sector developments
  - China growth in meat production/consumption
  - Avian influenza, BSE, other disease issues
- South American production growth
  - Exchange rate, rust have slowed Brazilian soybean growth
  - But lots of potential remains and Argentina expands
- Domestic policies, trade agreements…

Beef net trade
January 2006 projections

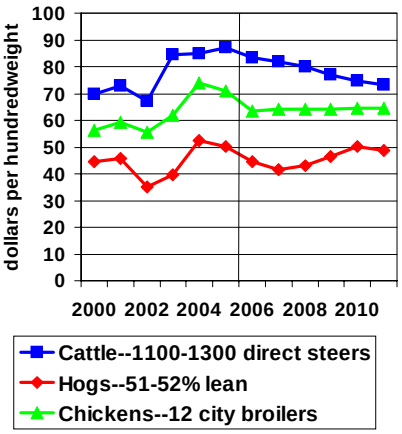
- Brazil has emerged as largest exporter of beef
- Continued growth projected for Australia
- EU has become net importer, and a modest further increase in EU imports is projected
- U.S. imports have grown and exports collapsed because of BSE case
- Slow recovery projected in U.S. beef exports, but U.S. remains net importer in volume terms



Source: FAPRI estimates, January 2006 baseline

U.S. livestock and poultry prices

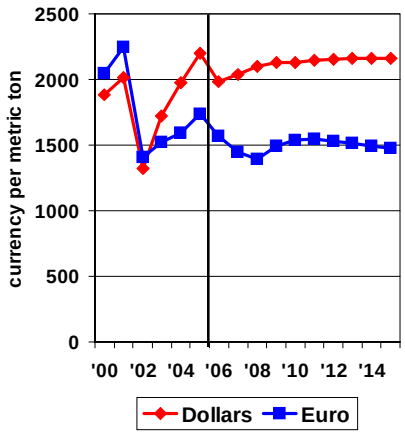
- U.S. livestock, poultry prices are at best crude indicator of world market conditions
- Projected U.S. cattle prices fall as production expands
- Cyclical price movements continue in hog market
- Poultry prices fairly stable, as higher grain prices offset by lower meal prices



Source: FAPRI estimates, July 2006 baseline update

Skim milk powder, FOB N. Europe: January 2006 projections

- International prices for skim milk powder increased between 2002 and 2005
- Increase was larger in dollar terms than in euro, given strengthening euro
- After dip in 2006, projected price increases slightly in dollar terms, but little trend in euro terms



Source: FAPRI Jan. 2006 baseline

Why all these projections will prove to be wrong

- Projections are based on assumptions, and reality never matches assumptions
  - Weather won't be average in any given year
  - Policies will change (e.g. 2007 farm bill, WTO…)
  - Macroeconomic conditions won't match those assumed here
    - Economic growth
    - Interest and exchange rates
    - Petroleum and other energy prices
- Models aren't perfect reflections of reality, and analysts aren't as smart as we'd like to think

So are we in a new world?

- Biofuel potential to fundamentally change markets is real
- But there has been a lot of hype that portrays uncertain developments as sure things
  - Especially in U.S., contingent on petroleum price developments
  - In Europe and U.S., contingent on supportive policies
- At least for now, has given agriculture another engine for growth besides export markets

4. D. Kelch (ERS, USDA): CAP Reform from a U.S. Perspective

CAP Reform from a U.S. Perspective

Dr David Kelch

ERS
ECONOMIC RESEARCH SERVICE

A USDA Baseline Perspective

- USDA Baseline mandated by Congress (budget process of Executive Branch)
  - Projects 10 years out
  - Focused on major commodities (wheat, rice, cotton, oilseeds, feed grains, meats)
  - Includes major trading countries, ROW
  - A global solution for prices

Baseline Players

- Country models in ERS- current policy, varying complexity
- Commodity analysts- from World Board, Foreign Agricultural Service (FAS), ERS
- Regional and Macro analysts- ERS, FAS
- Commodity meetings (Oct-Nov)- examine & debate model results (Nov-Dec)
- Review adjustments, approve (Jan.), publish (Feb.)

CAP in the Baseline

- EU-25 aggregate model (ESIM)
- Assume current policy & normal weather
  - e.g. biofuels policy, decoupled payments continue, incorporate new member states

  Exceptions to above: set aside, stocks/use trigger, WTO limits-these require judgments (history)

  A consensus based on technical, economic, financial, historical, and

Current CAP

- What is different from last year?
- CAP Reform incorporated as published
  - use consultants, research, publications
- Weighted incorporation of SFP- 90% decoupled now
- Movement from trend resisted- Why?
- Assumptions abound- slippage, currency rates, GDP, oil prices, budget, transport, weather, marginal land---

An Example: Grain Area and Yield

- Food and Feed Wheat, Durum Wheat, Barley, Corn, Other Coarse Grains, Rice
- Base- no CAP Reform
- Scenario- full CAP Reform by 2006/07
- From Last Year's Baseline

Chart 1. EU-25 Grain Area Harvested: Base VS Scenario

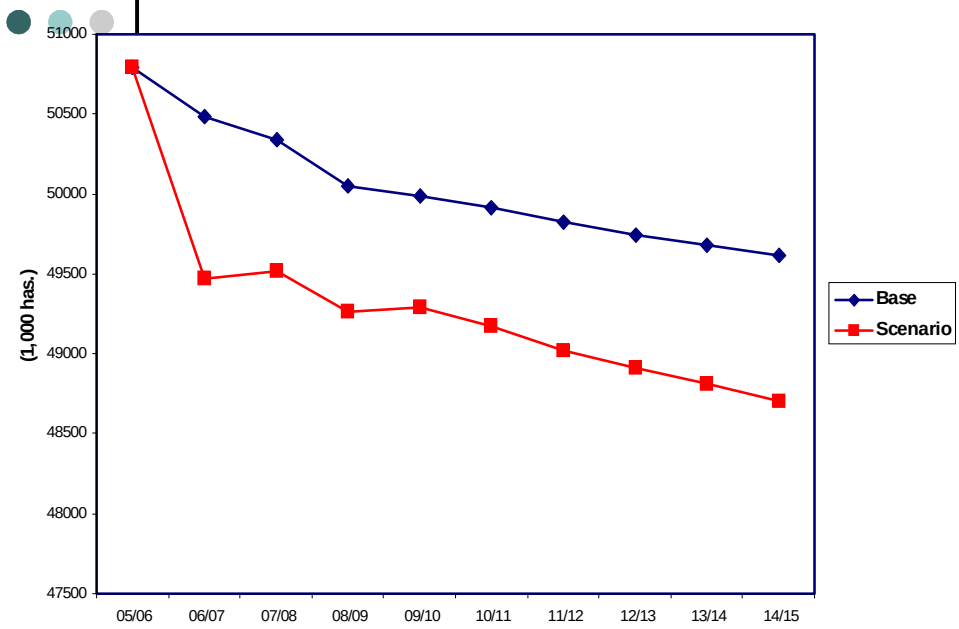


Chart 2. EU-25 Grain Yields: Base vs Scenario

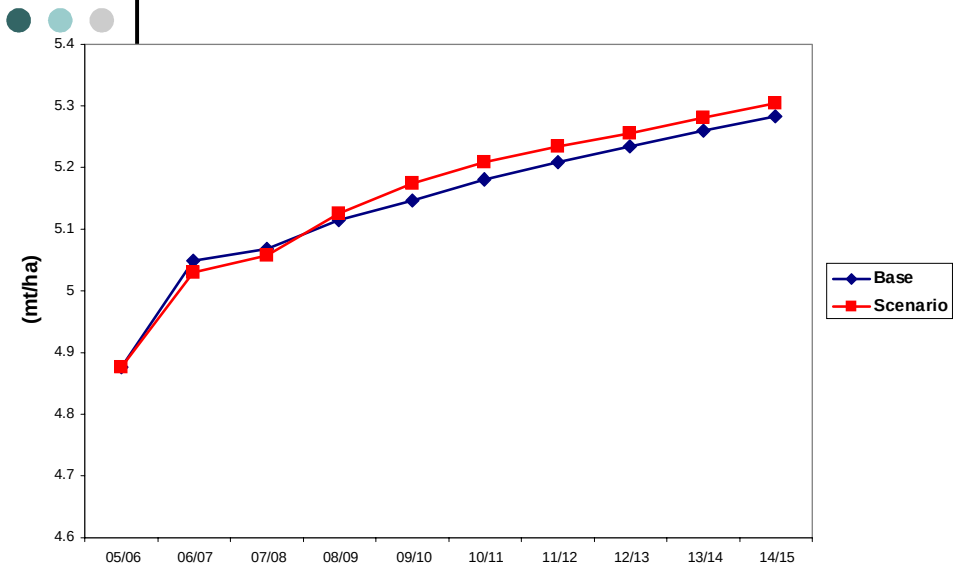
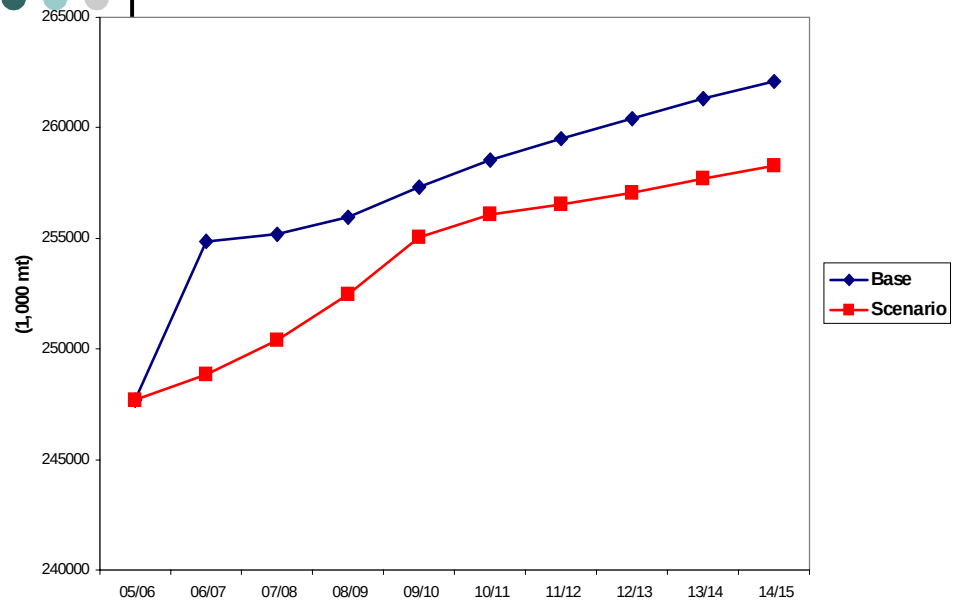


Chart 3. EU-25 Grain Production: Base vs Scenario



CAP Reform Conundrums

- Effects of payments on new member states- compare to previous enlargements
- Land use/compliance, area
- Crop shifts/market orientation
- Sugar beet/rye/other crop substitution
- Beef production/pasture
- Who gets the payment?
- Budget limit implications

Reform Conundrums continued

- Carbon credit effect- oilseeds/biodiesel
- Modulation of SFP- U.S. example
- Ethanol: Sugar? Wheat?
- Cotton, tobacco- area & yield effects

Overall effects on productivity & efficiency

Model + Expertise=Results

- Model- a sophisticated set of economic relationships that track and project complex interactions
- Expertise- adjust the model for unaccounted phenomena that affect everything else (budget, inputs, etc.)
- Debate revolves around intercepts, slopes, elasticities, crop allocation, trade direction

(everybody wants to produce & export)

Expertise Derived from …

- EU Commission estimates, EU Academic and Trade Journals & Conferences
- FAS Reports, AgraEurope, HGCA, Toepfers, F.O. Licht publications, country contacts, Monsanto, Cargill, (Google)
- Institutional memory- history & philosophy of the CAP & U.S. agriculture

How Good Are the Numbers?

- ERS baseline- a set of projections based on assumptions
- Used for policy analysis- not a forecast
- Good reviews- a good story
- Necessary for debate- always questioned
- Transparent in assumptions
- Superior to model dependence alone

GO TO:

http://www.ers.usda.gov/Data/InternationalBaseline/

ERS
ECONOMIC RESEARCH SERVICE

5. W. Münch (European Commission, DG AGRI): Model based policy support and baseline analysis in DG AGRI

Model based policy support and baseline analysis in DG AGRI

Wolfgang Münch

"Commodity Modelling in an enlarged Europe", IPTS Sevilla, 6 November 2006

Structure

- Model based analysis in DG AGRI
  - institutional structure
    - which parts of the DG
    - which models
  - role of the market baseline
  - policy analyses
- Challenges

Model based policy support and baseline analysis in DG AGRI, Nov 6, 2006, AGRI/G2 2

Institutional structure: Modelling capacities in DG AGRI

- Economics Directorate
- Themes
  - G2: Europe, Enlargement, Regional Analyses
  - G5: Interntational analysis

Model based policy support and baseline analysis in DG AGRI, Nov 6, 2006, AGRI/G2 3

Used Modells

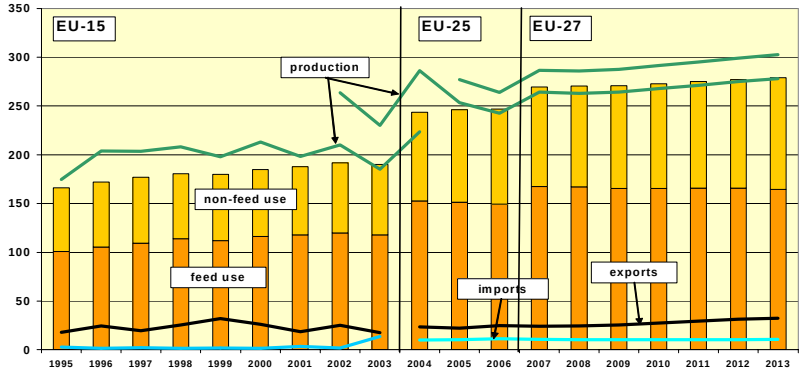
- ESIM
  - EU, country analysis, enlargement, crops, biofuels….
- AGLINK
  - World markets, trade partners, trade negotiations, meat and milk markets…
- CAPRI
  - Regional analysis, rural development…

Model based policy support and baseline analysis in DG AGRI, Nov 6, 2006, AGRI/G2 4

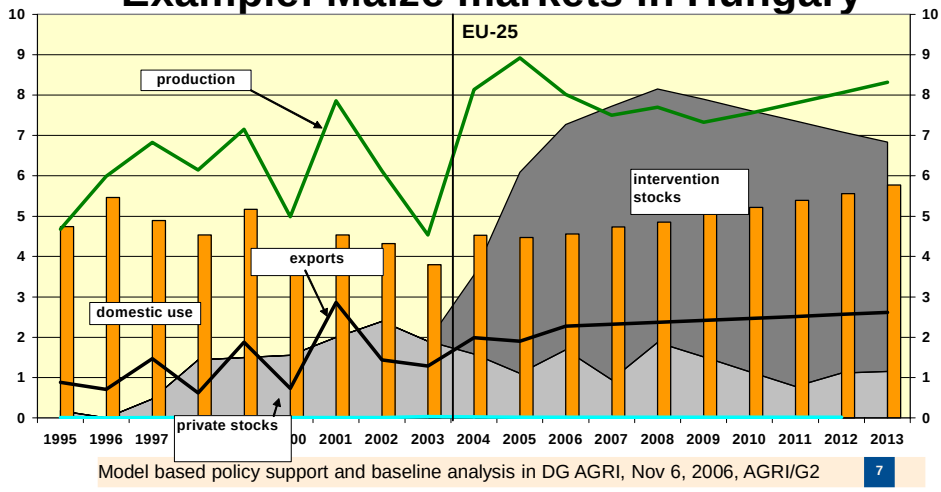
The DG AGRI Commodity baseline

- biannual process
- taking into account the short term commodity forecasts
- consolidation of the baseline in close cooperation with market experts
- publication in a report of
  - the most plausible developments over the medium term.

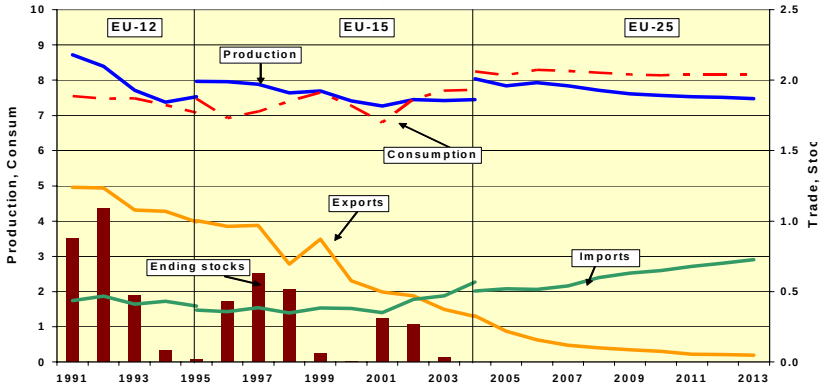
Examples: Cereal baseline



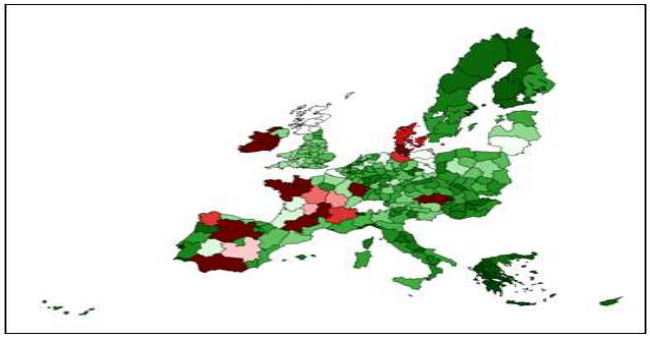
Example: Maize markets in Hungary



Example: Beef markets



Example: Regional analysis
Regional distribution of cattle production in 2013



Note: From dark green to dark red: From around 1 thousand to more than 4 mio heads.

Policy analysis

- baseline as the starting point
- recent analysis:
  - WTO
  - biofuels
  - alternative policy options for cereal markets in land locked new Member States
  - impact of accession Bulgaria and Romania
  - regional impact of decoupling

Requirements for DG AGRI in-house models:

- up to date models; credible; incorporation of knowledge (e.g. country expertise)
- need to respond quickly to new political developments;
- ensures confidentiality, timeliness, answers to evolving questions
- balance between handling and complexity

Model based policy support and baseline analysis in DG AGRI, Nov 6, 2006, AGRI/G2 11

Challenges I

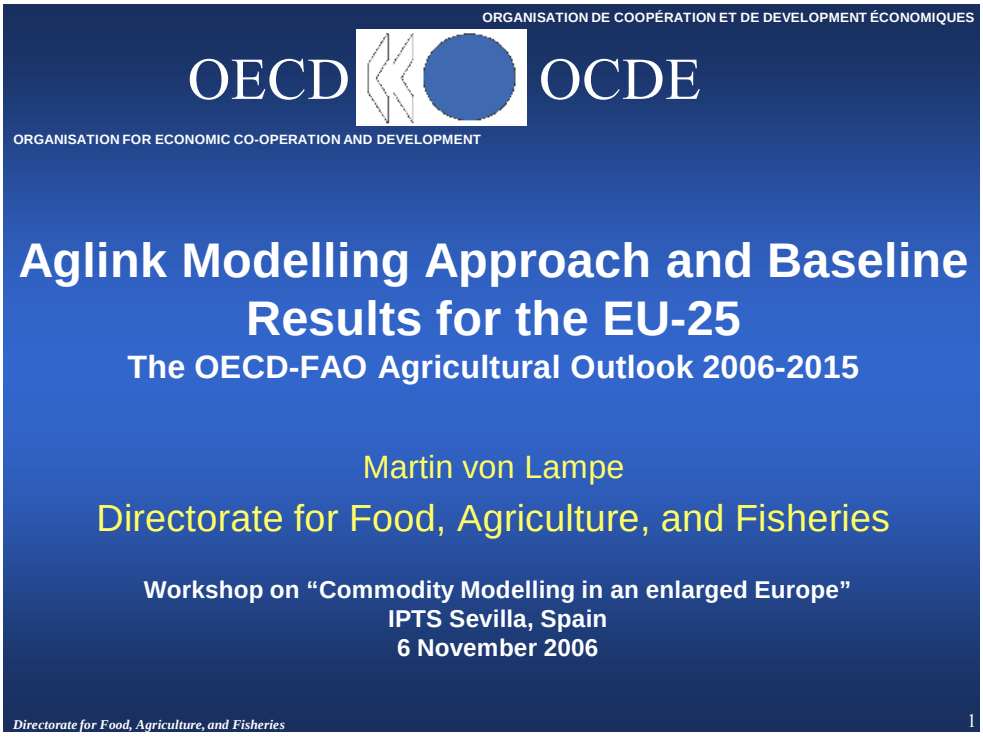
- EU becomes increasingly divers and larger:
  - market separation,
  - diversity of regions;
- monitoring of countries:
  - present and future candidates: Turkey, western Balkan….
  - neighbouring countries: Ukraine…..
- monitoring of key markets of the EU: Mediterranean basin, near and middle East, ACP; China….

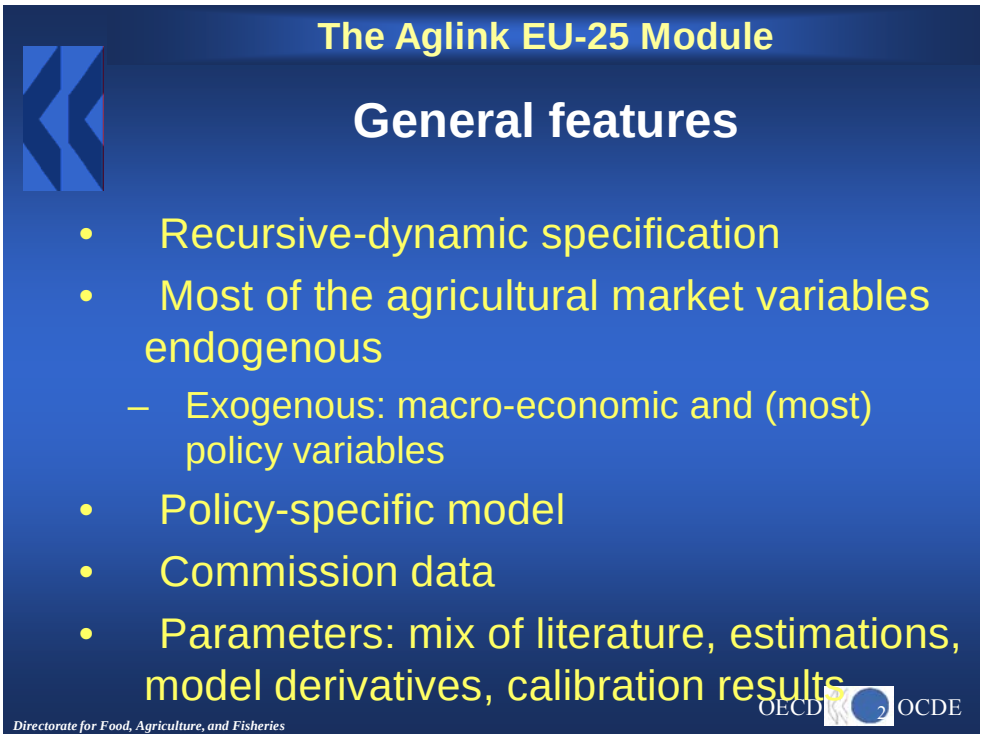
Model based policy support and baseline analysis in DG AGRI, Nov 6, 2006, AGRI/G2 12

Challenges II

- link between markets and rural development
  - analysis of regional indicators
- representation of factor markets
  - land markets (for sure)
  - labour markets?

6. M. von Lampe: (OECD): Aglink Modelling Approach and Baseline Results for the EU-25





The Aglink EU-25 Module

Commodity coverage

- Aglink commodity coverage
  - Cereals (wheat, coarse grains [maize, barley, oats, other], rice)
  - Oilseeds (sunseed, rapeseed, soya) and corresponding oils and meals
  - Pasture (limited representation)
  - Meat (beef & veal, pork, poultry, sheep&lamb)
  - Dairy (milk, butter, cheese, smp, wmp)
    [plus: fresh dairy products, concentrated milk, whey powder, casein]
  - [Sugar: separate model]

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The Aglink EU-25 Module

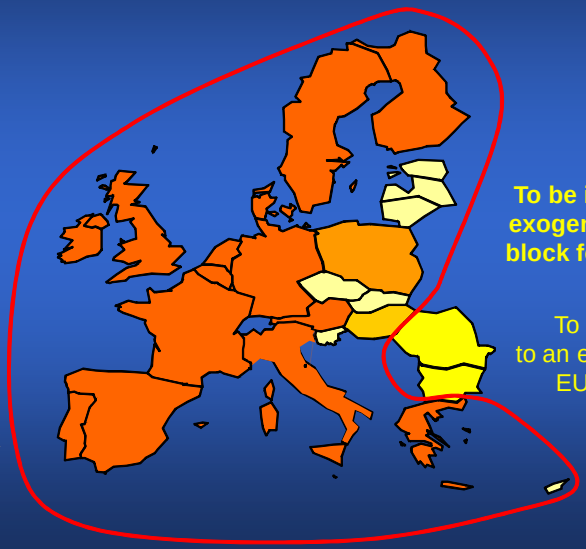
Regional disaggregation

EU-15
Endogenous sub-module

POL
HUN
Endogenous sub-modules

EU-08
Exogenous block

EU-25
Envelope model: Stocks, Trade, (prices)



ROM
BUL
To be included to exogenous EU-10 block for baseline 2007

To be included to an endogenous EU-12 module in the medium term?

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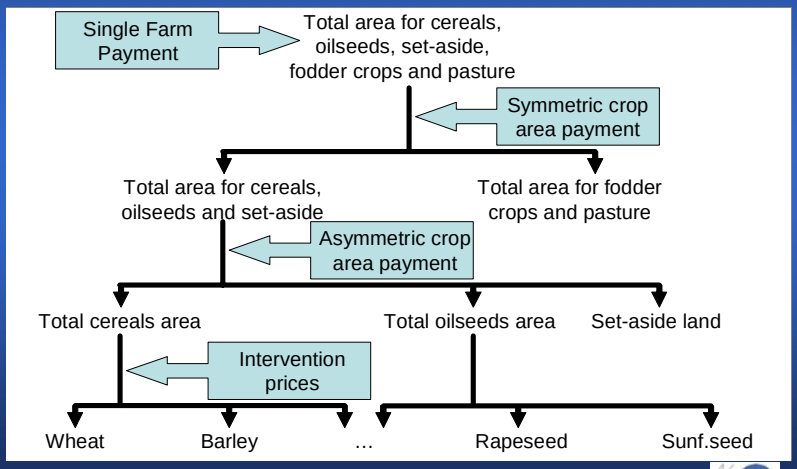
The Aglink EU-25 Module

Crops: Area allocation and payments



The Aglink EU-25 Module

Crops: Policy representation

- Subsidised Exports (wheat, coarse grains)
  - f(PP, SP, WTO-limit)
- Intervention Stocks (wheat, cg, rice)
  - f(PP, SP)
- Set-Aside: compulsory / voluntary
- Payments: area, SPS

The Aglink EU-25 Module

Crops: Area and SPS payments

- Expressed on a per hectare basis
- Different levels of the area allocation system
- Coefficients expressing the degree of decoupling
  - obtained from PEM simulations
    - production factors transformed to area factors
  - area payments: 0.179 (rice), 0.267 (grains/os)
  - SPS payments: 0.077 (rice), 0.114 (grains/os)
    - differences in area and yield elasticities

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The Aglink EU-25 Module

Beef: Policy representation

- Subsidised exports
  - f(PP, SP, WTO-limit)
- Import quota for high quality cuts
- Various payment schemes

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The Aglink EU-25 Module

Beef: Payment schemes

- Different headage payments
  - endogenously generated
  - additional price incentive to producers
- SPS payments
  - SPS also applies to pasture
    - … but pasture not linked to beef production
  - SFP per head calculated from SFP per ha
    - divided by weighted average stocking density
  - decoupling factor for crops used: 0.06

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The Aglink EU-25 Module

Dairy markets: Policy representation

- Milk quota
  - exogenous production
  - reduced by rise in fat/protein content
- Subsidised exports (butter, SMP)
  - f(PP, SP, WTO-limit)
- Subsidised exports (cheese, WMP)
  - f(PP_{milk}, SP_{milk*}, WTO-limit)
- Milk payments, SPS
  - no direct impact on milk production: quota

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The OECD-FAO Agricultural Outlook 2006-2015

Projections for world and EU markets

- World price projections
- EU-25 underlying assumptions
- EU-25 projections
  - Cereals & Oilseeds
  - Meat
  - Dairy
- Possible impact of biofuels

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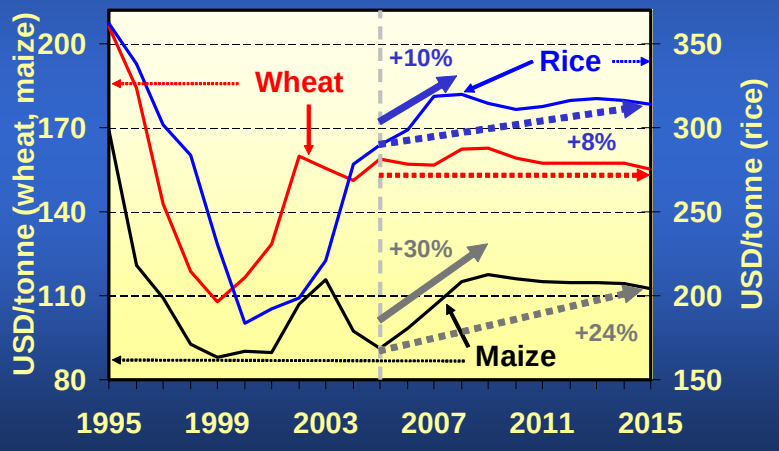
The OECD-FAO Agricultural Outlook 2006-2015

World price projections Cereals



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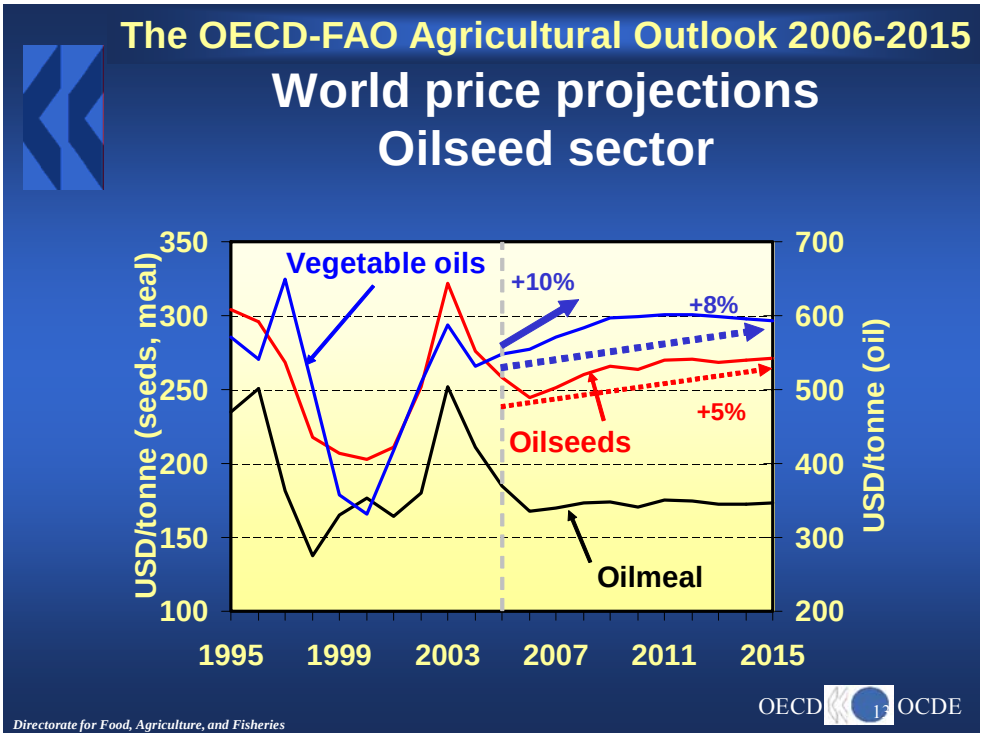
The OECD-FAO Agricultural Outlook 2006-2015
World price projections
Oilseed sector
Vegetable oils
+10%
+8%
+5%
Oilseeds
Oilmeal
USD/tonne (seeds, meal)
USD/tonne (oil)
350
300
250
200
150
100
700
600
500
400
300
200
1995
1999
2003
2007
2011
2015
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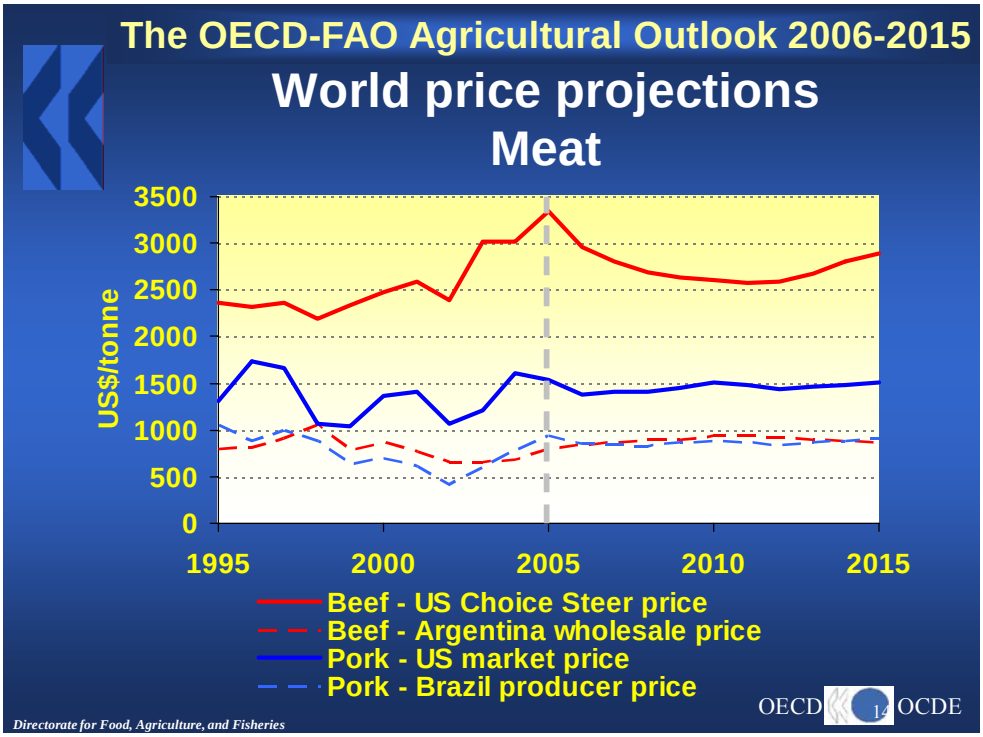
OCDE


The OECD-FAO Agricultural Outlook 2006-2015
World price projections
Meat
US$/tonne
3500
3000
2500
2000
1500
1000
500
0
1995
2000
2005
2010
2015
Beef - US Choice Steer price
Beef - Argentina wholesale price
Pork - US market price
Pork - Brazil producer price
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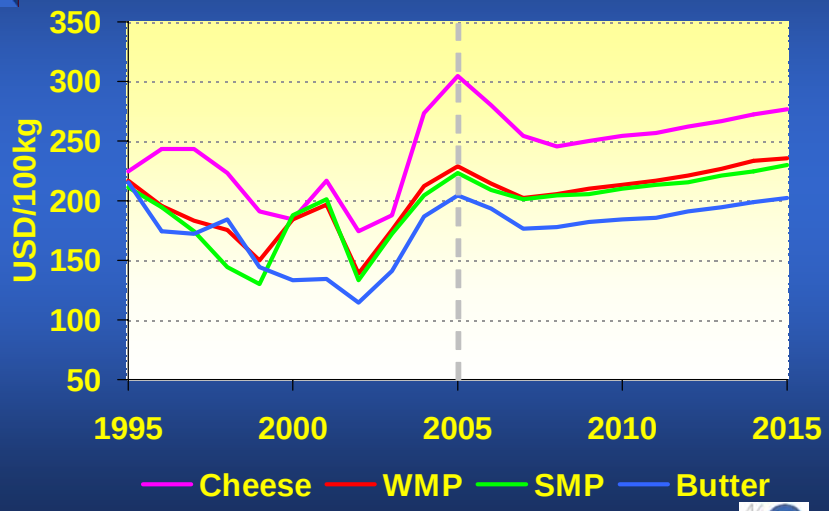
The OECD-FAO Agricultural Outlook 2006-2015

World price projections
Dairy



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The OECD-FAO Agricultural Outlook 2006-2015

EU-25 underlying assumptions

- Constant real exchange rates after 2006
  - 1 € = 1.193 US$ by 2015
- Stable economic growth
  - EU-15 ~2.1% p.a.
  - Poland ~4.2% p.a.
  - Hungary ~2.7% p.a.
- 2003 CAP reform
- Biofuel growth implicitly and partially accounted for

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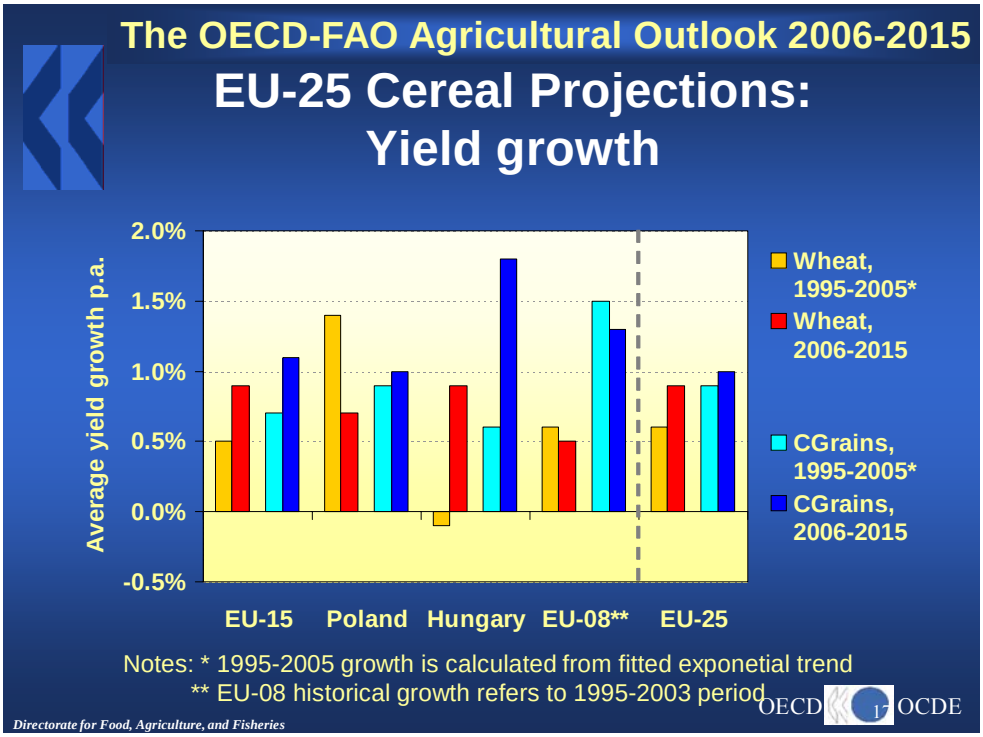
The OECD-FAO Agricultural Outlook 2006-2015
EU-25 Cereal Projections:
Yield growth
Average yield growth p.a.
2.0%
1.5%
1.0%
0.5%
0.0%
-0.5%
EU-15
Poland
Hungary
EU-08**
EU-25
Wheat, 1995-2005*
Wheat, 2006-2015
CGrains, 1995-2005*
CGrains, 2006-2015
Notes: * 1995-2005 growth is calculated from fitted exponetial trend
** EU-08 historical growth refers to 1995-2003 period
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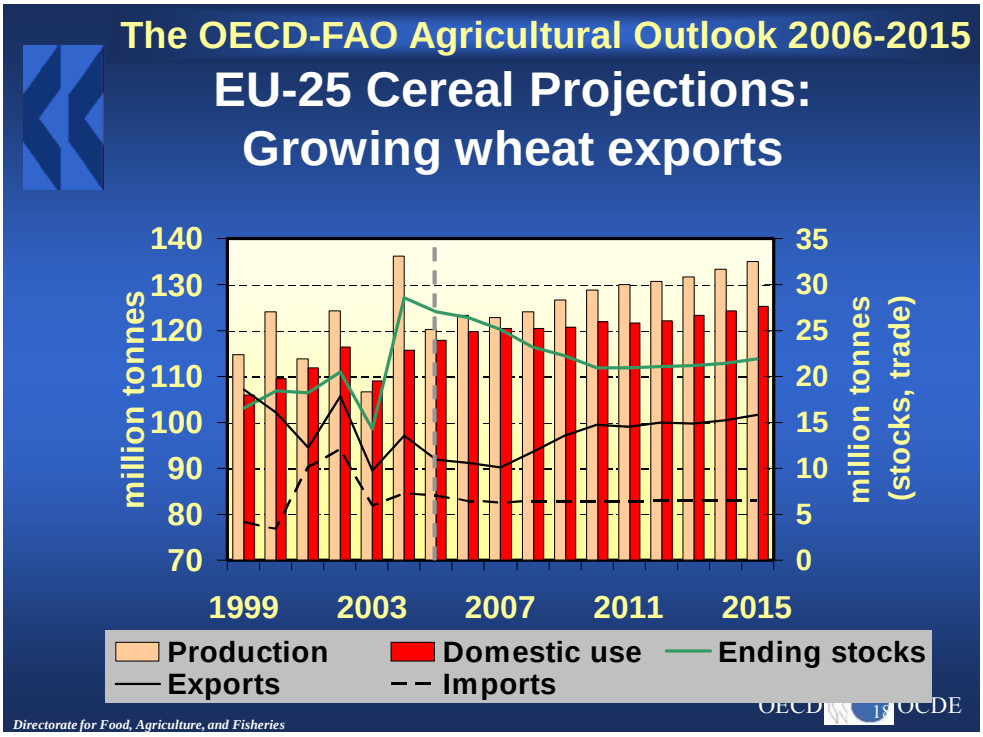
The OECD-FAO Agricultural Outlook 2006-2015
EU-25 Cereal Projections:
Growing wheat exports
million tonnes
140
130
120
110
100
90
80
70
million tonnes (stocks, trade)
35
30
25
20
15
10
5
0
1999
2003
2007
2011
2015
Production
Domestic use
Ending stocks
Exports
Imports
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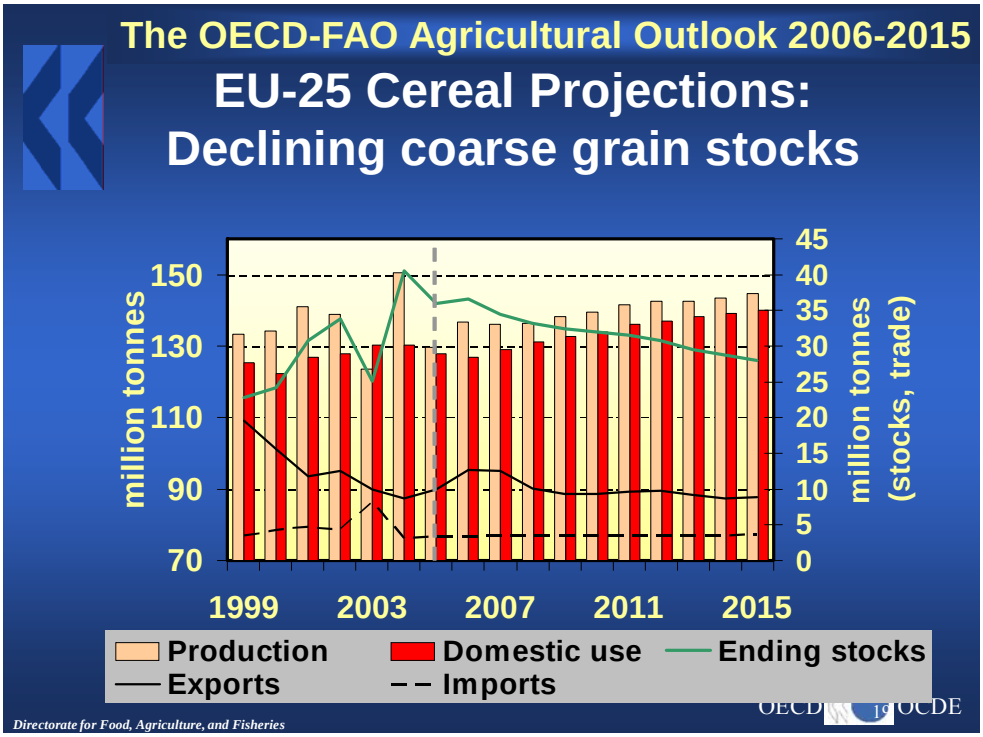
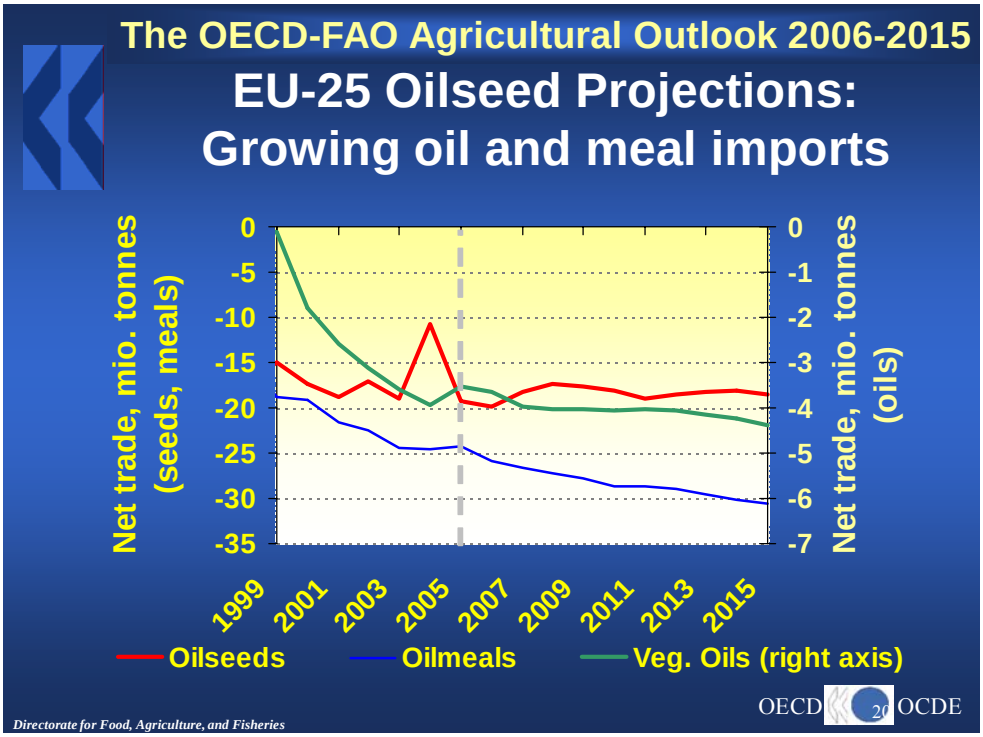
OECD
OCDE


The OECD-FAO Agricultural Outlook 2006-2015
EU-25 Cereal Projections:
Declining coarse grain stocks
million tonnes
150
130
110
90
70
45
40
35
30
25
20
15
10
5
0
million tonnes
(stocks, trade)
1999
2003
2007
2011
2015
Production
Domestic use
Ending stocks
Exports
Imports
Directorate for Food, Agriculture, and Fisheries
OECD
19
OCDE


The OECD-FAO Agricultural Outlook 2006-2015
EU-25 Oilseed Projections:
Growing oil and meal imports
Net trade, mio. tonnes
(seeds, meals)
0
-5
-10
-15
-20
-25
-30
-35
0
-1
-2
-3
-4
-5
-6
-7
Net trade, mio. tonnes
(oils)
1999
2001
2003
2005
2007
2009
2011
2013
2015
Oilseeds
Oilmeals
Veg. Oils (right axis)
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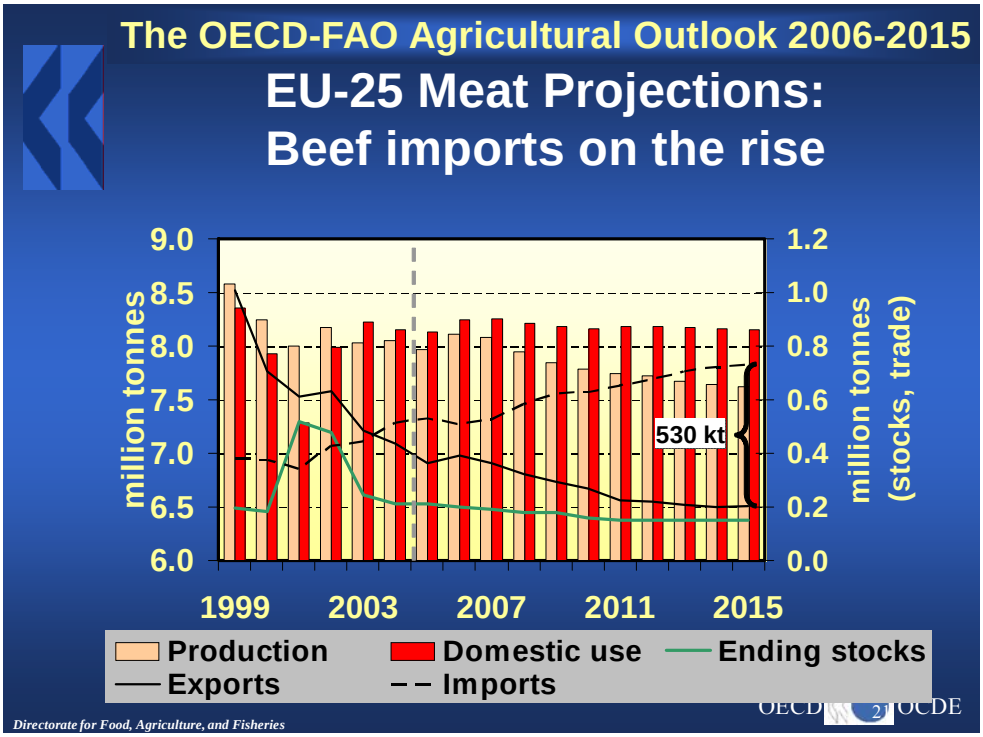
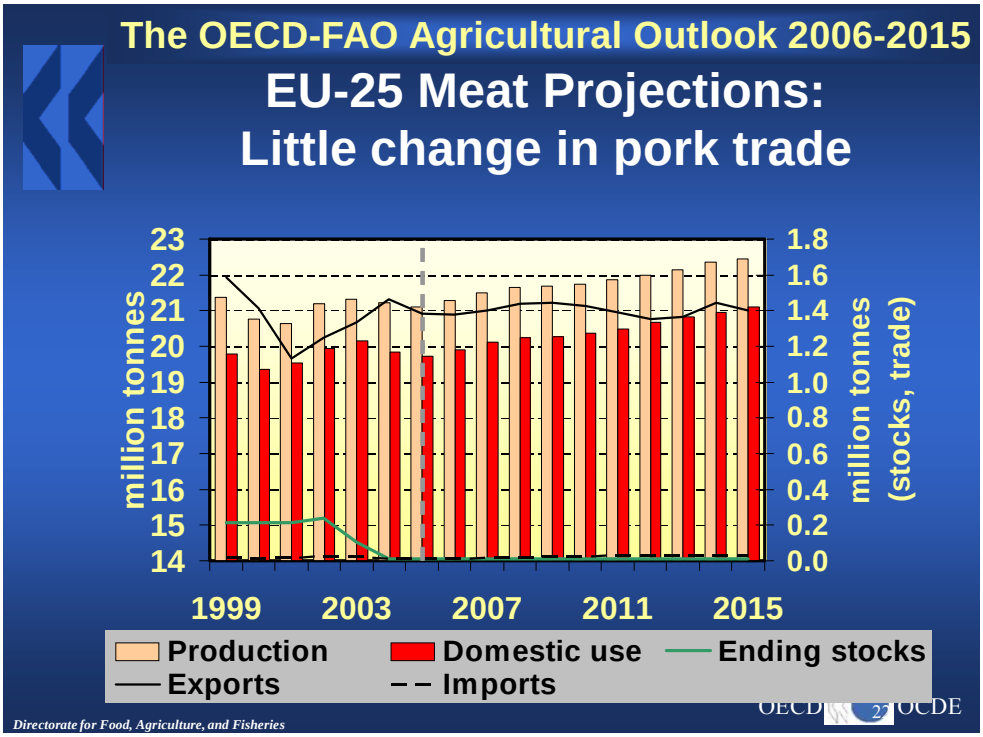
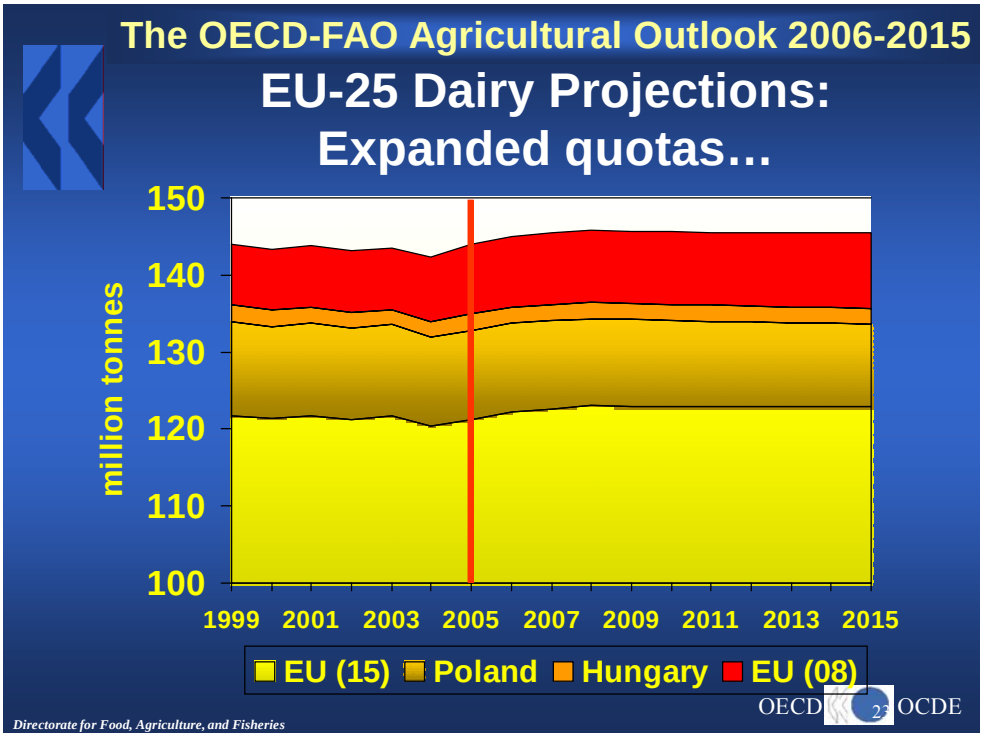
OECD
20
OCDE


The OECD-FAO Agricultural Outlook 2006-2015
EU-25 Meat Projections:
Beef imports on the rise
million tonnes
9.0
8.5
8.0
7.5
7.0
6.5
6.0
1.2
1.0
0.8
0.6
0.4
0.2
0.0
million tonnes (stocks, trade)
530 kt
1999
2003
2007
2011
2015
Production
Domestic use
Ending stocks
Exports
Imports
Directorate for Food, Agriculture, and Fisheries
OECD
OCDE


The OECD-FAO Agricultural Outlook 2006-2015
EU-25 Meat Projections:
Little change in pork trade
million tonnes
23
22
21
20
19
18
17
16
15
14
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
million tonnes (stocks, trade)
1999
2003
2007
2011
2015
Production
Domestic use
Ending stocks
Exports
Imports
Directorate for Food, Agriculture, and Fisheries
OECD
OCDE


The OECD-FAO Agricultural Outlook 2006-2015
EU-25 Dairy Projections:
Expanded quotas…
million tonnes
150
140
130
120
110
100
1999 2001 2003 2005 2007 2009 2011 2013 2015
EU (15) Poland Hungary EU (08)
OECD 23 OCDE
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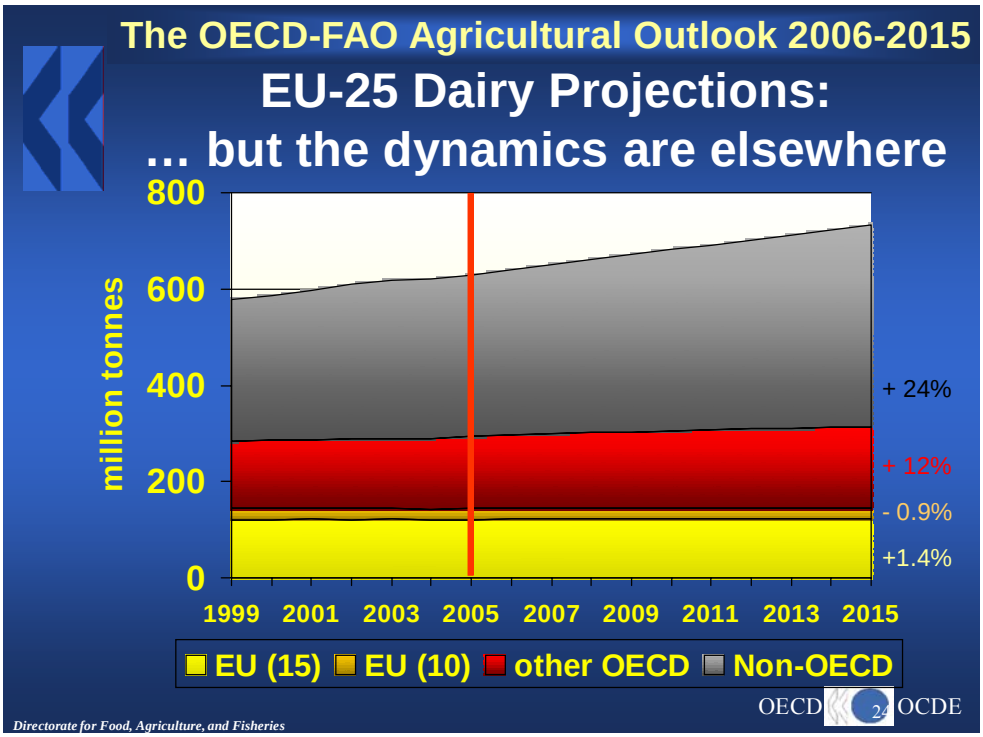
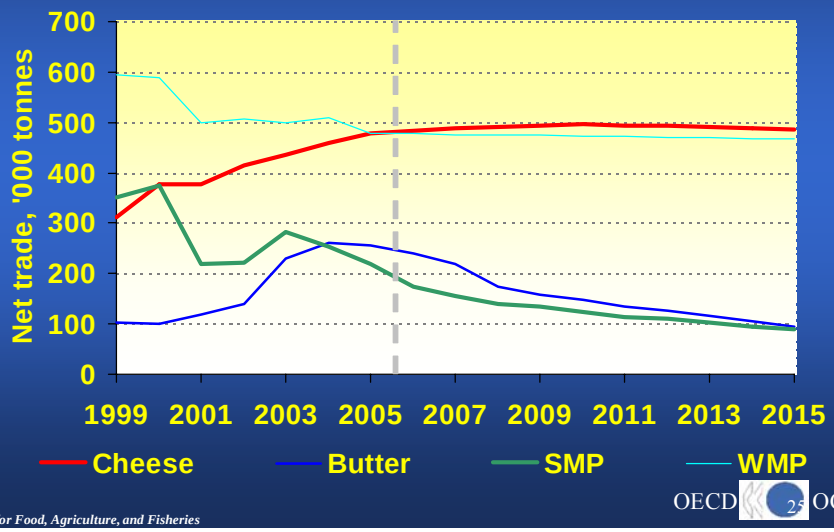

The OECD-FAO Agricultural Outlook 2006-2015
EU-25 Dairy Projections:
… but the dynamics are elsewhere
million tonnes
800
600
400
200
0
+ 24%
+ 12%
- 0.9%
+1.4%
1999 2001 2003 2005 2007 2009 2011 2013 2015
EU (15) EU (10) other OECD Non-OECD
OECD 24 OCDE
Directorate for Food, Agriculture, and Fisheries

The OECD-FAO Agricultural Outlook 2006-2015

EU-25 Dairy Projections: Declining butter and SMP exports



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Possible impacts of biofuel growth

Growth in biofuel production a major driver for crop markets

- Biodiesel growth drives EU oilseed area up by 17%, production by 35%
- International maize prices up due to US ethanol growth; sugar prices driven by Brazil ethanol growth
- 5.75% fuel replacement could use land equivalent to up to 25% of current cereal, oilseed and sugar crop land
  - but: set-aside land to be used; technology?

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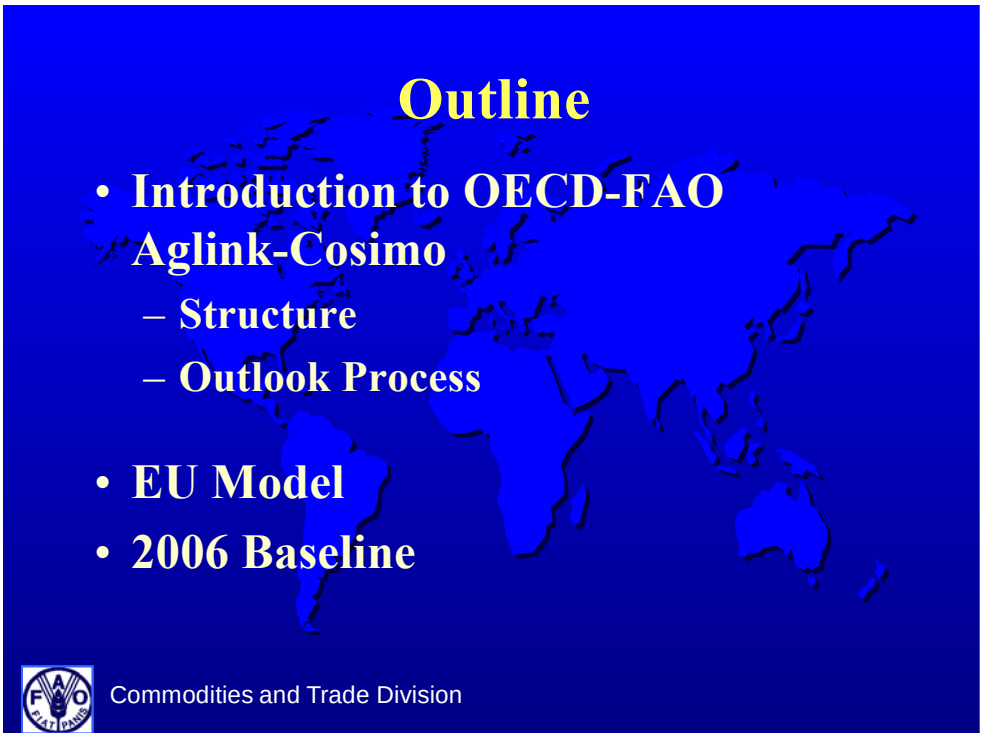
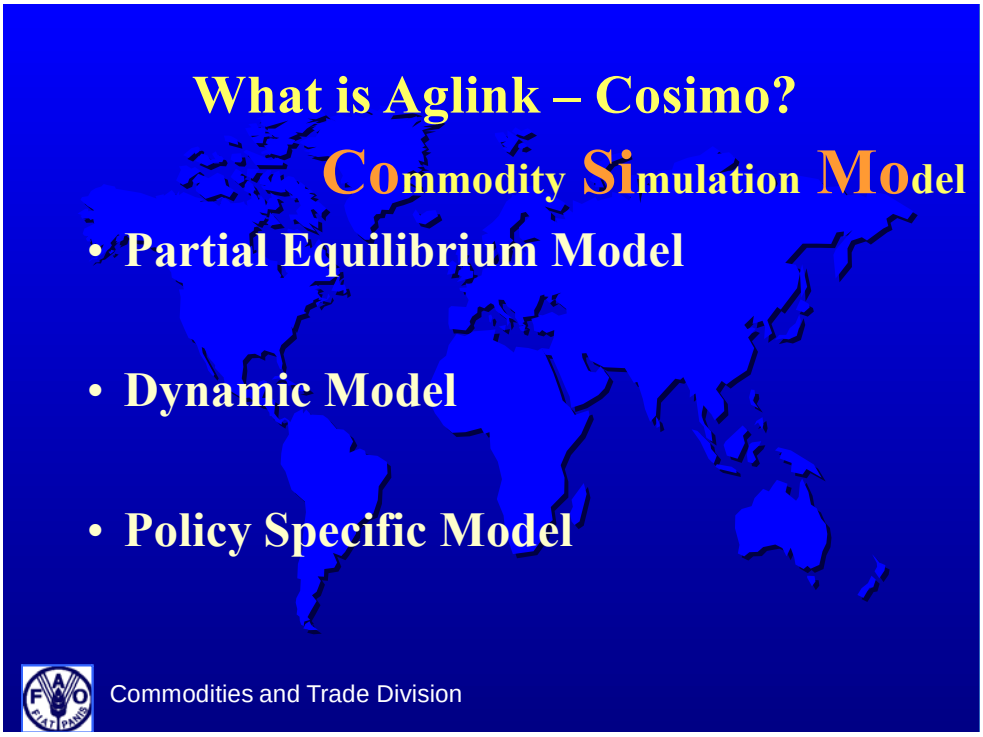
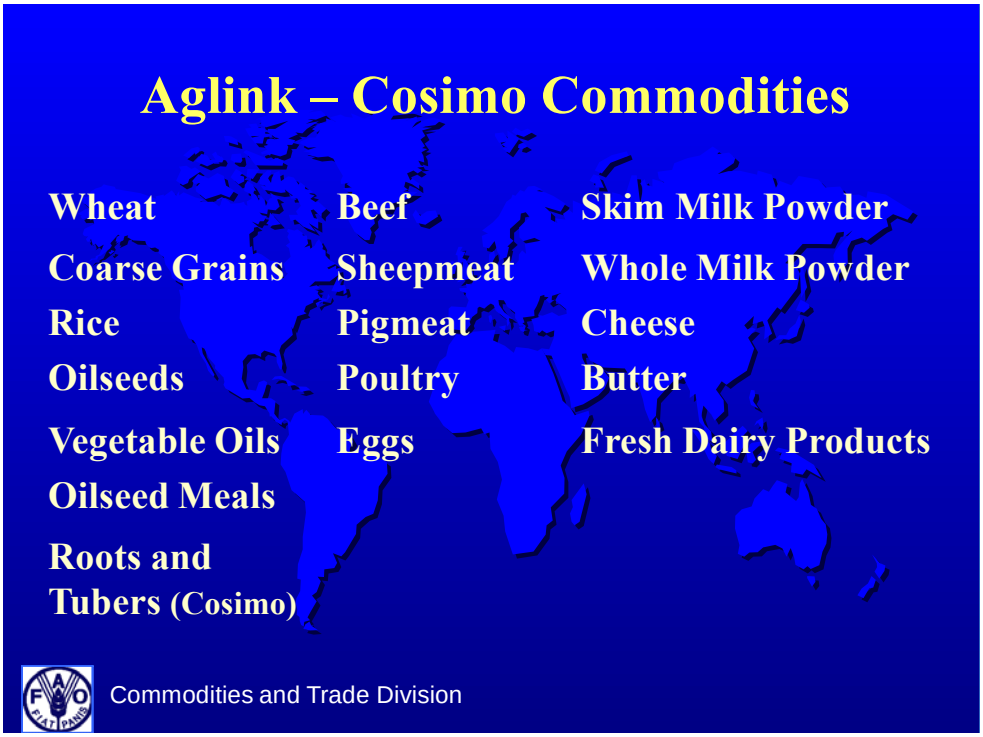
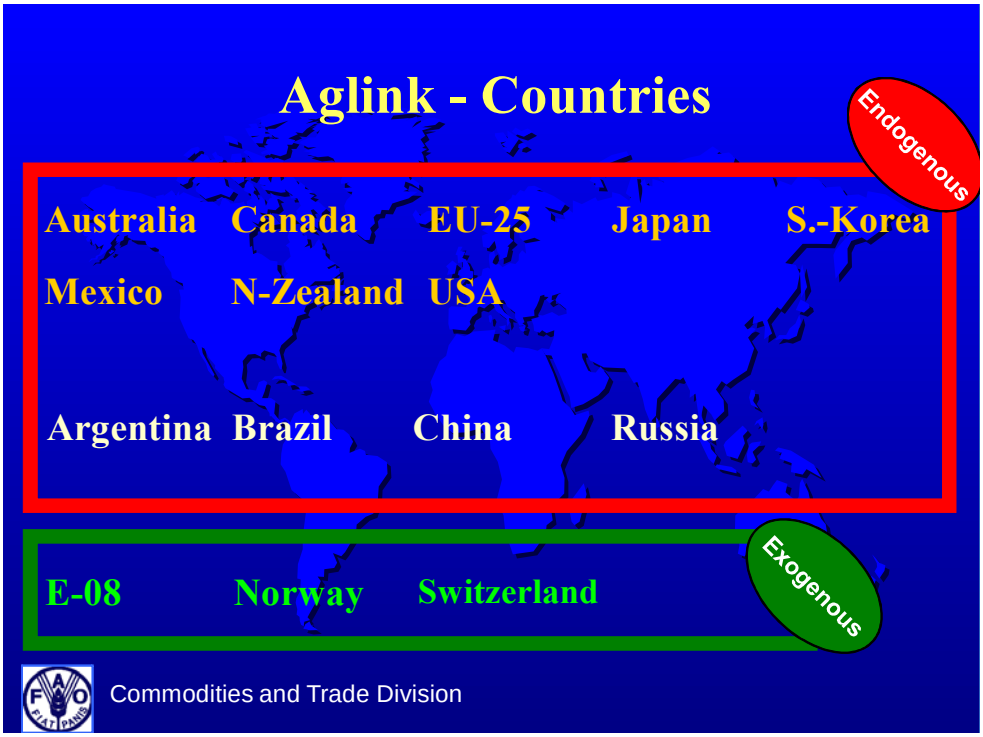
7. H. Matthey (FAO - Commodities and Trade Division): OECD-FAO Aglink-Cosimo Projection System



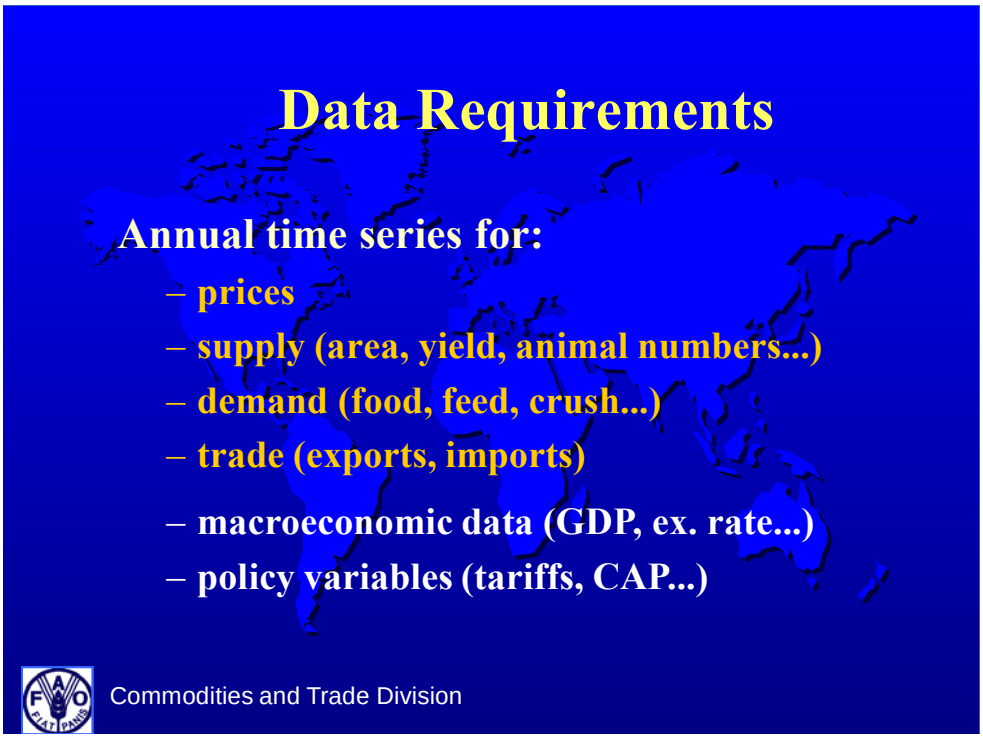

OECD-FAO Projection Work
Joint outlook preparation between OECD and FAO
• Started in 2004
• Annual process
• Expansion of OECD Aglink model to developing countries
• Utilize global expertise
Commodities and Trade Division

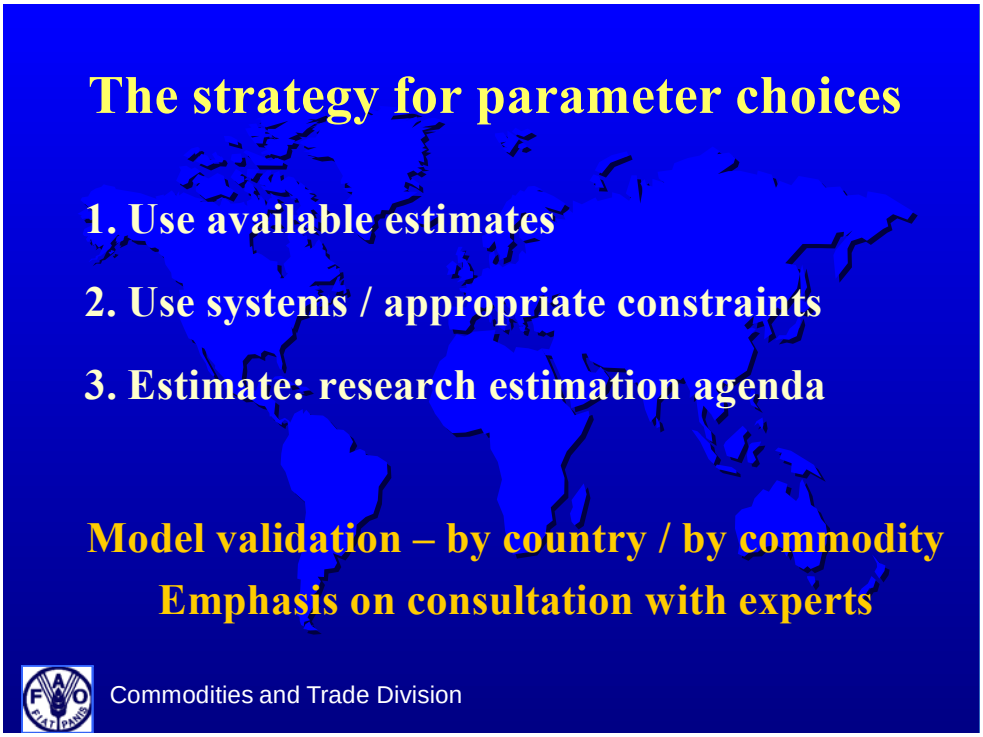

What is Aglink – Cosimo?
Commodity Simulation Model
• Partial Equilibrium Model
• Dynamic Model
• Policy Specific Model
Commodities and Trade Division

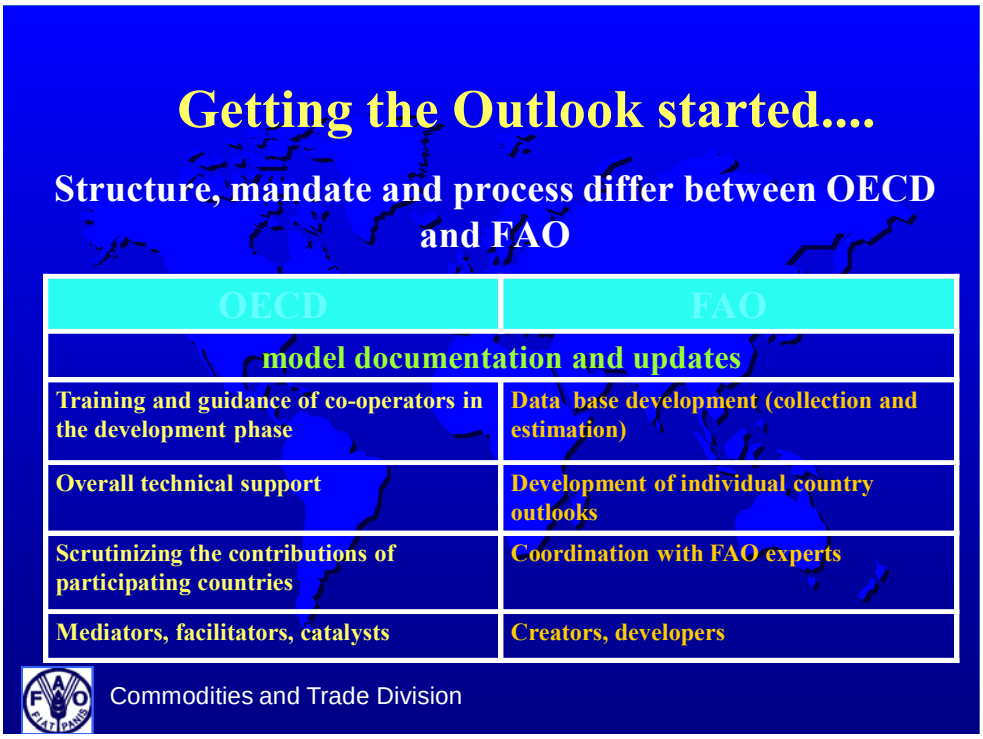

Aglink – Cosimo Commodities
Wheat
Coarse Grains
Rice
Oilseeds
Vegetable Oils
Oilseed Meals
Roots and Tubers (Cosimo)
Beef
Sheepmeat
Pigmeat
Poultry
Eggs
Skim Milk Powder
Whole Milk Powder
Cheese
Butter
Fresh Dairy Products
Commodities and Trade Division

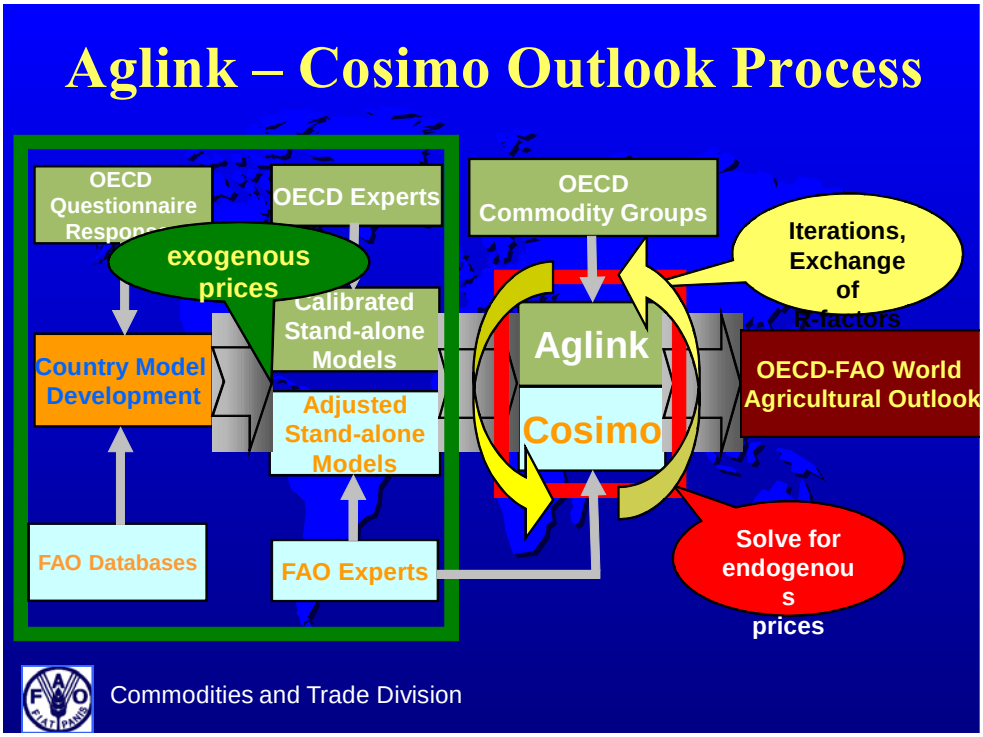

Aglink - Countries
Endogenous
Australia
Canada
EU-25
Japan
S.-Korea
Mexico
N-Zealand
USA
Argentina
Brazil
China
Russia
E-08
Norway
Switzerland
Exogenous
Commodities and Trade Division

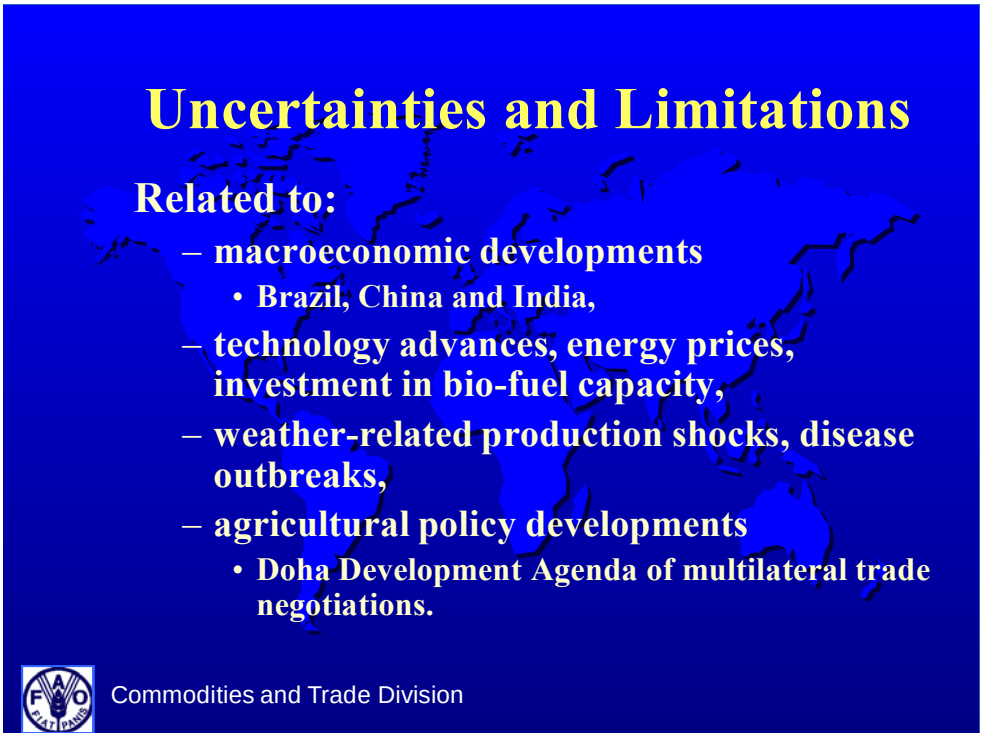

Cosimo - Countries
Algeria
Asia Pacific - LDCs
Asia Pacific - Other
Bangladesh
Central America - LDCs
East
East Africa - Other
Egypt
Ghana
India
Indonesia
Iran
Malaysia
Mozambique
Nigeria
North Africa - Other
Saudi Arabia
South Africa
Southern Africa - LDCs
Southern Africa - Other
Tanzania
Thailand
Other Eastern Europe
Bulgaria
Romania
Separated out in 2007 Baseline
Commodities and Trade Division


Data Requirements
Annual time series for:
– prices
– supply (area, yield, animal numbers...)
– demand (food, feed, crush...)
– trade (exports, imports)
– macroeconomic data (GDP, ex. rate...)
– policy variables (tariffs, CAP...)
Commodities and Trade Division


The strategy for parameter choices
1. Use available estimates
2. Use systems / appropriate constraints
3. Estimate: research estimation agenda
Model validation – by country / by commodity
Emphasis on consultation with experts
Commodities and Trade Division


Getting the Outlook started....
Structure, mandate and process differ between OECD and FAO
OECD
FAO
model documentation and updates
Training and guidance of co-operators in the development phase
Data base development (collection and estimation)
Overall technical support
Development of individual country outlooks
Scrutinizing the contributions of participating countries
Coordination with FAO experts
Mediators, facilitators, catalysts
Creators, developers
Commodities and Trade Division


Aglink – Cosimo Outlook Process
OECD Questionnaire Respons
OECD Experts
OECD Commodity Groups
Iterations, Exchange of
exogenous prices
Calibrated Stand-alone Models
Aglink
OECD-FAO World Agricultural Outlook
Country Model Development
Adjusted Stand-alone Models
Cosimo
FAO Databases
FAO Experts
Solve for endogenous prices
Commodities and Trade Division


Uncertainties and Limitations
Related to:
– macroeconomic developments
• Brazil, China and India,
– technology advances, energy prices, investment in bio-fuel capacity,
– weather-related production shocks, disease outbreaks,
– agricultural policy developments
• Doha Development Agenda of multilateral trade negotiations.
Commodities and Trade Division

8. M. Banse (LEI, The Netherlands): The European Simulation Model (ESIM)

The European Simulation Model (ESIM)

Martin Banse, LEI (The Hague)
"Commodity Modeling in an Enlarged Europe", IPTS, Seville
November 6, 2006

LEI WAGENINGEN UR

Quantitative Instrument of Analysis

- Recursive dynamic partial equilibrium model
- 28 regions (EU-10, Bulgaria, Romania, Turkey, EU-15, the US and RoW)
- Projection period 2003-2020
- Commodity coverage:
  - 20 crops, 6 animal products, pasture and voluntary set aside
  - Bio-fuels: Oilseeds, sugar and grain
- Processing activities:
  - milk processing:
    - Raw milk ⇒ fresh milk, butter/SMP, cheese, other dairy products
  - oil-seed processing:
    - seed ⇒ oil (food or bio-diesel) and cake
  - ethanol production
    - Wheat/corn/sugar ⇒ ethanol (and gluten feed)

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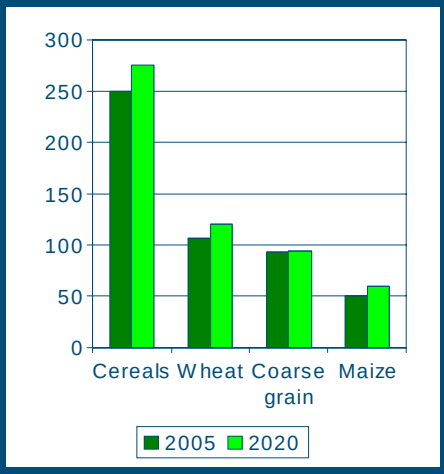
Scenarios: Baseline

- Domestic policies:
  - Continuation of MTR
  - Increase in modulation (up to 25%)
- Trade policies:
  - Implementation of EU-offer
- Enlargement
  - 2015: Turkish EU-Accession

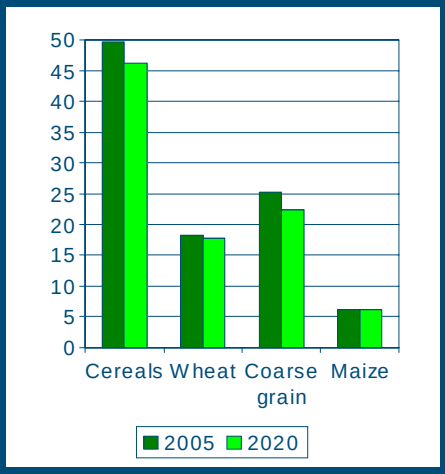
- Result of the Baseline Scenario
- Arable Crops
  - Production in mio t
  - Area in mio ha
- Livestocks
  - Production in mio t
  - Consumption per capita

Cereals: Production and Area Use, EU-25, 2005 and 2020

Production, mio t

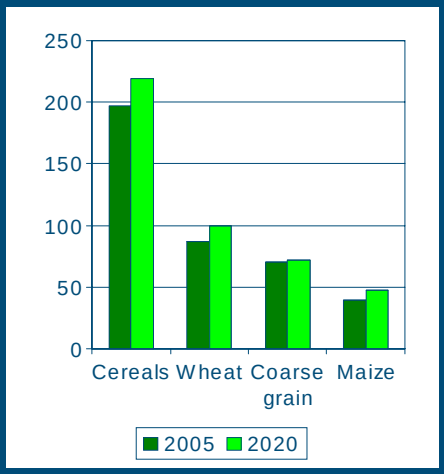


Area, mio ha

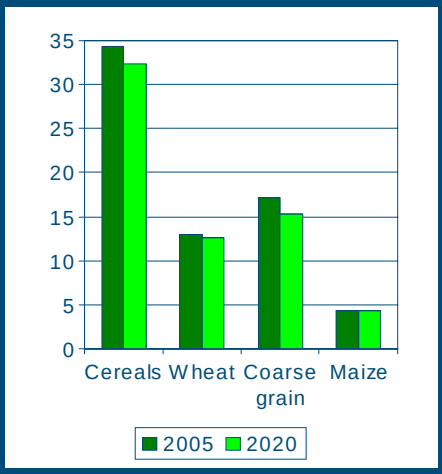


Cereals: Production and Area Use, EU-15, 2005 and 2020

Production, mio t

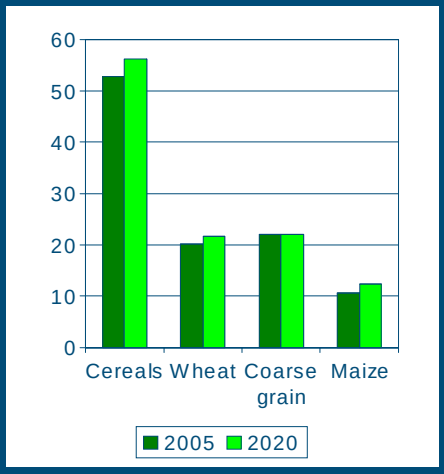


Area, mio ha

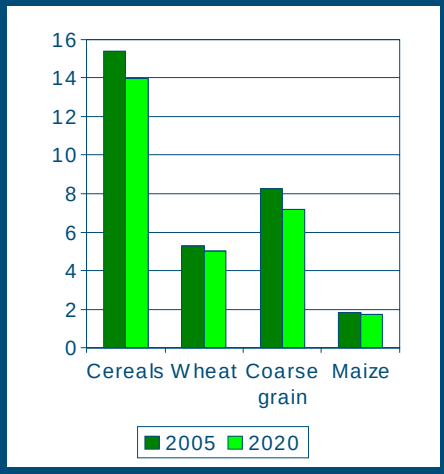


Cereals: Production and Area Use, EU-10, 2005 and 2020

Production, mio t

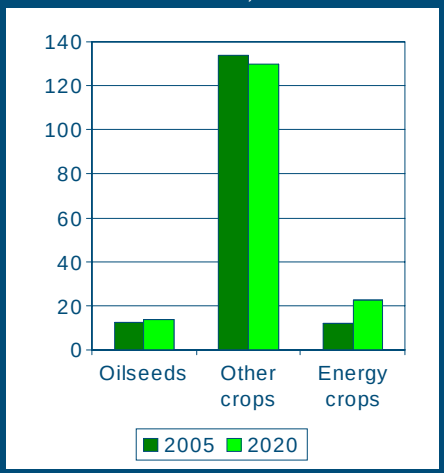


Area, mio ha

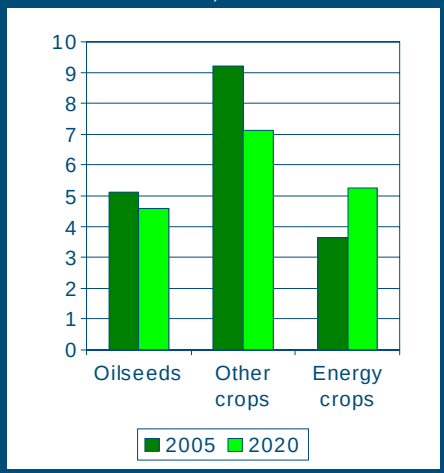


Oilseeds & Other crops: Production and Area Use, EU-25, 2005 and 2020

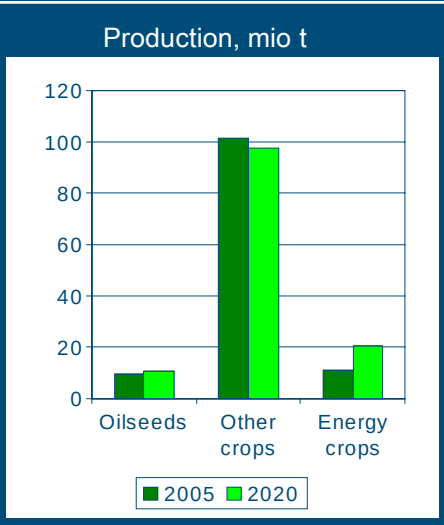
Production, mio t

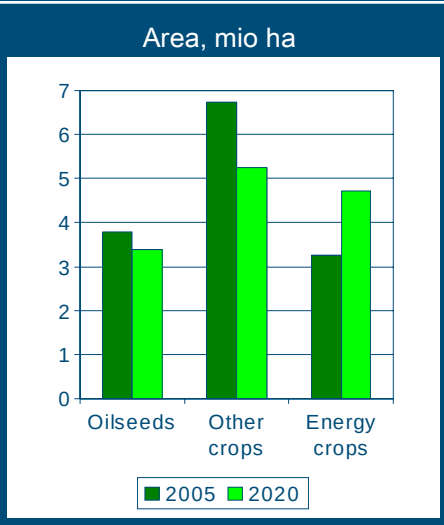


Area, mio ha

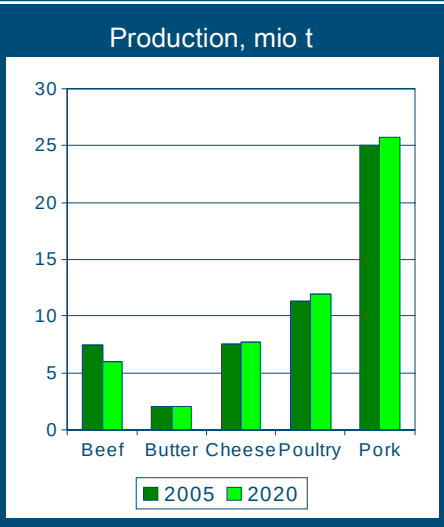


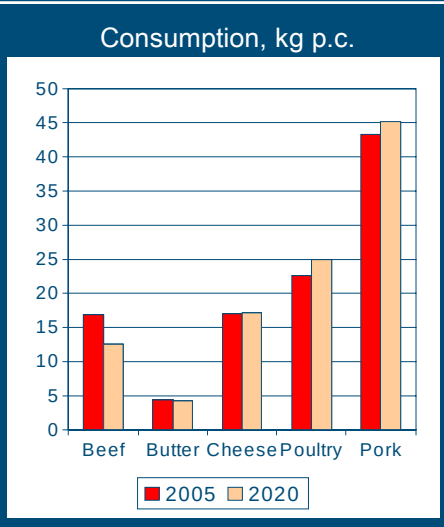
Oilseeds & Other crops: Production and Area Use,EU-15, 2005 and 2020



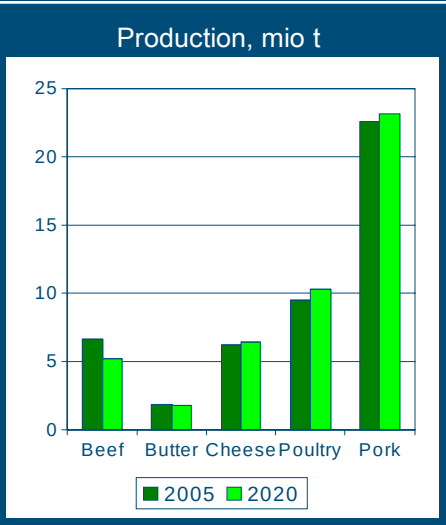


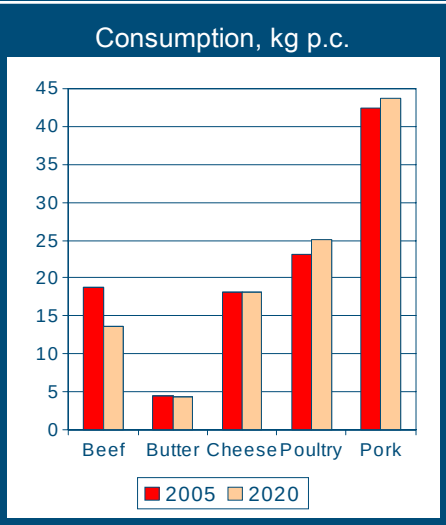
Livestock: Production and Consumption p.c., EU-25, 2005 and 2020



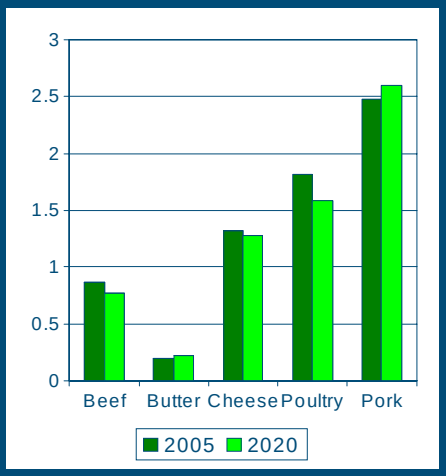


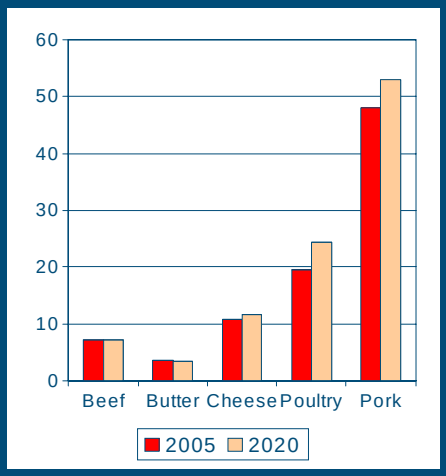
Livestock: Production and Consumption p.c., EU-15, 2005 and 2020





Livestock: Production and Consumption p.c., EU-10, 2005 and 2020

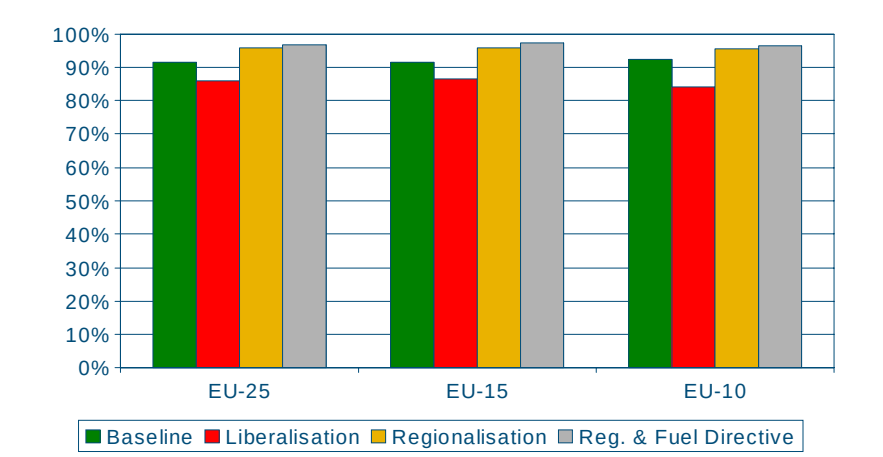




Production of Bio-fuel Crops and Imports of Biofuels, 2020

EU-25	Baseline	Implementing Biofuel-Directive
Bio-fuel crops		
Production (mio t)	22.41	39.91
Area (mio ha)	5.27	8.64
Bio-fuels (mio t)		
domesically produced	7.03	12.61
imported	0.98	8.39
Share in Fuel Consumption	3.6%	7.8%

Share of Utilized Agricultural Land in total Land available for Agriculture, in %, 2020



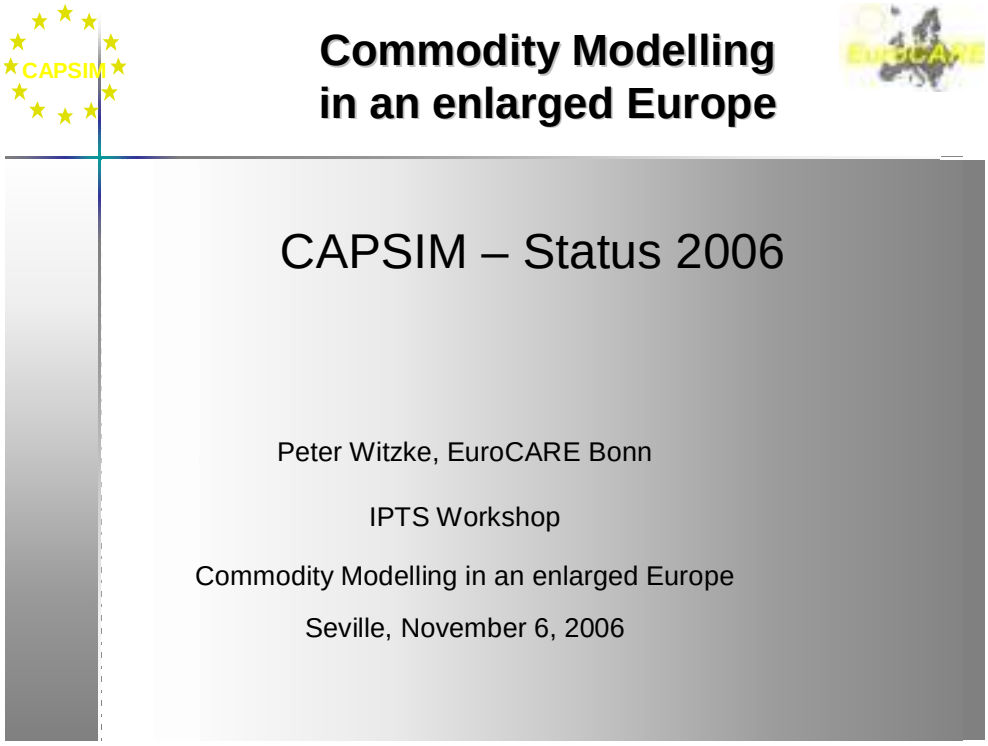
Conclusions

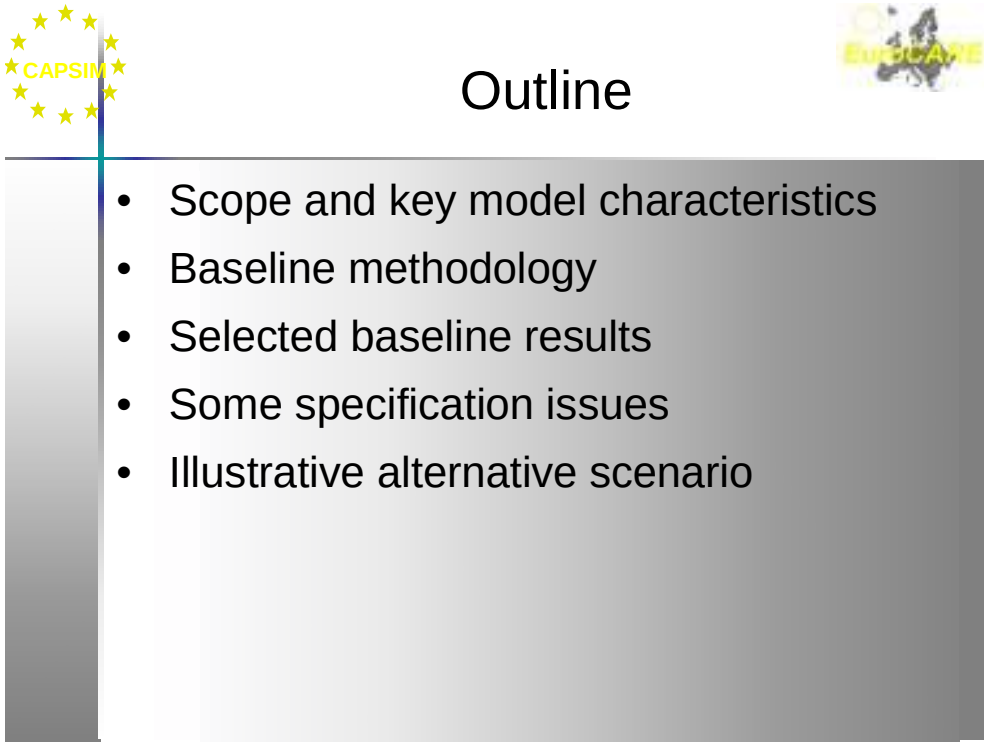
- ESIM:
  - Focused to European agri-food markets
  - Written in GAMS with GSE interface
  - Flexible tool: Extension with commodities/regions
- Main developments
  - in cereals: Production will increase, area requirements will diminish because of technical productivity improvement
  - in livestock: major restructuring,
    - with a concentration on dairy production, poultry meat and pork
    - Further decline in beef production due to changed consumption preferences, and partially the result of trade factors. The changes
    - Increasing productivity in milk production will lead to a decline in total numbers of cows
    - reduced of fodder production

Conclusions

- Biofuel directive
  - require 15 mio. t of biofuels,
  - If the feedstocks are all grown domestically,
    - this would be equivalent to 12 mio. ha, or
    - 9.4% of EU-25 agricultural land
  - Projections show
    - 7 mio. ha used to produce biofuels feedstocks,
    - equivalent to 5.5% of total agricultural land
- Non-food demand of agricultural products (e.g. energy) competes with food demand
- Possible consequences:
  - increasing food prices with possible adverse effects on food importing (developing) countries
  - expansion of agricultural land with implications for the environment

9. P. Witzke (EuroCARE, Bonn): CAPSIM – Status 2006





Key characteristics of CAPSIM

- Nonspatial, partial equilibrium, comparative static, no uncertainty
- EU27 ready, Western Balkan ongoing
- 50 products(marketable, non-marketable, processed), 3 inputs + land
- Rather detailed policy coverage
- Different trade regimes possible
- Behavioural functions derived from microeconomics with calibrated parameters
- Technical constraints (area, feed, dairy...)

Typical for outlook work:

- Based on econometrics applied to time series
- But incorporating expert information
  - In evaluation of results and identifying needs for revisions
  - In assessing issues not amenable to formal modelling
- Linkage of initially unrelated projections for subsets of variables (regions, markets)

Typical for impact analysis:

- Good ex post fit is less important than good parameters and structure
- Transparency is most important:
  - Need to explain results
  - No cross checking with observations
- Often: theory driven models with synthetic parameters

Two modes for two tasks:

1) Reference run mode
   - Merges a set of external forecasts
   - Incorporates ex post observations
   - Estimates shifters of behavioural functions

2) Simulation mode
   - Parameters from above are fixed
   - Experiments with exogenous parameters and policy

CAPSIM reference run mode (1)

General approach :

- Express a priori information in terms of "supports" with a priori probabilities
  - Ex post: observed data = supports
  - Future: CAPRI trends, FAPRI projections, …
- Minimize distance of simulation to supports
- Using constrained shifters (monotonic trends)

CAPSIM reference run mode (2)

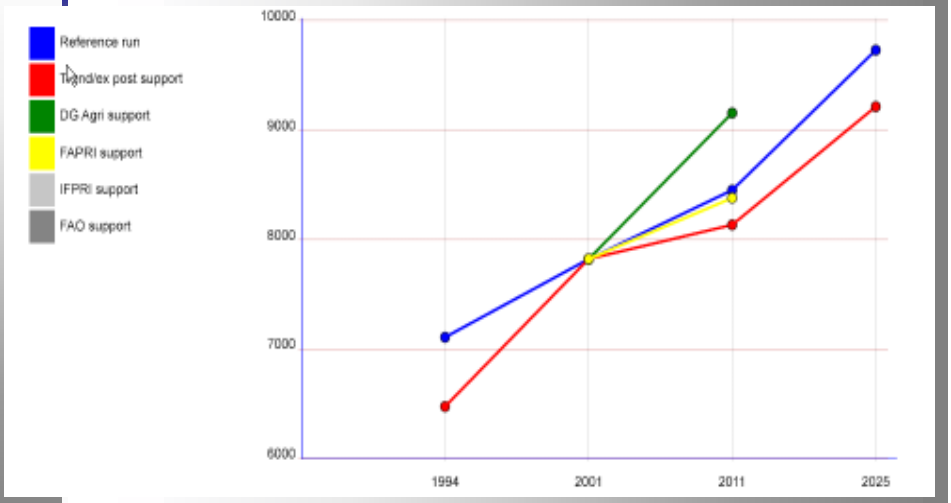
- Objective function includes weight for relevance of item i:

$$obj = \sum_i obwgt_i \cdot \left(\frac{X_i - \overline{X}_i}{\sigma_i} \right)^2$$

- Limited flexibility for shifters is compromise:
  - free shifters would adjust perfectly to external forecasts => no influence of economic model
  - exogenous shifters would remove degrees of freedom => no influence of external forecasts

CAPSIM reference run mode (3)

Example from 2004 outlook: Cheese production for EU23, 1000t



CAPRI Trends (1)

- Constrained trends on short time series (85-04)
- Technological constraints
- Policy shifts are incorporated
  – simulation of future policy on current data
- Some alignment with DG-AGRI baseline in step 3 of whole procedure

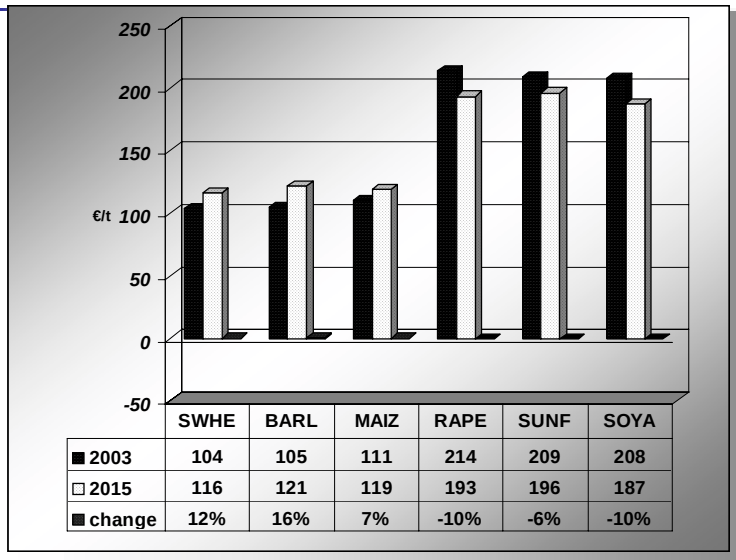
CAPRI Trends (2)

- Step 1
  - Independent trends (Variable = a + b*time**c)
  - Usually contradictory, often negative first estimates
  - But R^2 gives some information on reliability
  - Target values for Step 2:
    (R^2*trend estimate + (1-R^2*base year value))
    *(1+policy_shift)
- Step 2
  - Minimize difference to supports, weighted with variance of error term of unconstrained trend line
  - Subject to a set of constraints

CAPRI Trends (3)

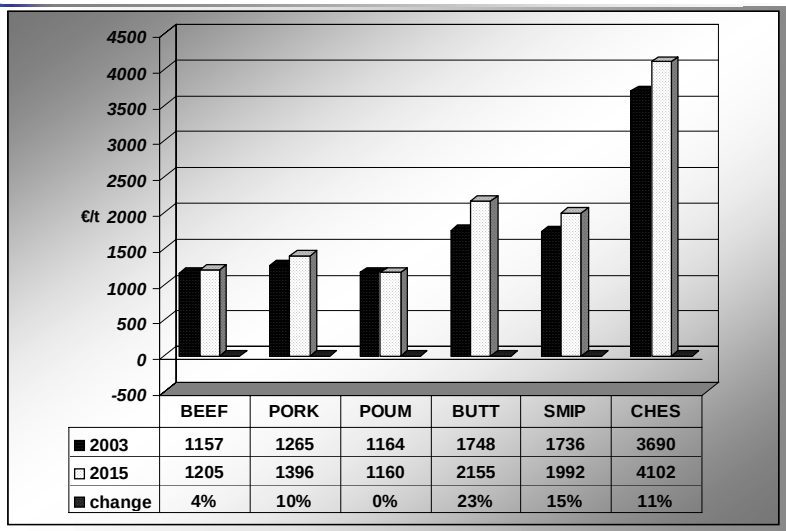
- Basic “accounting” identities for agricultural variables:
  - Land balance
  - Production equals yield times area
  - Market balances
  - Young animal balances
  - Balances for milk fat & protein
  - Feed requirements (energy, crude protein)
  - …

World price assumptions (1)



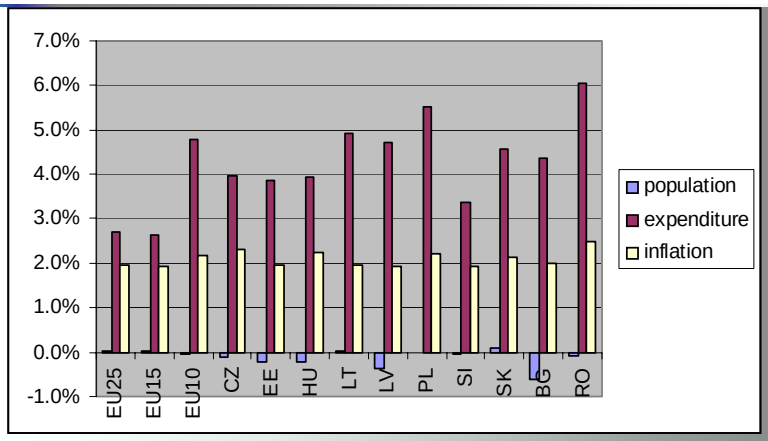
	SWHE	BARL	MAIZ	RAPE	SUNF	SOYA
2003	104	105	111	214	209	208
2015	116	121	119	193	196	187
change	12%	16%	7%	-10%	-6%	-10%

World price assumptions (2)



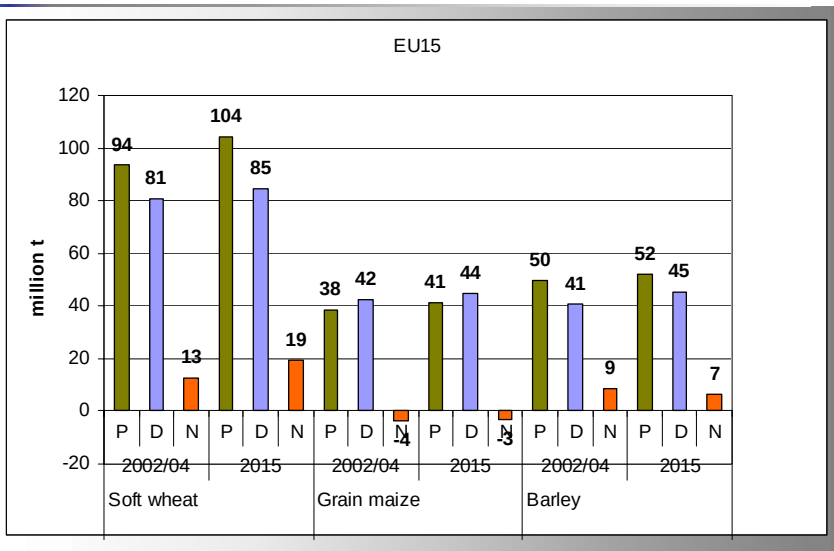
	BEEF	PORK	POUM	BUTT	SMIP	CHES
2003	1157	1265	1164	1748	1736	3690
2015	1205	1396	1160	2155	1992	4102
change	4%	10%	0%	23%	15%	11%

Macro assumptions

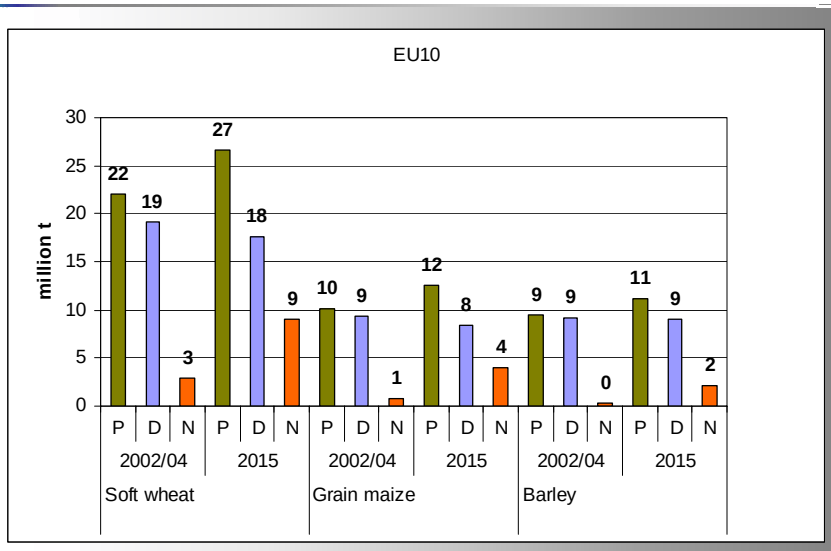


Exchange rate 2003: 0.98 USD/€, 2015: 1.15 USD/€

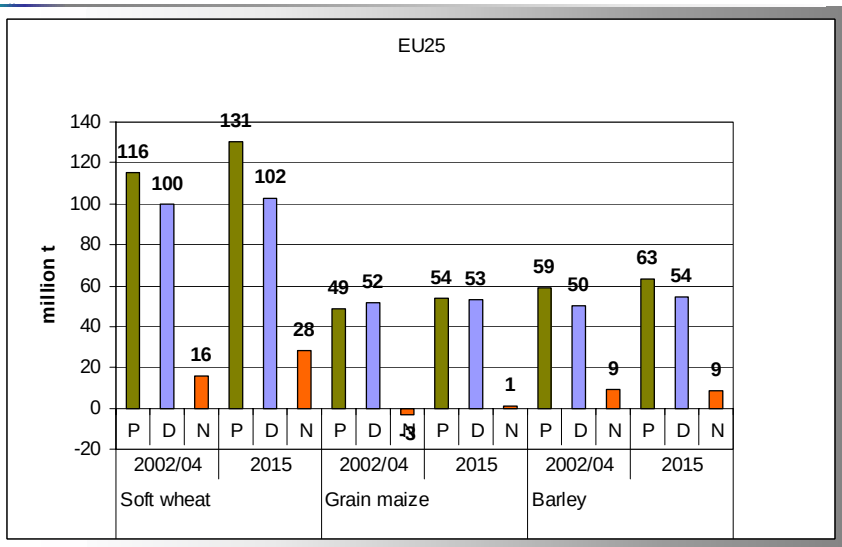
Cereal baseline results (1)



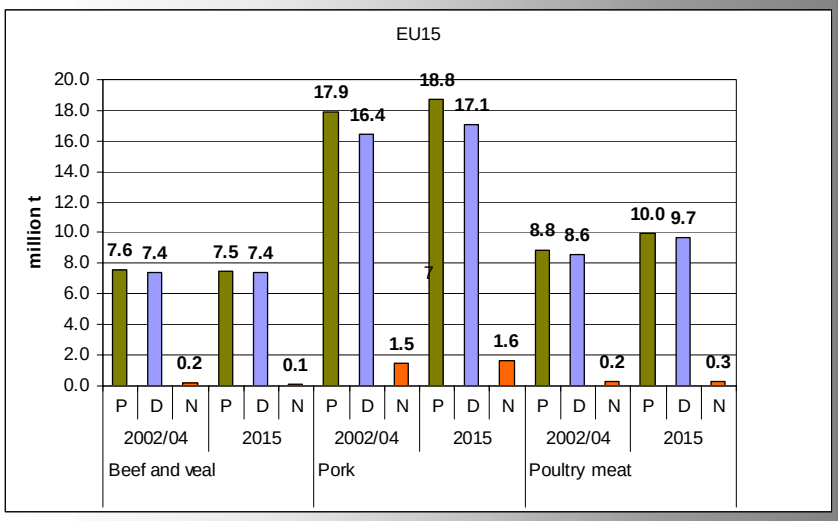
Cereal baseline results (2)



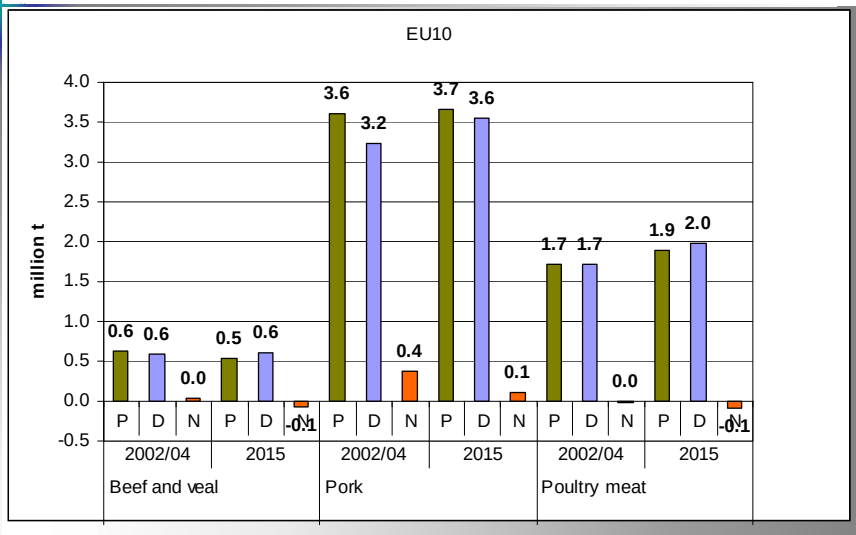
Cereal baseline results (3)



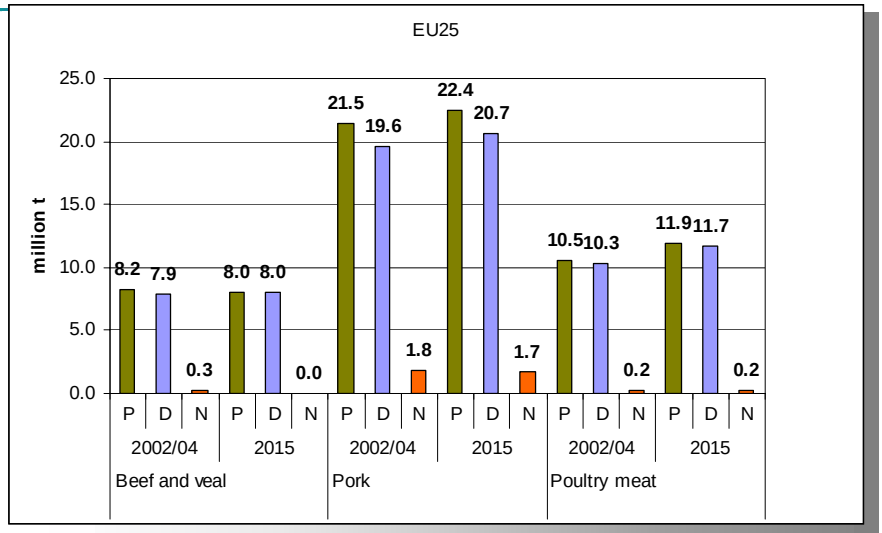
Meat baseline results (1)



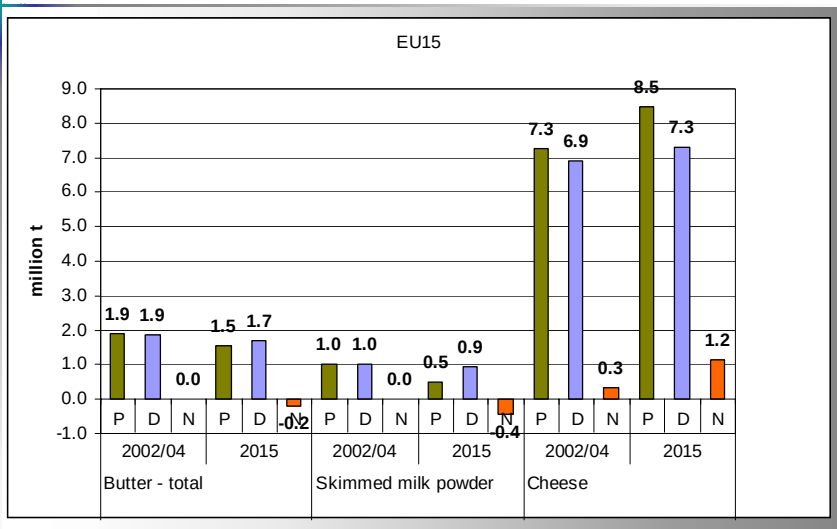
Meat baseline results (2)



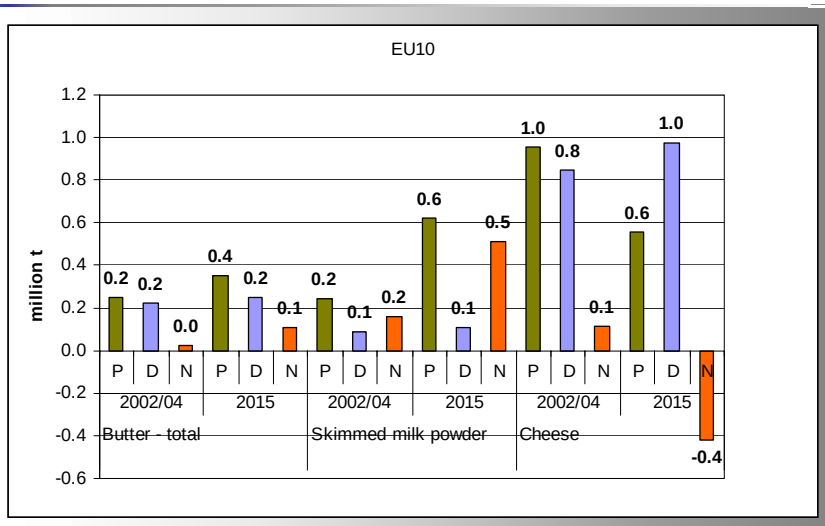
Meat baseline results (3)



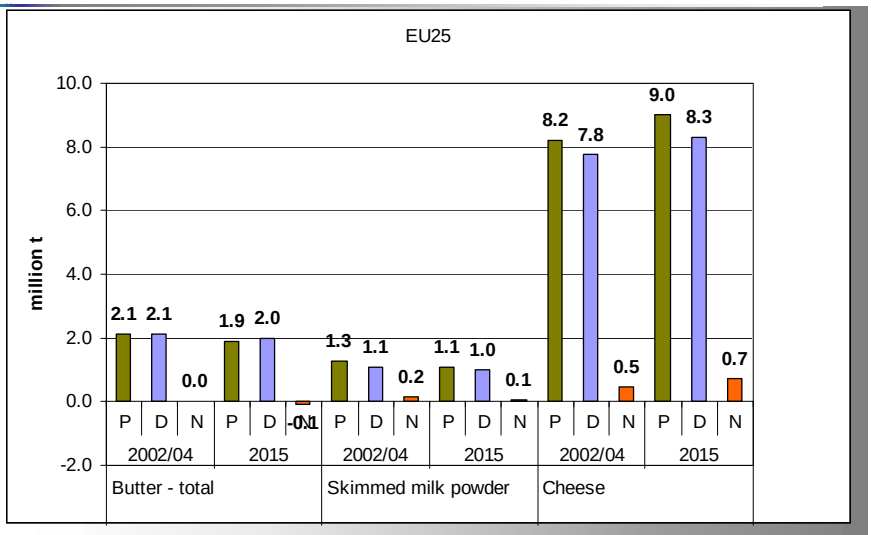
Dairy baseline results (1)



Dairy baseline results (2)



Dairy baseline results (3)



Interim discussion

- Reference run mode may integrate scant, contradictory information in a systematic way = solution for small team
- Calibration with 2 (or 1) ex post observations gives high weight to external information (CAPRI Trends, other projections)
- CAPRI Trends = default information with problems
  - Many numbers to check
  - DG Agri baseline needs disaggregation
  - Policy shifts are simplification

Supply/demand specification (1)

Behavioral functions for activity levels and inputs:

= f (revenues, input prices)

(derived from “Normalised quadratic” profit function)

Yields are assumed exogenous:

$$PRD_{m,i} = \Sigma_j \, (YLD_{m,i,j} * LVL_{m,j})$$

Balances on land and feed energy/protein imposed

Supply/demand specification (2)

Revenues from market revenues + premiums

- Dairy, sugar with shadow/incentive revenue due to quota
- Premiums with partial decoupling in EU15
- Endogenous fodder prices link crop and animal sector

Demand functions from GL or LES type indirect utility

Derived demand for processing from NQ profit

Microeconomic framework facilitates welfare analysis

Price formation (1)

Typically gross EU extra trade:

Market equilibrium in CAPSIM: PRD – DEM = X – M

where

- PRD = s(EU price) = domestic supply
- DEM = d(EU price) = domestic demand
- M = m(EU price,tariffs) = import supply
- X = x(EU price,avg export subsidy) = export demand

Tariffs, exp subsidies exog or: f(admin price, EU price)

WTO limits currently only monitored, not imposed

Price formation (2)

Intra EU linkage with 'price convergence' weight:

Nat price (t) = EU price (t) * conversion factor

* (1 – price convergence (t))

+ EU price (t) * price convergence (t)

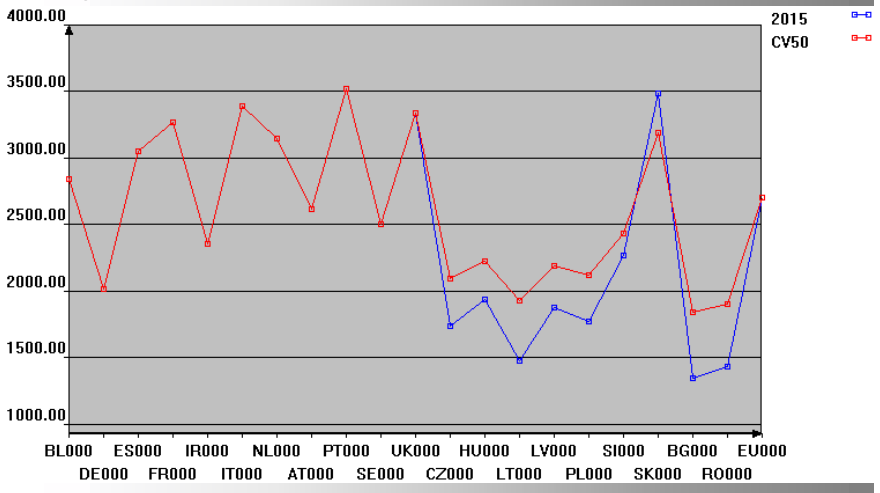
Weight for unscaled EU price increases with time to :

Price convergence = 0.2 (reference run 2015)

Price convergence = 0.5 (alternative run 'CV50')

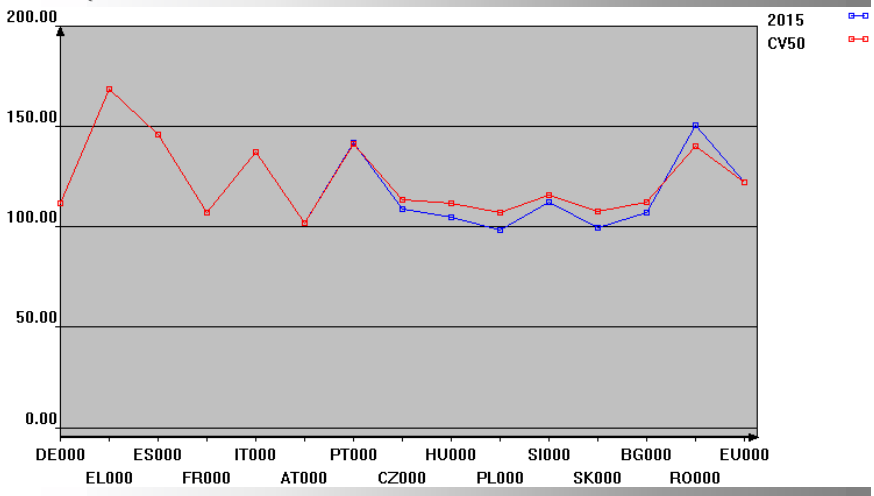
Price convergence: beef

Beef prices in €/t in different EU Member States



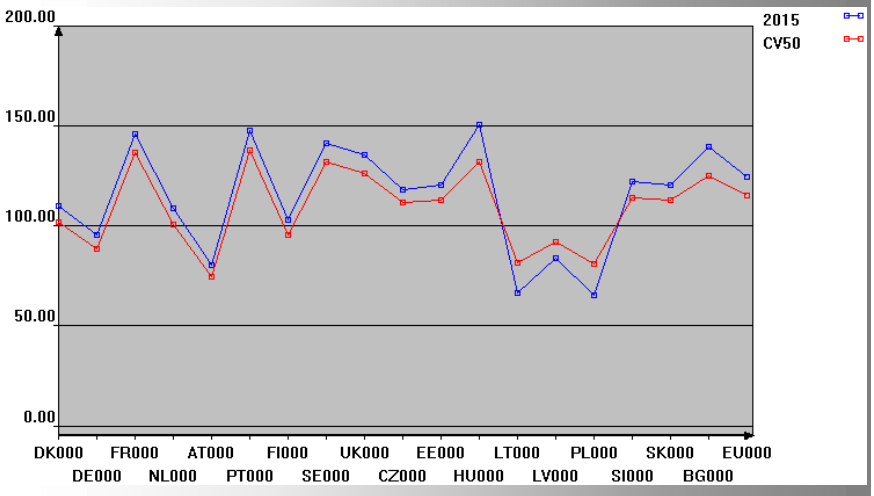
Price convergence: maize

Maize prices in €/t in different EU Member States

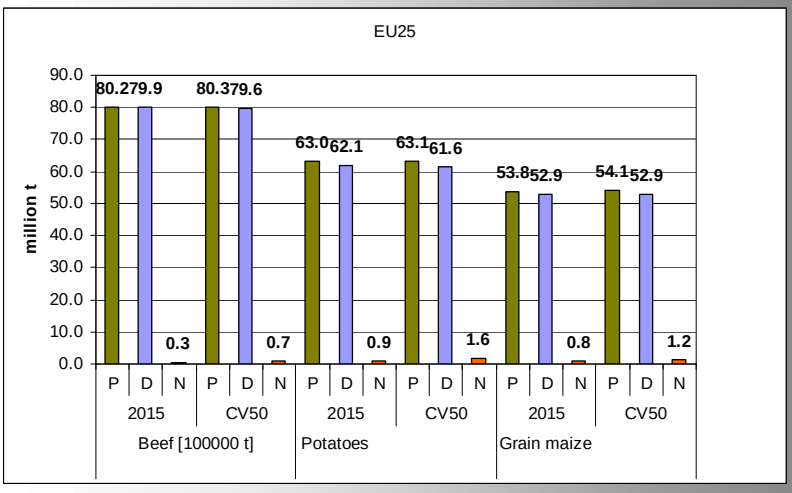


Price convergence: potatoes

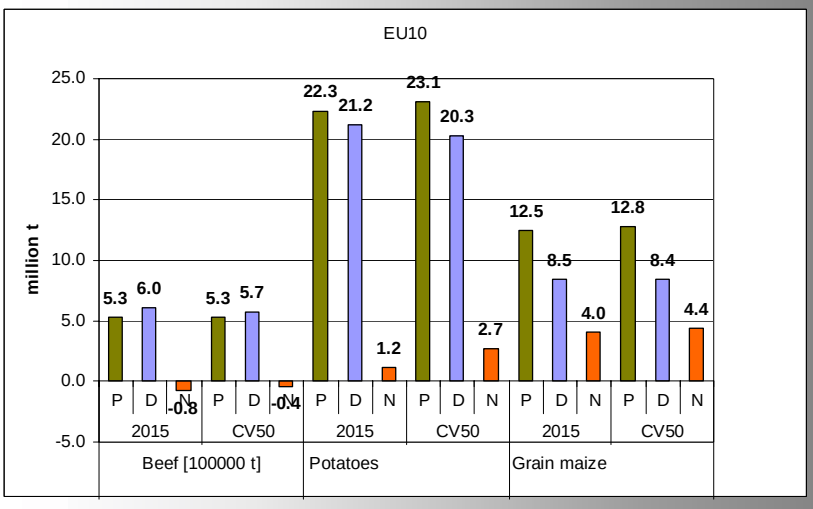
Potato prices in €/t in different EU Member States (without southern EU)



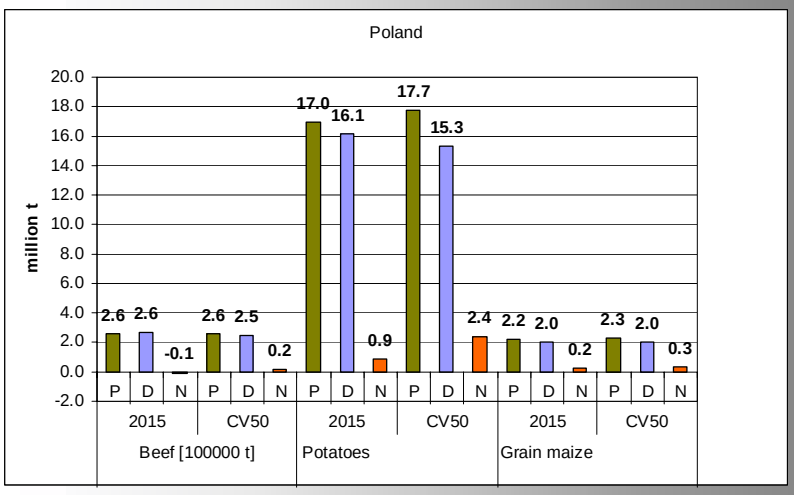
Price convergence impacts (1)



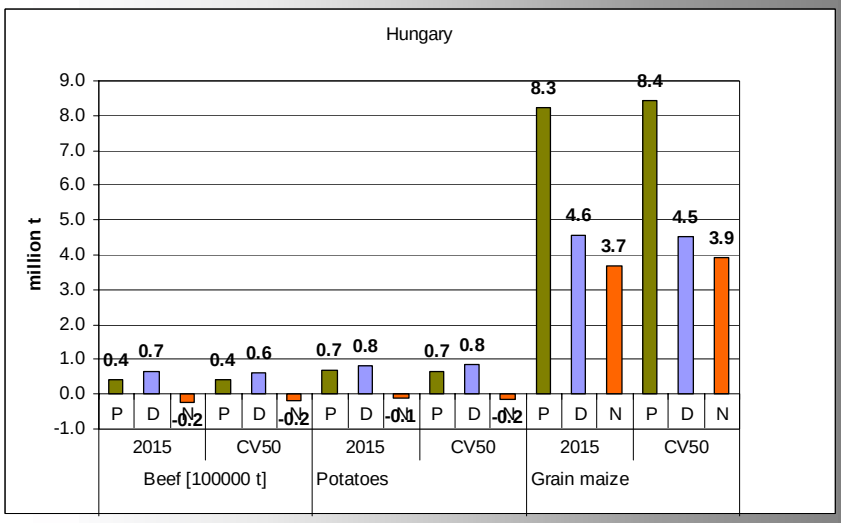
Price convergence impacts (2)



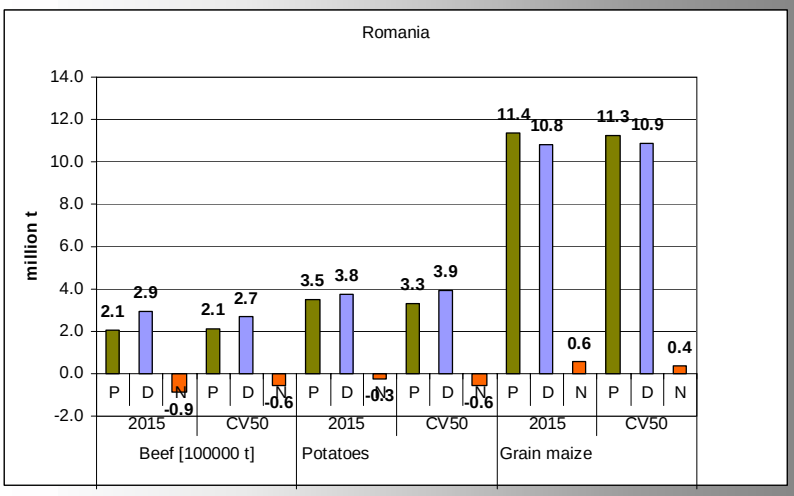
Price convergence impacts (3)



Price convergence impacts (4)



Price convergence impacts (5)



Final discussion

- CAPSIM relies on microtheory where this saves trouble
- It is pragmatic where theory cannot help
- Price convergence depends on many factors
  - Initial protection
  - Transaction costs (and net trade position)
  - Market power
  - Quality adjustments
  - Improved statistical harmonisation
- May be very relevant topic: Need for empirical research

10. M. van Leeuwen (LEI, The Netherlands): Features of AGMEMOD

Agri-food projections
AGMEMOD
for EU member states

Features of AGMEMOD

Myrna van Leeuwen
WUR-LEI
http://www.lei.wur.nl/UK/

IPTS, Seville, November 6th 2006

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Overview of presentation

- Background information
- Specification and model issues
- Data and parameters
- Conceptual framework
- Challenges for 2007 and 2008

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Background information

- AGMEMOD started in 2001 (5FP)
- Consortium of 23 partners (NMS and AS came in later)
- Templates with standard structures for each commodity, based on GOLD model
- Templates are followed by each team

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AGMEMOD

Background information

- Baseline outlook for EU and Member States (up to 2015)
- Analyse impacts of policy reform
- Analyse impacts of changes in macro-economic environment

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Specification and model issues – model type

- Model specification:
  - recursive dynamic commodity market models
  - multi-product
  - partial equilibrium

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Specification and model issues - variables

- Exogenous variables:
  - policy variables
  - macroeconomic variables
  - world market prices
- Endogenous variables:
  - supply and use variables
  - EU and national prices

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Specification and model issues - commodities

- *Livestock:* dairy cows, suckler cows, calves, other cattle, pigs, poultry, sheep and goats
- *Animal products:* beef and veal, pork, poultry meat, sheep and goats meat, milk, cheese, butter, milk powder
- *Arable products:* cereals (wheat, barley, maize, rye, other grains), sugar beets, sugar, potatoes, oil seeds (soyabeans, sun flowers, rapeseeds)

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Specification and model issues – policy instruments

- OMS Agricultural policy (CAP):
  - intervention prices
  - animal and hectare premiums
  - quota
  - Single Farm Premiums
- NMS Agricultural policy (SAP, CNDP and CAP):
  - phasing-in and top-up rates
  - national and EU budgetary supports
- Trade policy:
  - URAA agreements on export subsidies and import tariff rates

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Data and parameters - sources

- Eurostat (balance variables, prices)
- National sources (marcroeconomic variables)
- FAPRI (world market prices)
- European Commission (policy variables)

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Data and parameters - output

- Supply and use balances: production, consumption, imports, exports, stocks (in annual quantities)
- Land use (hectares), livestock (head)
- Producer prices
- Prices and volumes for inputs (animal feed)
- Agricultural sector income
- EU payments on premiums, subsidies

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Data and parameters - parameters

- Econometric estimation of equations in old Member State models
- Calibration of equations in new Member State, Bulgarian and Romanian models. Reasons:
  - short data range
  - data inconsistency
  - structural breaks in policy
- Validation by tests and country expert reviews

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Conceptual framework

- Principles of the AGMEMOD philosophy regarding:
  - commodity market model structure
  - country model structure
  - EU15 and EU25/27 model structures

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Conceptual framework – commodity approach

- Construction of modelling templates for each commodity market:
  - market description
  - flow charts
  - data on production, consumption, trade, policy instruments, macro-economy, prices
  - structural form equations

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Conceptual framework – country approach

- Three commodity groups:
  - arable products
  - livestock products
  - dairy products
- Commodities are linked by substitution and technical relations in production and consumption processes

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Conceptual framework – country approach

- Price transmission on commodity market:
  - EU key price (delivered by Member State seen as most important for that commodity)
  - EU key price is specified by world market price, trade agreements, intervention price, EU production and consumption
- Price transmission on EU market:
  - national commodity prices are linked to EU key price and self-sufficiency rates in own and key country respectively

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Conceptual framework – implementing SPS in OMS

- Derivation of heterogeneous multipliers:
  - rate that reallocates historic premiums across all agricultural land (time, country, commodity)
  - modulation rate (time, country)
  - expert rate (time, country, commodity)
- Multipliers are linked to historic direct payment (Agenda 2000)
- Synthetic direct premiums (2003 CAP reform) that express supply inducing production effects

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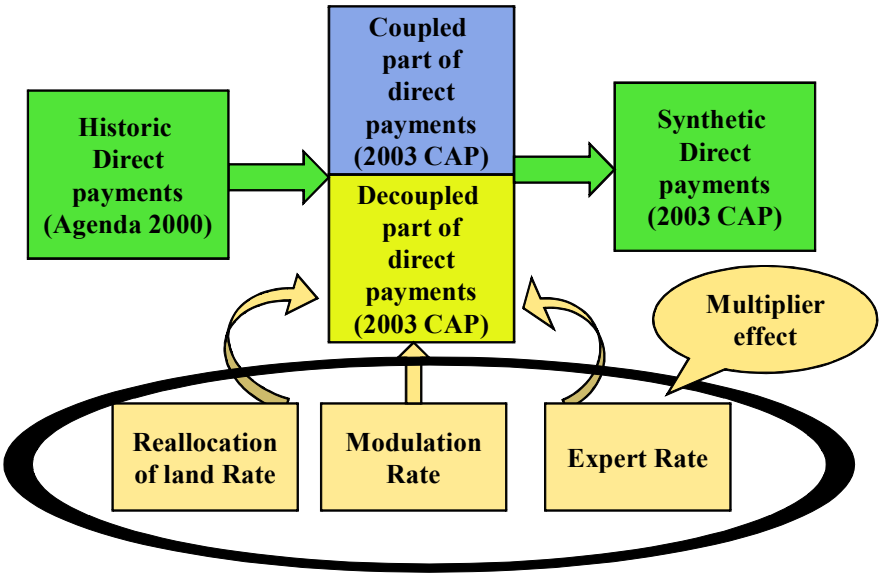

Conceptual framework – implementing SPS in NMS

- No historic premiums available
- SAPS: fully decoupled payments on basis of flat rate per hectare
- CNDP: coupled or decoupled payments on basis of flat rate per hectare
- Assumed multipliers that capture possible supply inducing impacts of SAPS and CNDP respectively
- Synthetic direct premiums (per 100 kg) are added to producer price

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Conceptual framework – EU approach

- EU15 model
  - combination of old Member State models
  - country commodity models are simultaneously solved by key prices and EU self-sufficiency rates
- EU10 model
  - stand-alone solution of new Member State models
  - exogenous key prices (result of EU15 model) and price convergence
- EU25/27 model
  - aggregation of EU15 model and stand-alone new Member State and Accession State models

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Challenges for 2007 and 2008

- 'Catch-up' of NMS/AS models
- Induce endogenous world market price formation in a reduced form
- Policy harmonization in EU27 countries
- Extension of new commodities and new countries (Croatia, Turkey, Macedonia, Russia, Ukraine)
- EU25 combined model (also in GSE)

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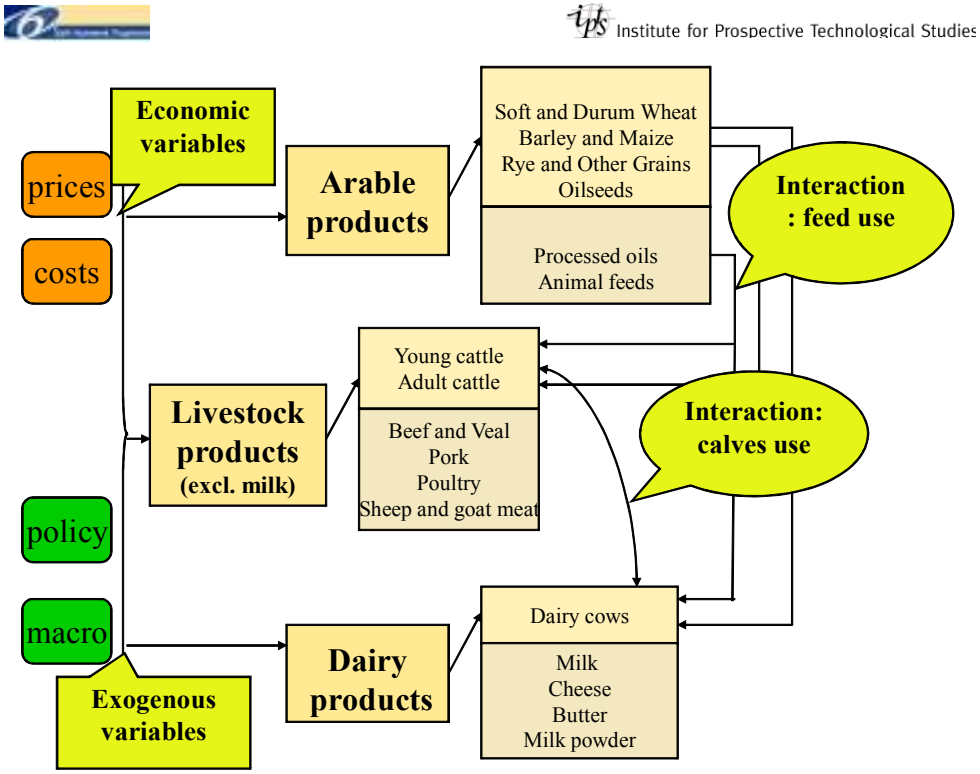
Agri-food projections
AGMEMOD
for EU member states

To learn more about AGMEMOD and our IPTS project see:

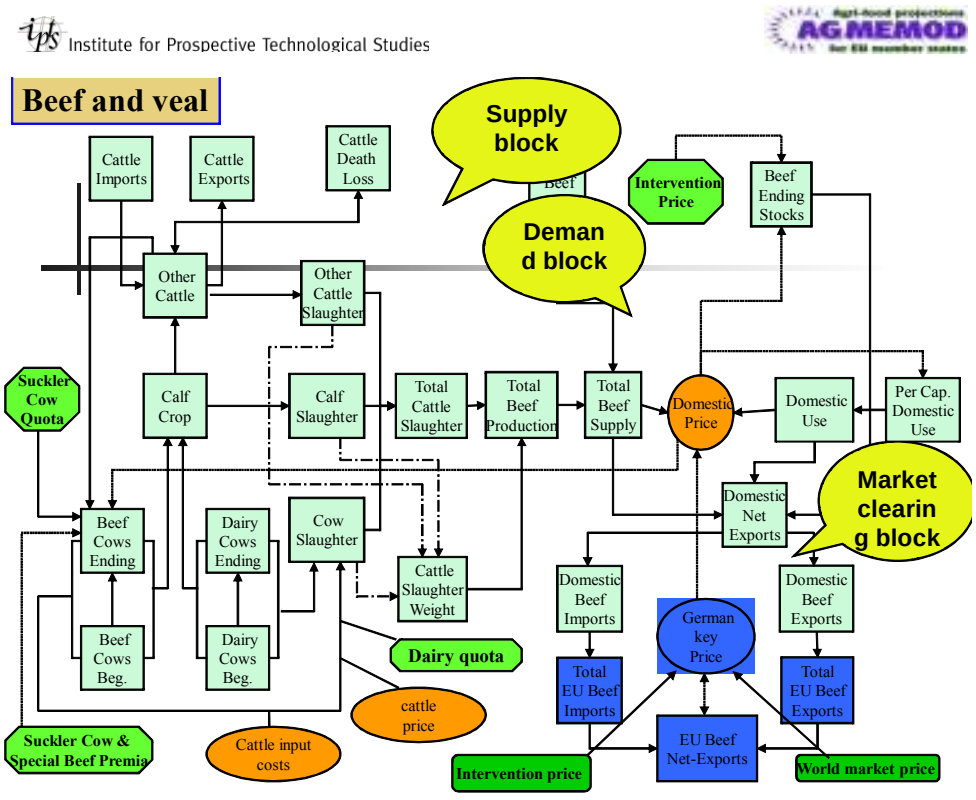
www.tnet.teagasc.ie/ agmemod

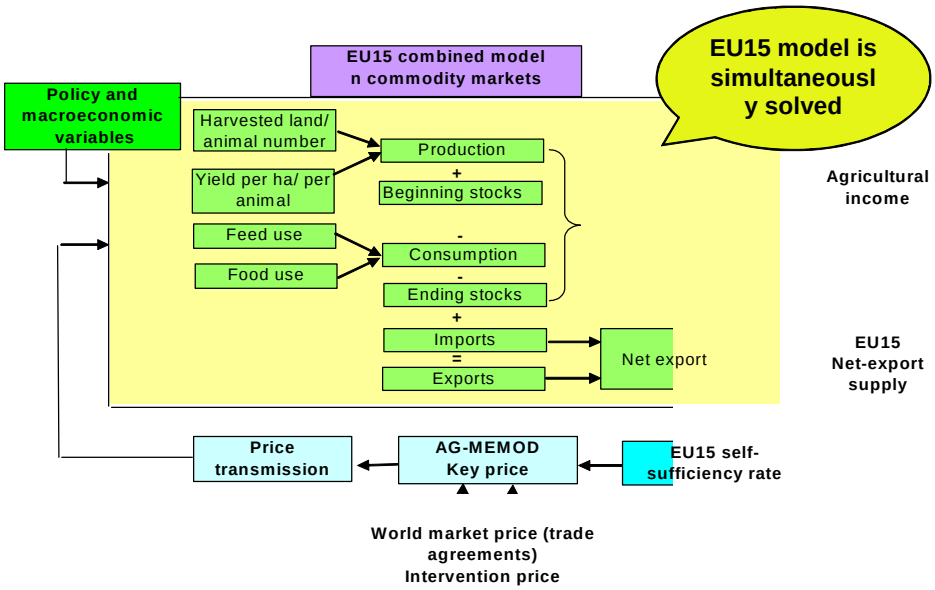


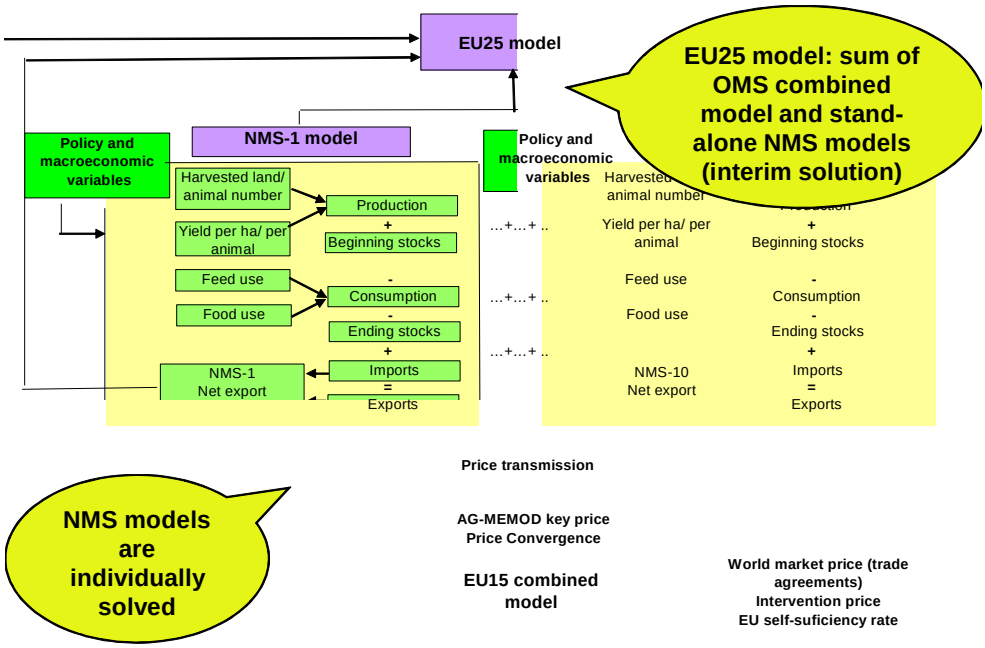
Conceptual framework – country approach

Examples of inter-action between commodities:

- link between *cereal* and *poultry:* poultry production
  - reduced cereal intervention price -> lower cereal prices -> lower (feed) costs -> higher profitability of poultry sector
  - more poultry production -> more cereals needed for feeding stuffs -> positive impact on cereal price
- link between *beef* and *dairy*.
  - available calves are dependent on dairy and suckler cow stock and on imports
  - calves are used for beef cattle or dairy cattle (dependent on policy, profitability of sectors)




EU15 model is simultaneousl y solved
EU15 combined model n commodity markets
Policy and macroeconomic variables
Harvested land/ animal number
Yield per ha/ per animal
Feed use
Food use
Production
+
Beginning stocks
-
Consumption
-
Ending stocks
+
Imports
=
Exports
Net export
Agricultural income
EU15 Net-export supply
Price transmission
AG-MEMOD Key price
EU15 self-sufficiency rate
World market price (trade agreements)
Intervention price


EU25 model
EU25 model: sum of OMS combined model and stand-alone NMS models (interim solution)
Policy and macroeconomic variables
NMS-1 model
Harvested land/ animal number
Yield per ha/ per animal
Feed use
Food use
Production
+
Beginning stocks
-
Consumption
-
Ending stocks
+
Imports
=
Exports
NMS-1 Net export
Policy and macroeconomic variables
Harvested
animal number
Yield per ha/ per animal
Feed use
Food use
NMS-10 Net export
...+...+ ..
...+...+ ..
...+...+ ..
+
Beginning stocks
-
Consumption
-
Ending stocks
+
Imports
=
Exports
Price transmission
AG-MEMOD key price
Price Convergence
EU15 combined model
World market price (trade agreements)
Intervention price
EU self-suficiency rate
NMS models are individually solved

11. P. Salamon – O. von Ledebur (FAL, Germany): AGMEMOD Baseline results

Agri-food projections AGMEMOD for EU member states

Baseline results

Petra Salamon, Oliver von Ledebur
Federal Agricultural Research Centre (FAL)
http://www.ma.fal.de/

IPTS, Seville, November 6th 2006

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Overview of presentation

- Baseline scenario
- Assumptions
- Baseline projections
- Conclusions

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AGMEMOD

Description of Baseline scenario

- EU-15:
  - CAP with national implementation of the Single Farm Payment (SFP) scheme
  - SFP scheme includes possibility of partly coupled direct payments according to national decisions
  - Cut of intervention prices for butter and SMP, additional quotas

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AGMEMOD

Description of Baseline scenario

- EU-10:
  - CAP with SAPS to 2008
  - SFP from 2009: coupled direct payments possible
  - Complementary National Direct Payments until 2013: from 2009 these payments may be coupled
  - national implementation of LA Single Payment Scheme
  - Cut intervention prices butter, SMP

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AGMEMOD

Description of Baseline scenario

- Accession countries (Bulgaria and Romania):
  - agricultural policy regime is assumed to remain unchanged from their pre-accession state

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Assumptions of Baseline scenario of EU-25

- Policy variables (beside LA, export subsidies, tariff rate quotas = UR)
- Country specific macroeconomic indicators (population, GDP, inflation, exchange rate national currency/€ and US$/€)
- World market prices (cereals, oilseeds, meat, dairy products)

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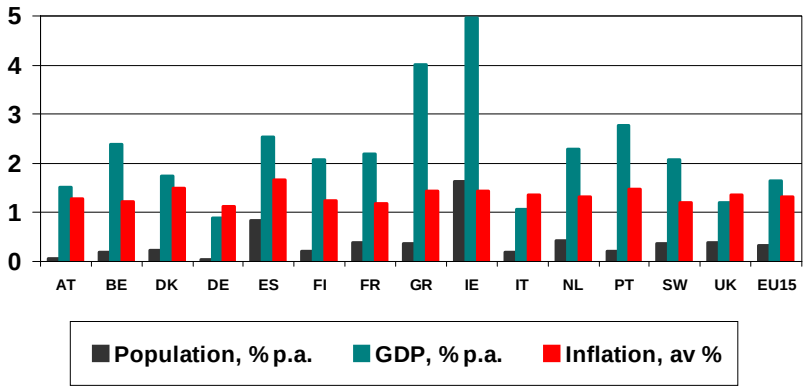
Macroeconomic developments – EU-15



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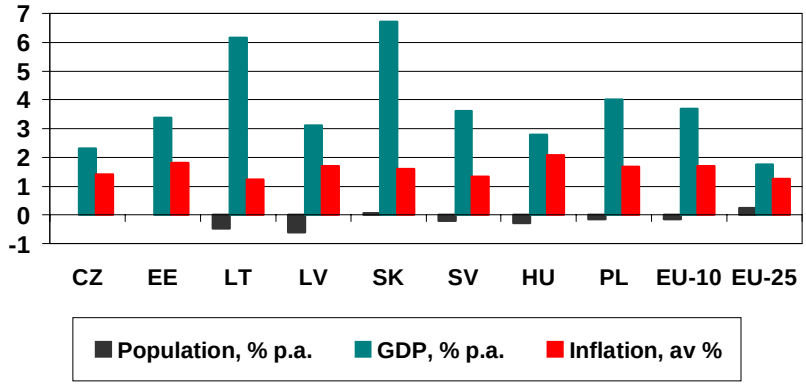
Macroeconomic developments – EU-10



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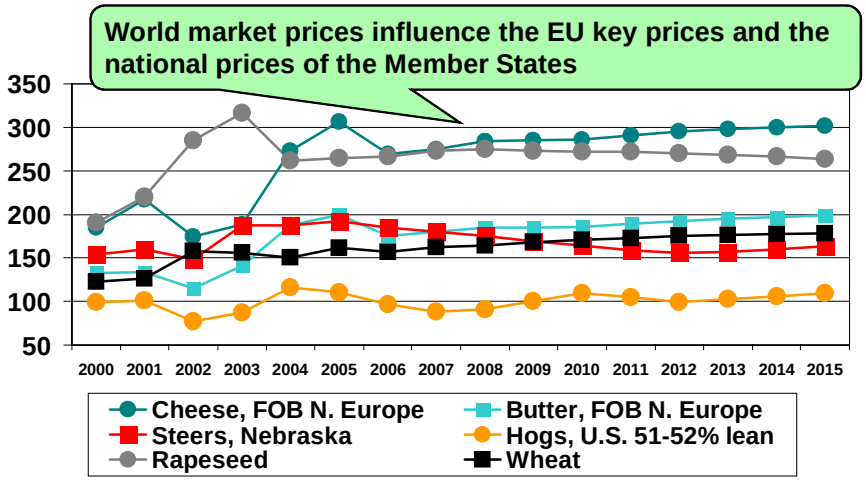
World crop, livestock and dairy prices (US$/ton)- FAPRI



Market projections

- EU25/EU27 projections are aggregated of the EU15 combined model results and the stand-alone NMS and AS country model results
- key prices are endogenously determined by EU15 combined model and are exogenously set for NMS and AS
- it is the first time that results have been produced in this way (combined OMS model and stand-alone NMS models)

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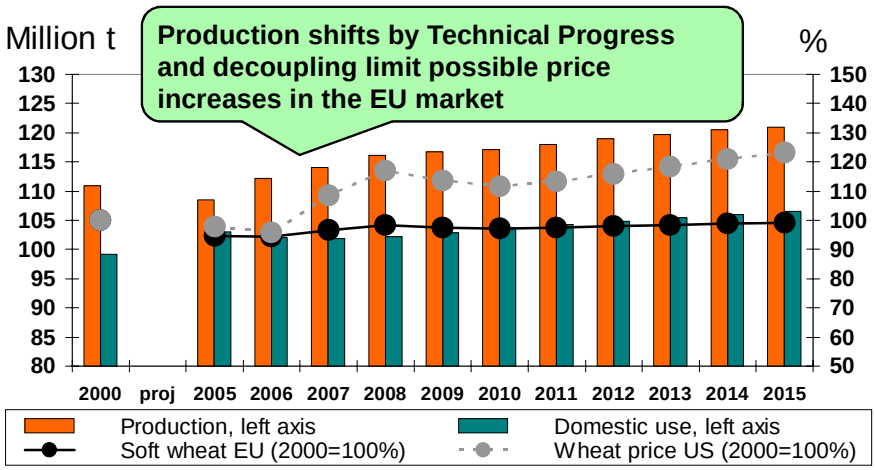
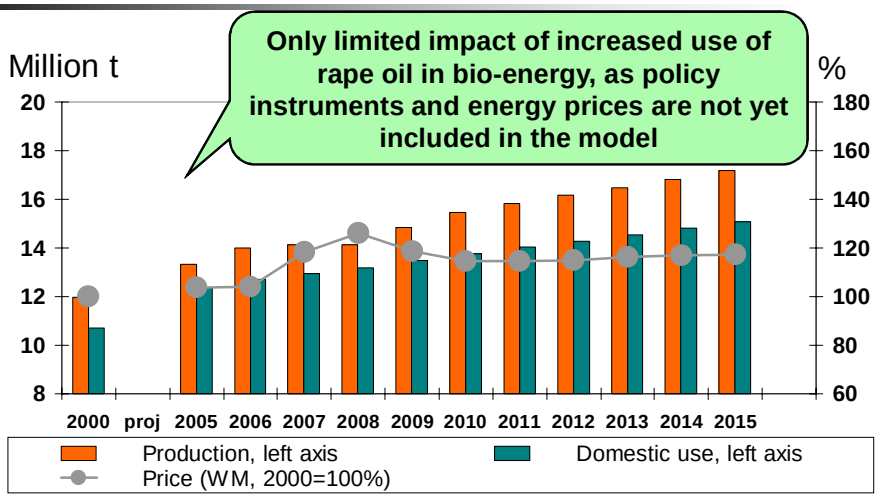
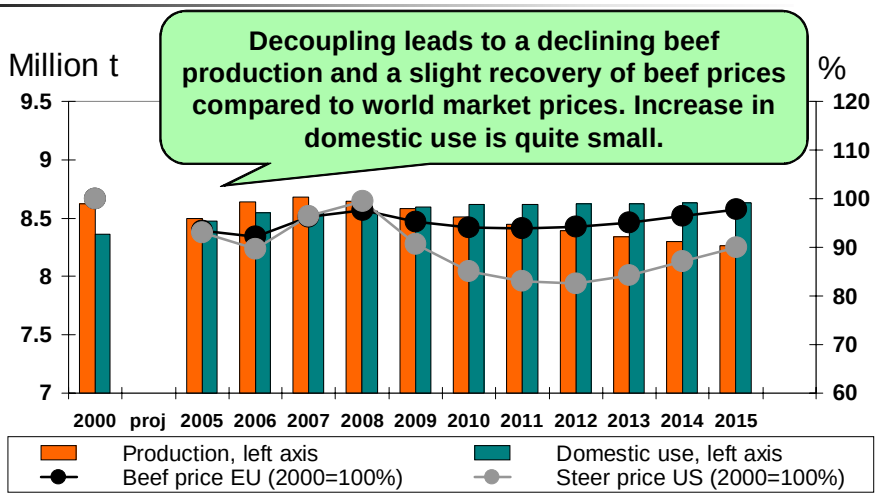
Market balance and prices of soft wheat – EU



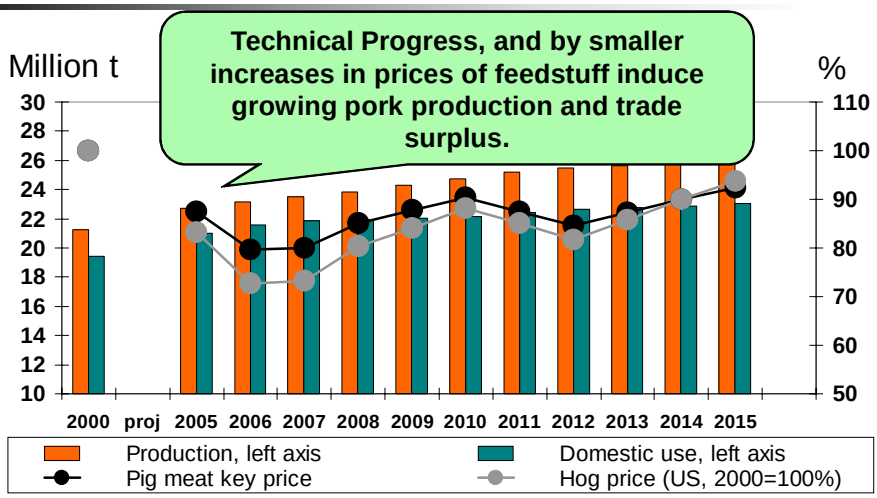
Market balance and prices of rape seed – EU



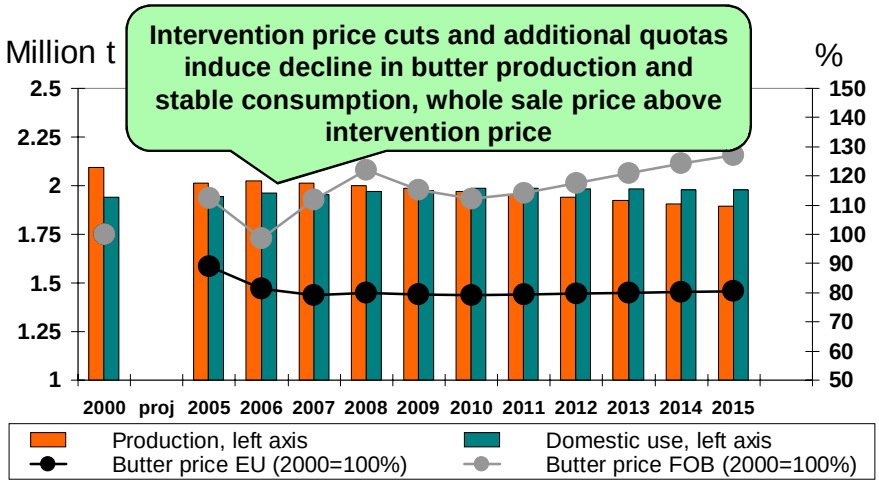
Market balance and prices of beef and veal – EU



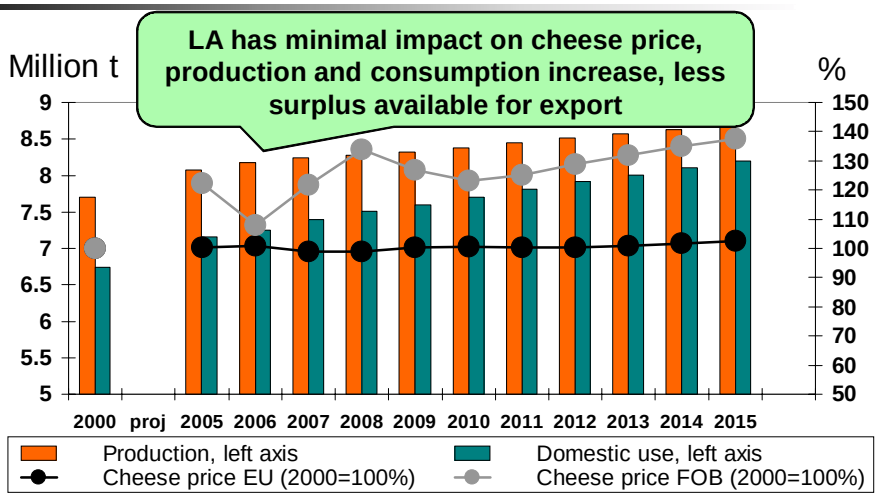
Market balance and prices of pig meat – EU



Market balance and prices of butter – EU



Market balance and prices of cheese – EU



Qualification

- Overall development of the different sectors seems reasonable with some exceptions
  - Poultry sector: price / cross price impact on demand
  - Feedback of the livestock sectors on feed demand
  - Bio-energy to be implemented
- Prices:
  - Key price equations need to be re-estimated for EU-25/EU-27
  - Endogenous formation of world market prices
- Data problems:
  - Divergence between last observation and new data
  - Not all data available and reliable

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Conclusions

- Decoupling lead to limited production shifts:
  - Wheat and oilseed production are increasing
  - Beef production is declining – EU net importer
  - Indirect effects in other sectors like pig meat production
- LA in the dairy sector:
  - Further production shift towards cheese
  - Domestic prices above intervention level
  - EU will become a (small) net importer of SMP and butter

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Conclusions

- Demand in several sectors will increase slower than production (e.g. cereals)
- Prices:
  - In general, narrowing price gap between domestic and world market prices
  - With the exception of dairy production prices will slightly increase or remain stable
  - Prices in the dairy sector will remain above the intervention prices

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Agri-food projections AGMEMOD for EU member states

Thank you for your attention

www.tnet.teagasc.ie/ agmemod

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12. L. Bartova - R. M'barek – H. Gay (European Commission, JRC – IPTS): Overview of Selected EU-25 Agricultural Market Baseline Projections

EUROPEAN COMMISSION
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Joint Research Centre

Joint Research Centre

Overview of selected EU 25 agricultural market baseline projections

Seville, 6.11.2006
Workshop: Commodity Modelling in an enlarged Europe

Institute for Prospective Technological Studies (IPTS)
Seville, Spain

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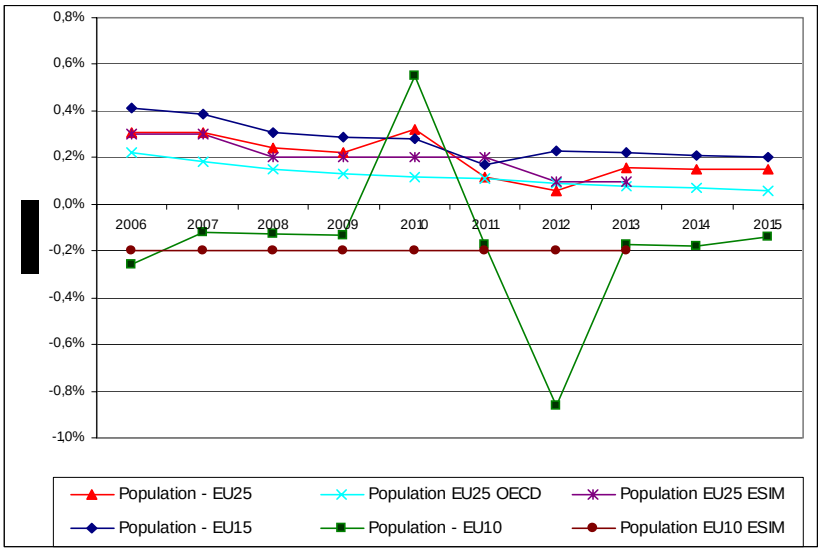
Macroeconomic variables

Population growth



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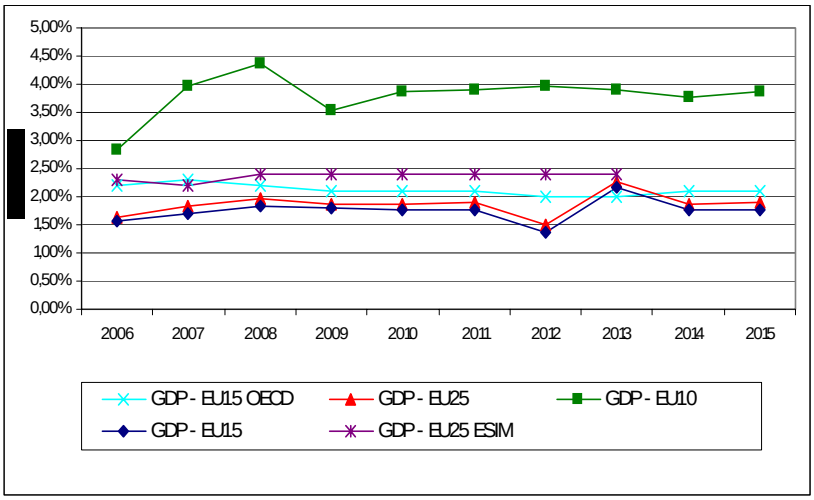
Macroeconomic variables

GDP growth



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Workshop on commodity modelling, DG JRC, Seville, 6.11.2006 4/12

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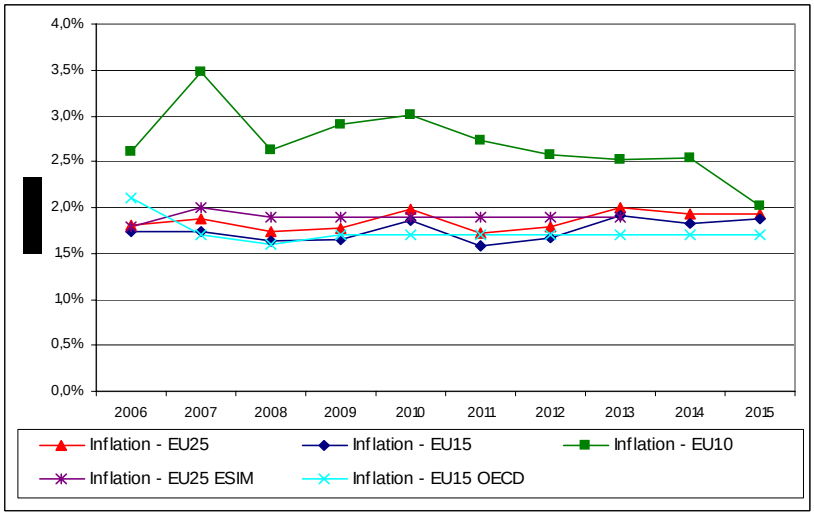
Macroeconomic variables

Inflation



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Workshop on commodity modelling, DG JRC, Seville, 6.11.2006 5/12

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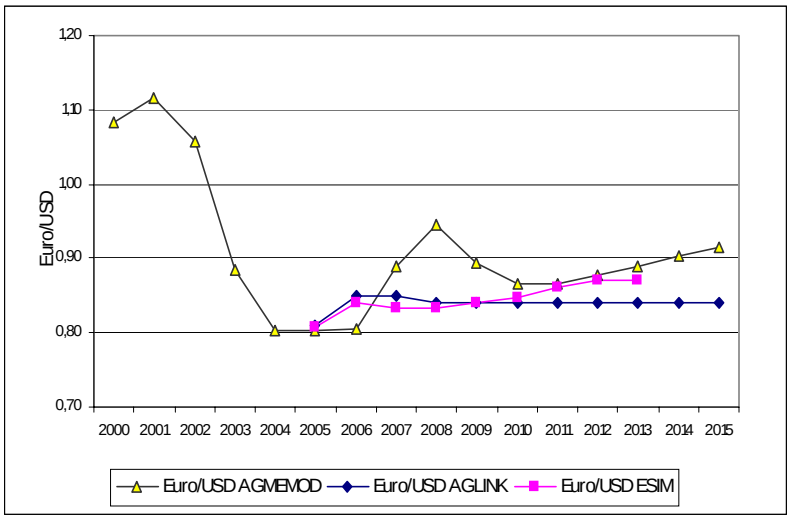
Macroeconomic variables

Exchange rate



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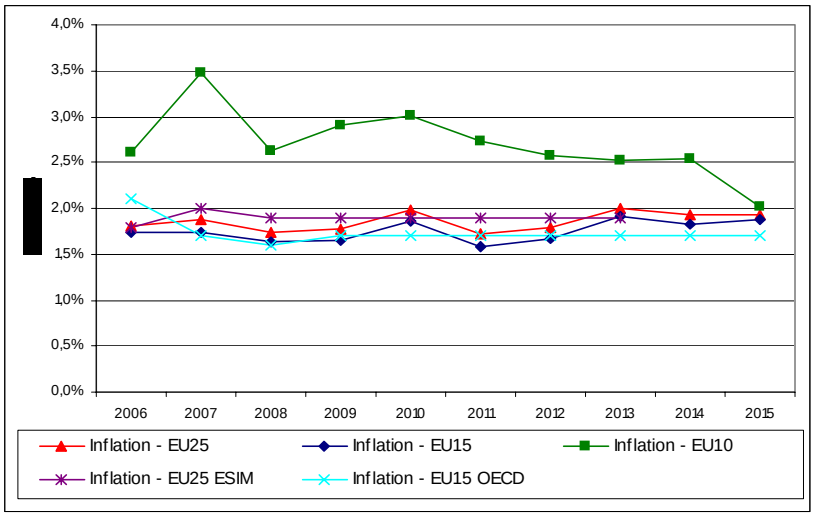
Macroeconomic variables

Inflation



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Macroeconomic variables

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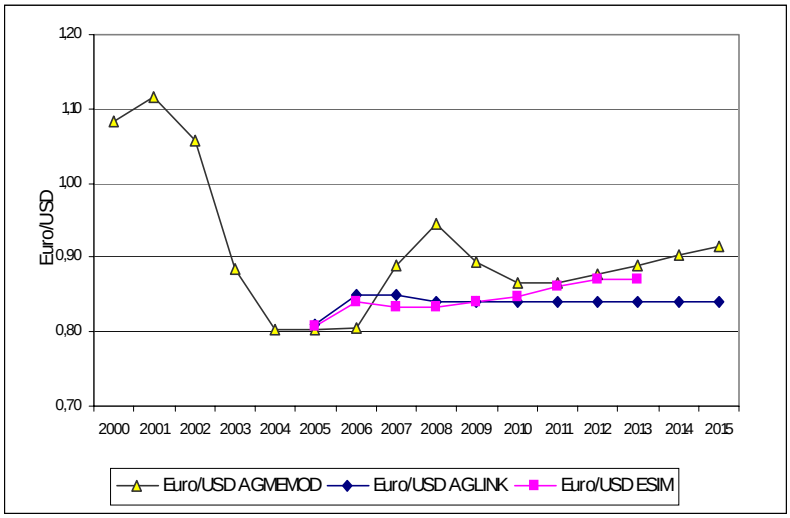
Exchange rate



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World market prices

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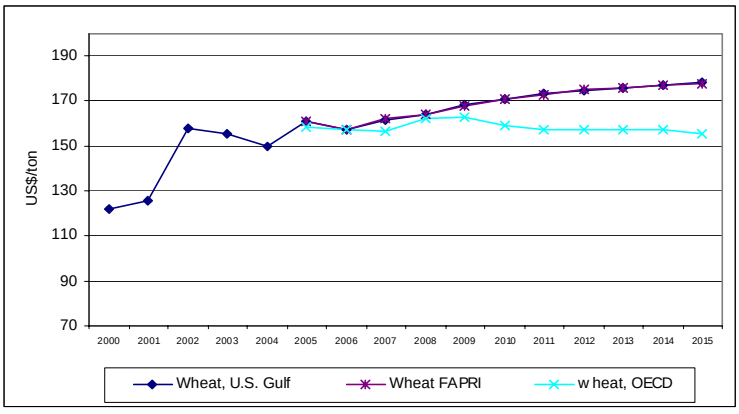
World market price - Wheat



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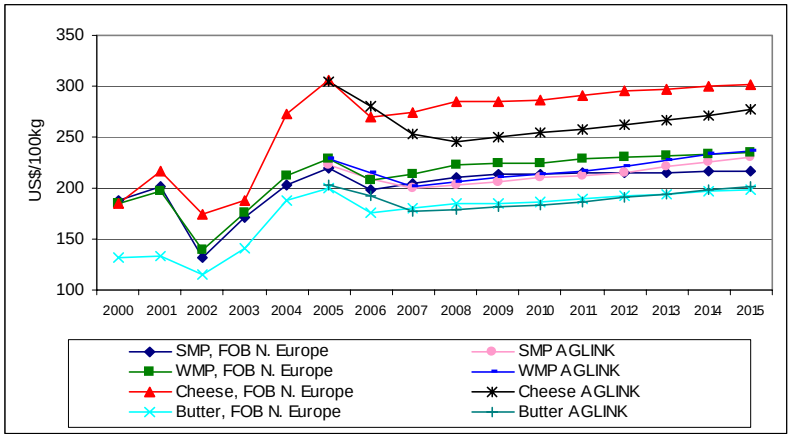
Crop Production, Domestic use

Joint Research Centre

World market price – SMP, WMP, cheese, butter



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Crop Production, Domestic use

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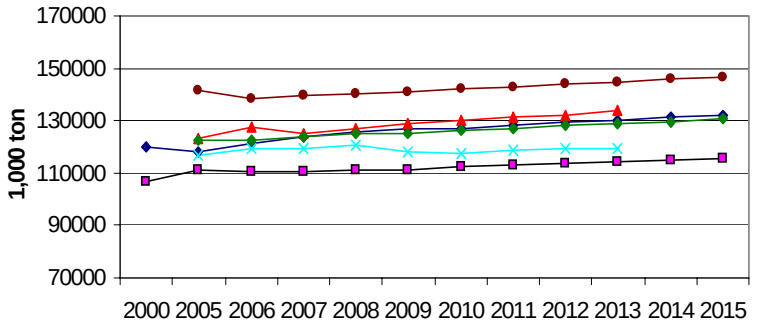
EU25 wheat



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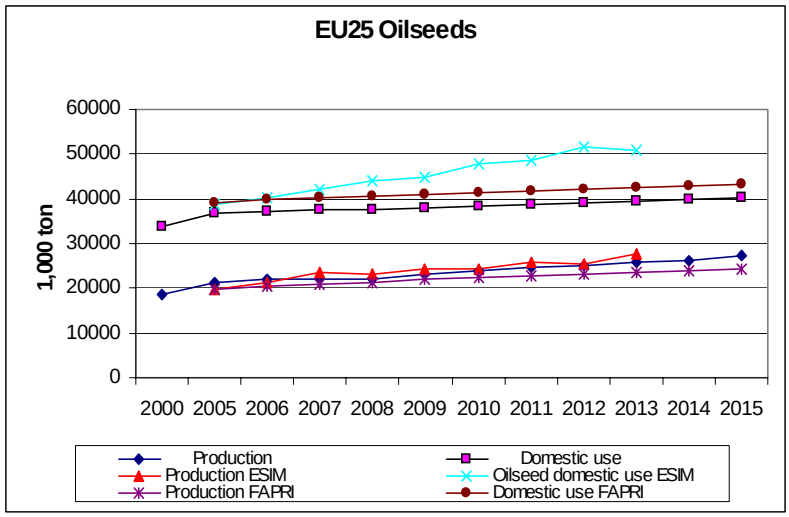
Crop Production, Domestic use



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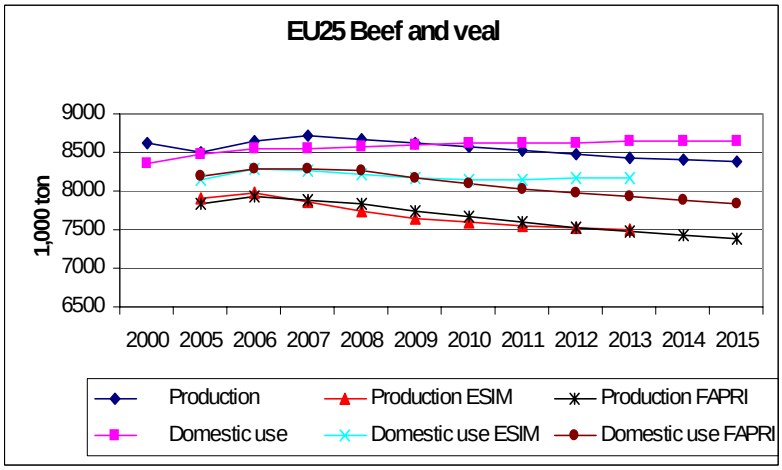
Meat production, domestic use



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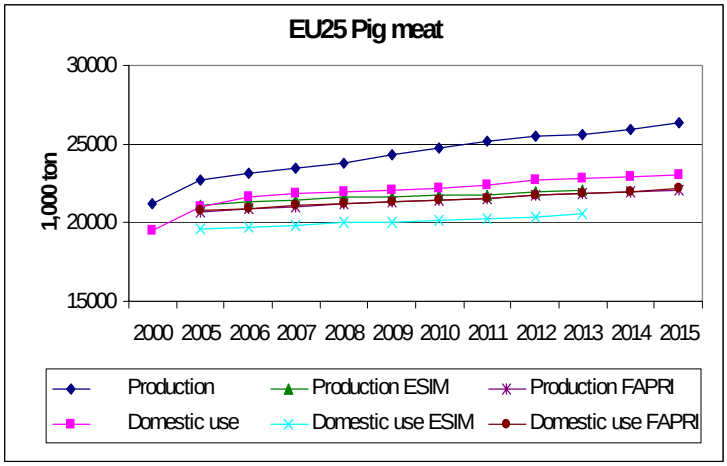
Meat production, domestic use



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Further discussion:

- Exchange rate assumption
- World market price differences
- Differences in calculation of production and domestic use
- Oilseeds domestic use generated by ESIM
- Higher projected pig meat production (AGMEMOD)

ipts

13. K. Hanrahan (RERC, Teagasc, Ireland): Commodity Markets in Detail EU25/27 (I). Cereals and Oilseeds

Commodity Markets in Detail EU25/27 (I) Cereals and Oilseeds

Kevin Hanrahan
Rural Economy Research Centre (RERC), Teagasc
http://www.teagasc.ie/rerc

IPTS, Seville, November 6th 2006

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Overview of presentation

- Baseline scenario
- Assumptions
- Baseline projections
- CAP reform scenario analysed
- Assumptions
- Scenario projections
- Conclusions

Baseline Scenario

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Description of Baseline scenario

- EU-15:
  - CAP with national implementation of the Single Farm Payment (SFP) scheme
  - SFP scheme includes possibility of partly coupled direct payments according to national decisions
- EU-10
  - SAPS until 2008, SFP from 2009
  - CNDP (may be coupled), phasing out by 2013
- Macroeconomic and World price projections discussed earlier

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Baseline Assumptions

- SPS implementation
  - Reflects MS choices
  - Reflects modulation
    - Including voluntary
  - Reflects redistribution of SFP across all eligible area
  - Reflects assumptions (ad hoc) on share of SFP "retained" in agriculture

M.S.	CR	Mult.
FR	25%	0.70
ES	25%	0.66
IT	8%	0.44
DE	0%	0.58
UK	0%	0.74

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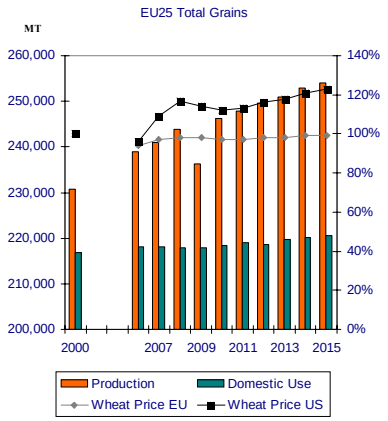
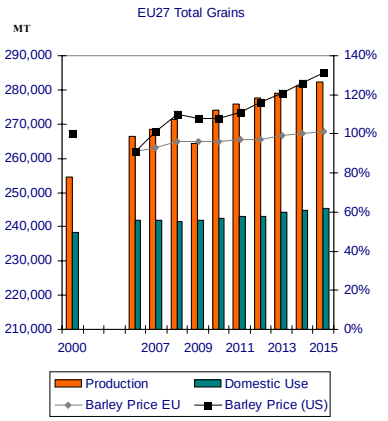
Baseline Results Total Grains EU25 and EU27





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Baseline Total Grains Results

- Production increasing
  - Growth in yields and in area in NMS
  - Shift from coarse grains to soft wheat
- Supply growth moderates the positive impact of strong world prices on EU prices
  - Negative impact of decoupling on production outweighed by market conditions
  - Moderate growth in domestic use implies increased EU net-exports
- Differences in country level projections
  - Growth in grains production stronger in MS that kept some A.A. payments coupled

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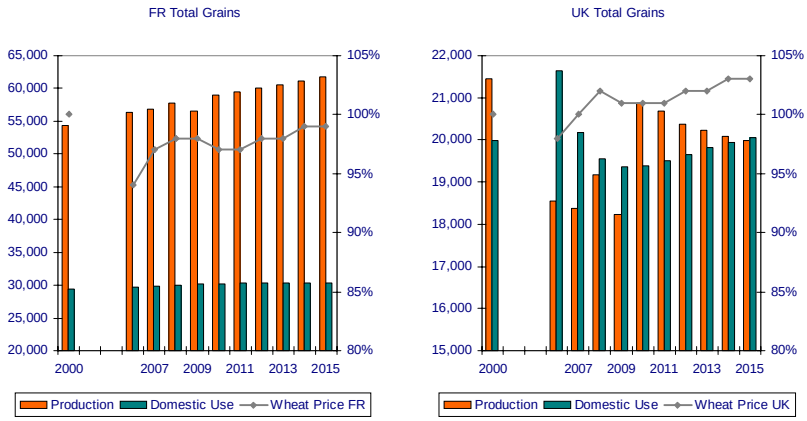
Baseline UK and FR



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Baseline Projections

- The French and UK results illustrate the differing evolutions of S&U balance under the Baseline
  - Soft wheat production declines in UK but increases in FR
  - In general soft wheat and maize production increases with declines in barley and durum wheat area
- The increase in production under the Baseline leads to increased net exports form the EU
  - World market prices are currently exogenous determined
  - This significant structural weakness in the AGMEMOD model is to be addressed shortly
  - The small country assumption is not appropriate for a "country" as large as the EU

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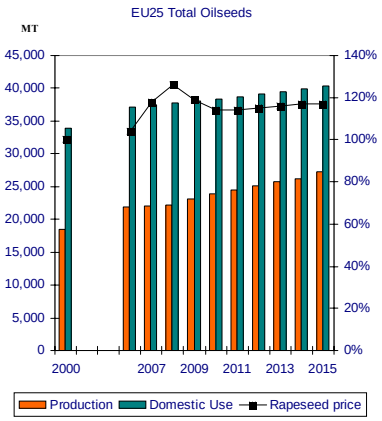
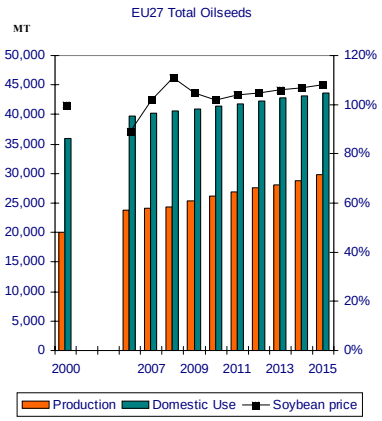
Baseline Results Oilseeds EU25 and EU27





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Baseline Oilseeds

- In general strong world prices lead to increases in area
  - With ongoing technological progress this leads to increased production
- Growth in rapeseed production accounts for most of growth
  - Particularly strong in FR, UK and DK and many of the NMS
- Strong growth in IT soybean production

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Further CAP Reform Scenario

- FCR
  - Increased Modulation
  - Full decoupling of A.A.
  - Implies changes in Multipliers
- Do not expect large effects relative to Baseline
- For NMS SAPS? SPS and is already "fully" decoupled

M.S.	CR	Mult.	CR-FCR	Mult.-FCR
FR	25%	0.70	0%	0.57
ES	25%	0.66	0%	0.51
IT	8%	0.44	0%	0.36
DE	0%	0.58	0%	0.55
UK	0%	0.74	0%	0.70

Further CAP Reform

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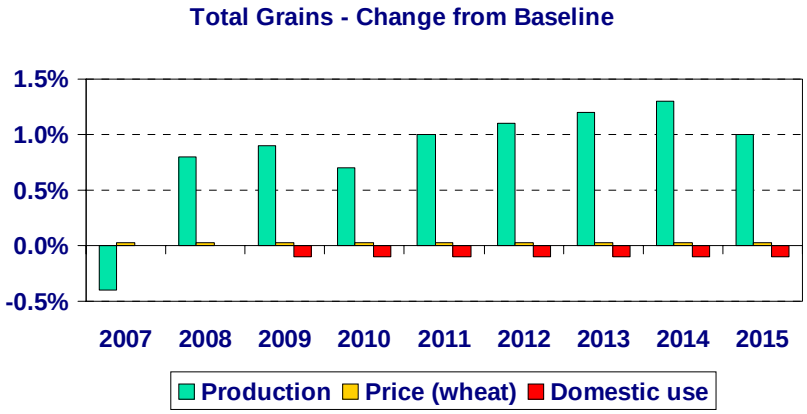
FCR EU25 – EU25 Total Grains



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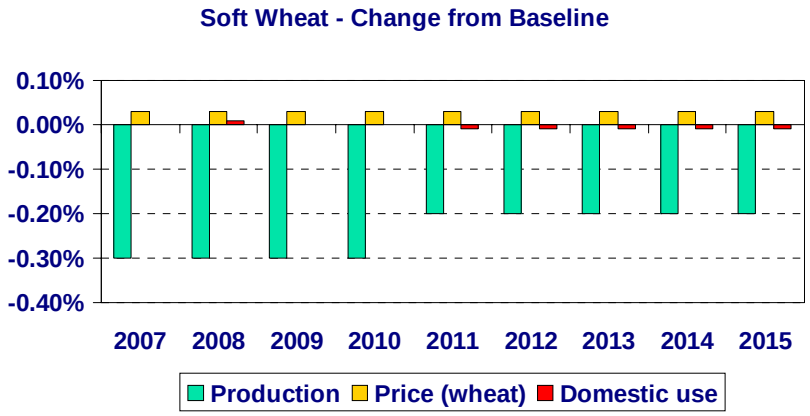
FCR EU25 – EU25 Soft Wheat



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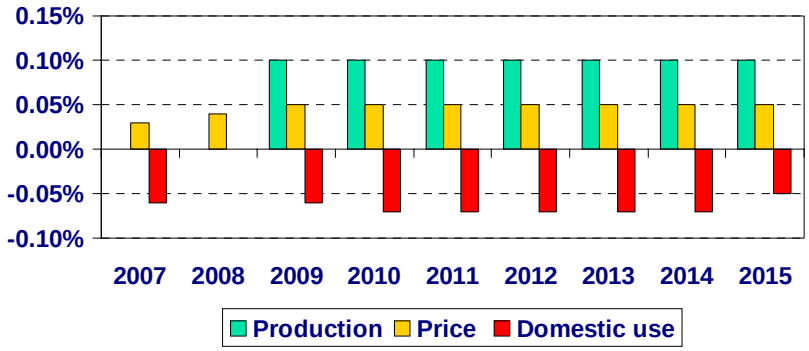
FCR EU25 – EU25 Barley



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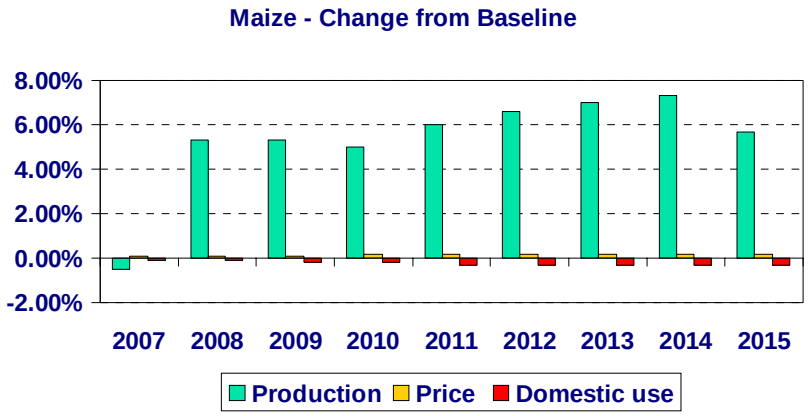
FCR EU25 – EU25 Maize



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FCR EU25 – commentary

- As expected the impact of the Further CAP reform scenario is very limited
- Both Soft wheat and barley production decline
- Prices increase and domestic use declines
  - Linked to changes in EU livestock sector
- Various MS react differently

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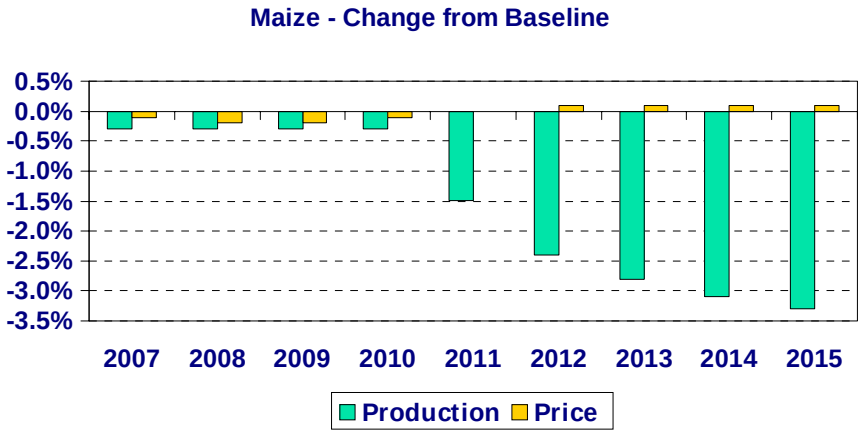
FCR EU Member States – ES



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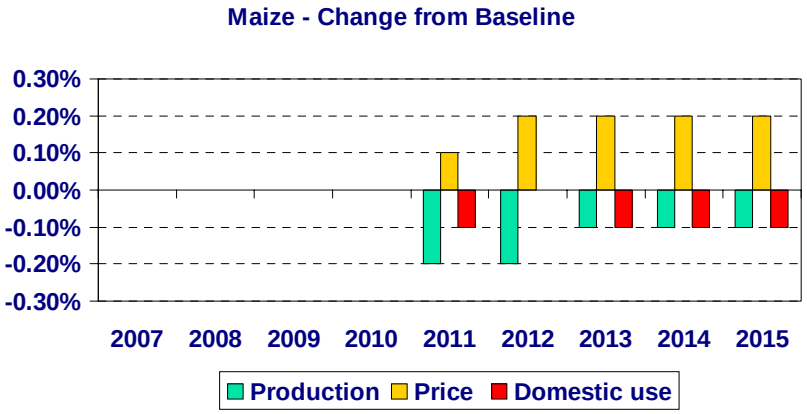
FCR EU Member States – DE



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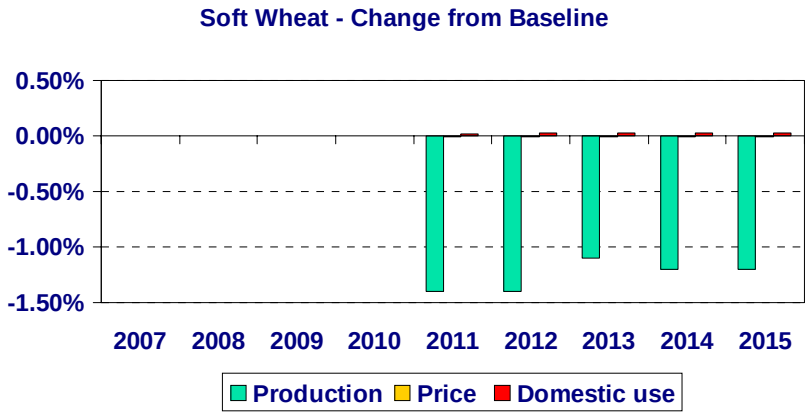
FCR EU Member States – IT



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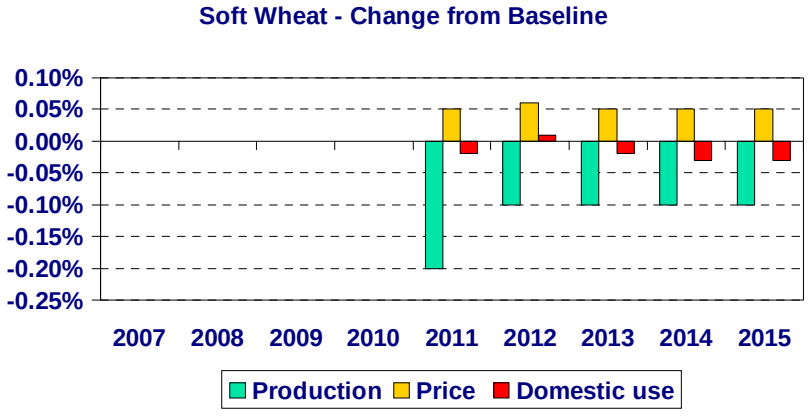
FCR EU Member States – DE



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FCR EU – country commentary

- There are projected differences between the countries that now decouple versus those already decoupled
  - In general MS with coupled A.A. see greater decreases
- Modulation increases mean that production declines across all cereals

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FCR – Oilseed Projections

- Decoupling negatively affects the production of oilseeds
- Internal EU oilseed and oilseed meal and oil product prices are largely driven by world prices
- This means that FCR (or any other scenario) does not affect world prices
- We have work to do in this area
  - To be addressed in FP6 project

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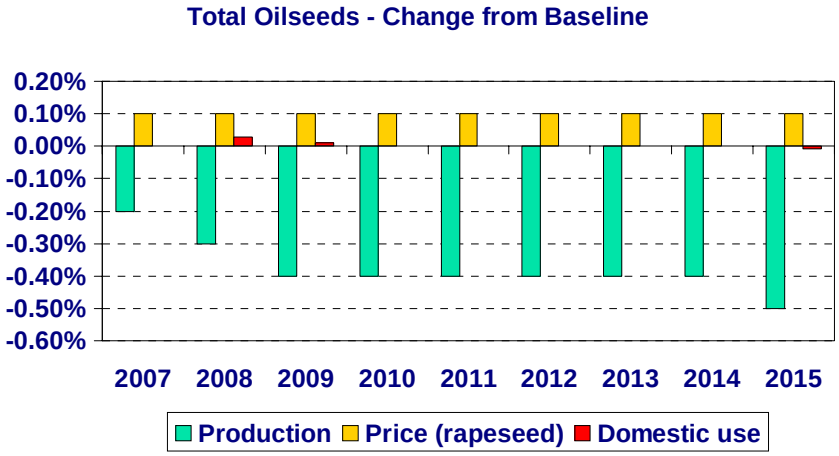
FCR EU25 – Total Oilseeds



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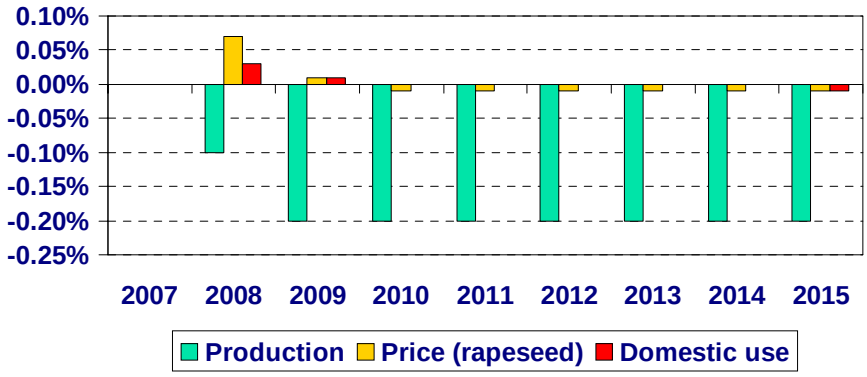
FCR EU25 – Rapeseed



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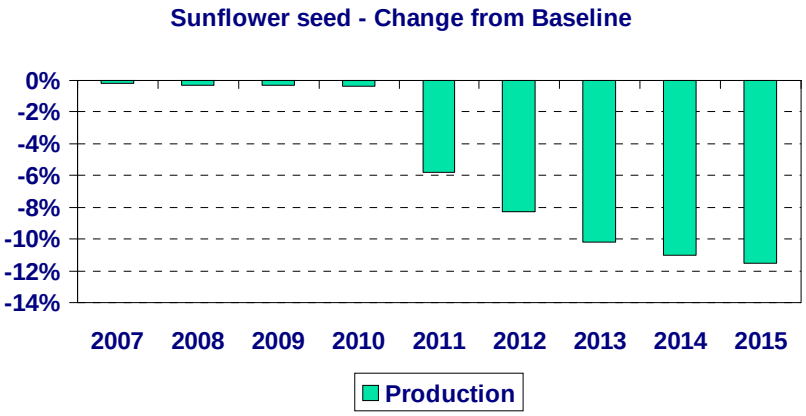
FCR EU Member States – ES



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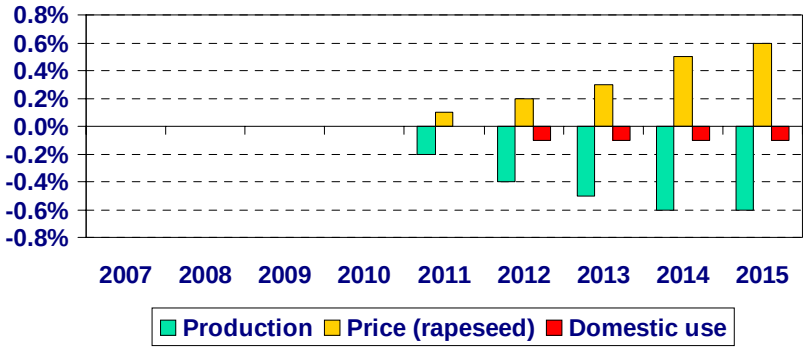
FCR EU Member States – FR



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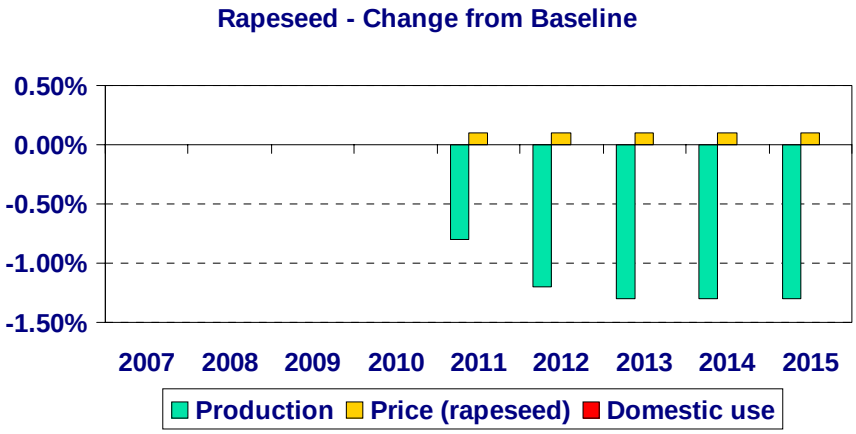
FCR EU Member States – NL



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Further CAP reform Conclusions

- Decoupling of Arable Aid payments coupled under L.A. is limited to a small group of MS
- Modulation affects all Member States
- Impacts are all small
  - Reflects the limited nature of the reform analysed for these markets
  - Reflects the models structure
- Absence of world market impacts a limitation
  - World prices are currently exogenous
  - FP6 project will address this weakness

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Concluding remarks

- The multipliers reflect the national level implementation of policy
- Also reflect ad hoc assumptions relating to the supply inducing impact of the SFP
  - Need to reflect further on these assumptions
  - Sensitivity of results across MS and at EU level to these country by country decoupling assumptions
  - Question of need to standardise these assumptions across MS
  - Balance between imposing homogeneity across models versus allowing the models to reflect national characteristics

Agri-food projections
AGMEMOD
for EU member states

Thank you for your attention

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14. T. Donnellan (RERC, Teagasc, Ireland): Commodity Markets in Detail EU25/27 (II). Dairy and Meats

Commodity Markets in Detail EU25/27 (II) Dairy and Meats

Trevor Donnellan
Rural Economy Research Centre (RERC), Teagasc
http://www.teagasc.ie/rerc

IPTS, Seville, November 6th 2006

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Overview of presentation

- Summary Recap on EU Baseline projections
  - Some Country specific baseline results
- Details of Scenario projections
  - Some Country specific Scenario results
- Conclusions

- EC10 detailed discussion deferred to Session 4

2

Baseline Scenario

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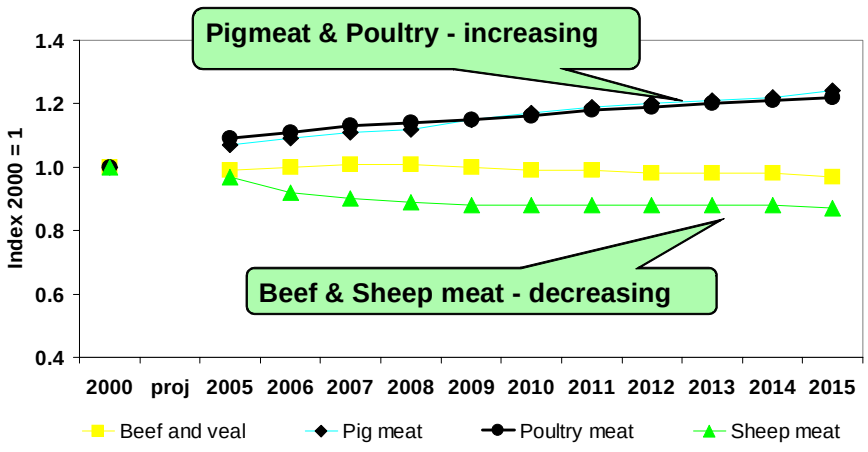
Meats Baseline EU Production



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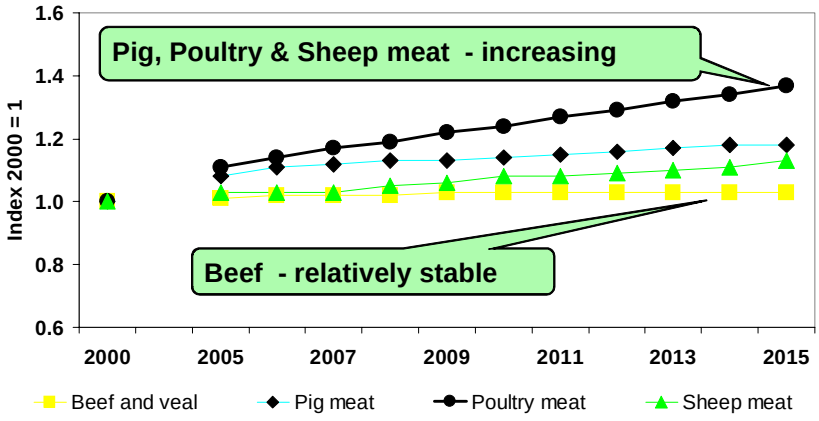
Meats Baseline EU Consumption



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Beef Baseline EU25, UK & DE

- Production
  - EU down 2%
  - UK up 4%
  - DE down 12%
- Prices
  - EU up 5%
  - UK up 2 %
  - DE up 5%
- Domestic Consumption
  - EU up 1%
  - UK up 18 %
  - DE down 14%

Production is generally down. … but UK production is up, due to end of BSE related OTMS

Rising prices

MS level variation in domestic consumption trends

6

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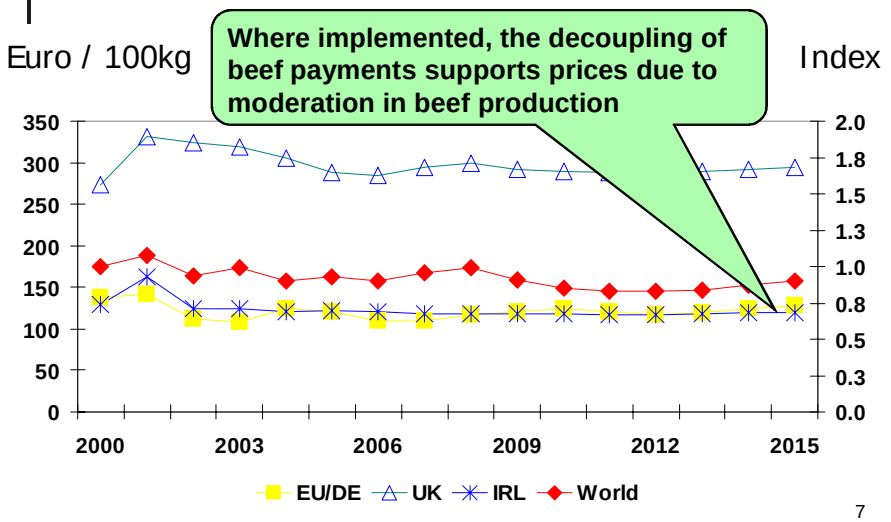
Beef and veal EU Baseline Price



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Sheep EU25, UK & FR

- Production
  - EU down 10%
  - UK down 20%
  - FR down 5%

Reduced production across most MS. Bigger decreases where full decoupling in place

- Prices
  - EU down 1%
  - UK down 4%
  - FR up 5%

Prices moderated through increased imports

- Domestic Consumption
  - EU up 10%
  - UK down 8%
  - FR up 25%

Consumption responds to price changes

8

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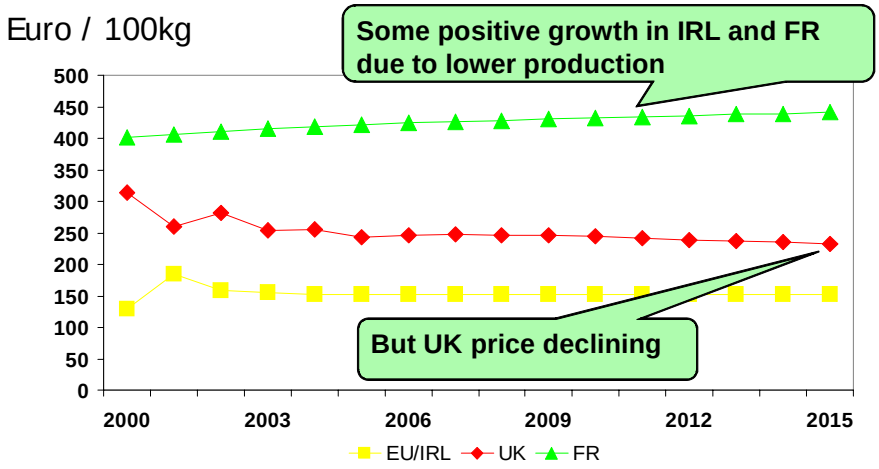
Sheep Baseline Price



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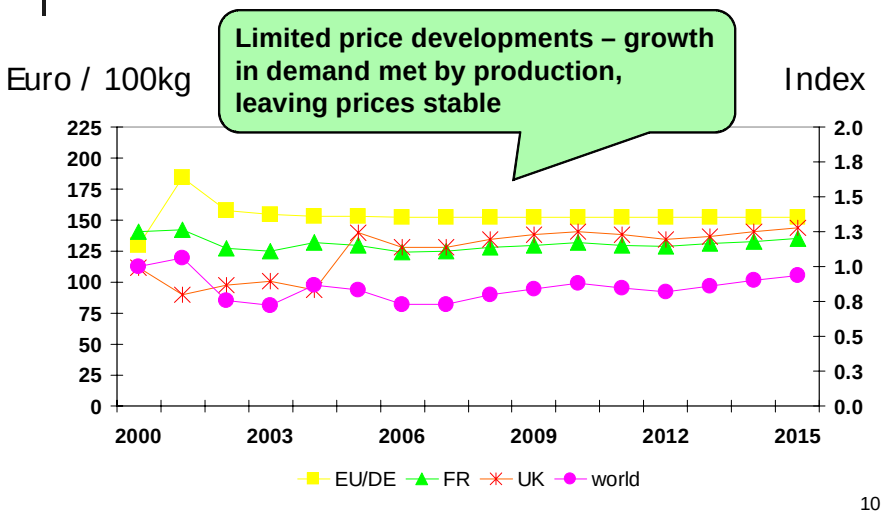
Pig Price Baseline



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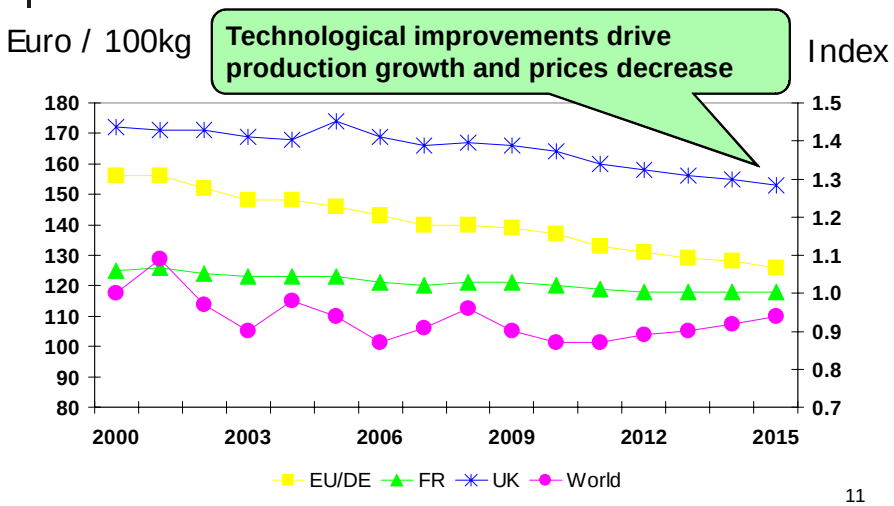
Poultry Price Baseline



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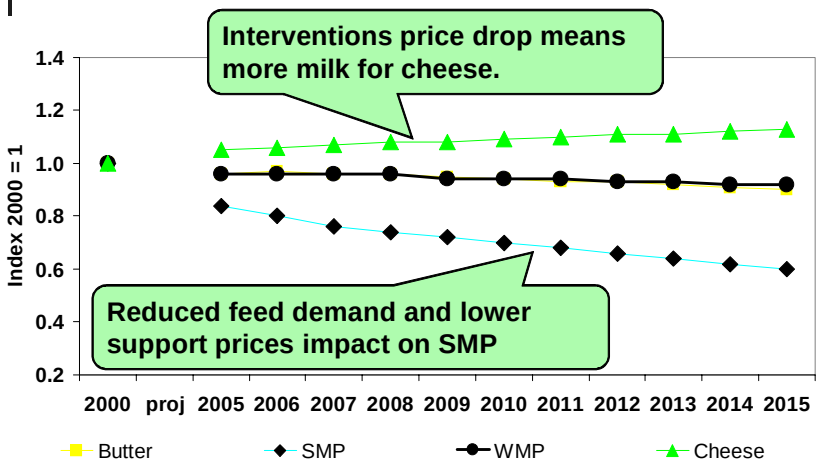
Dairy Production EU Baseline



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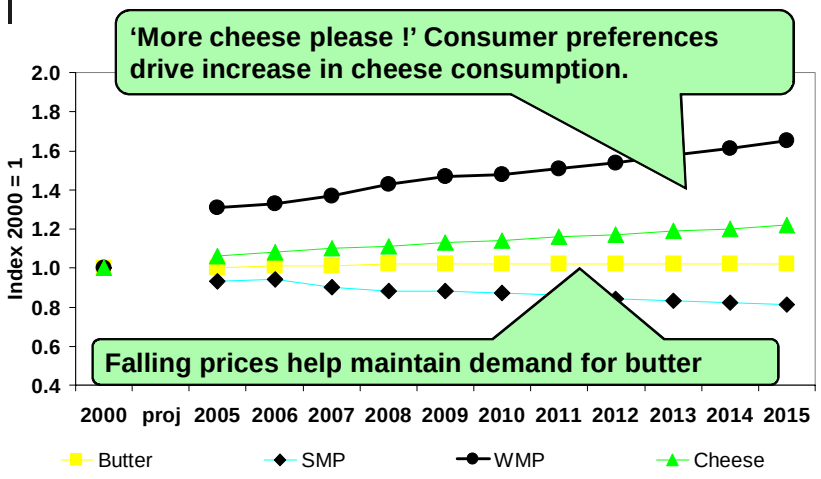
Dairy Consumption EU



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Butter Baseline EU, UK & NL

- Production
  - EU down 6%
  - UK down 3%
  - NL down 30%
- Prices
  - EU down 10%
  - UK down 10%
  - NL down 9%
- Domestic Consumption
  - EU up 2%
  - UK up 8%
  - NL up 5%

Falling price and production. Rising consumption

No real surprises here

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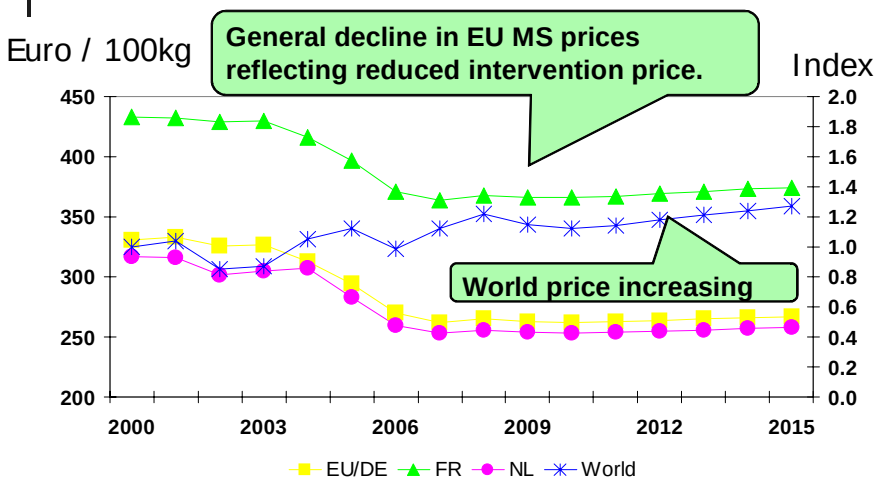
Butter Price Baseline



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Cheese Baseline EU, U & FR

- Production
  - EU up 8 %
  - UK up 12%
  - FR down 2%
- Prices
  - EU up 2%
  - UK up 4%
  - FR up 2%
- Domestic Consumption
  - EU up 15%
  - UK up 16%
  - FR up 15%

General upward trend in production and consumption
….but increased imports limit price developments

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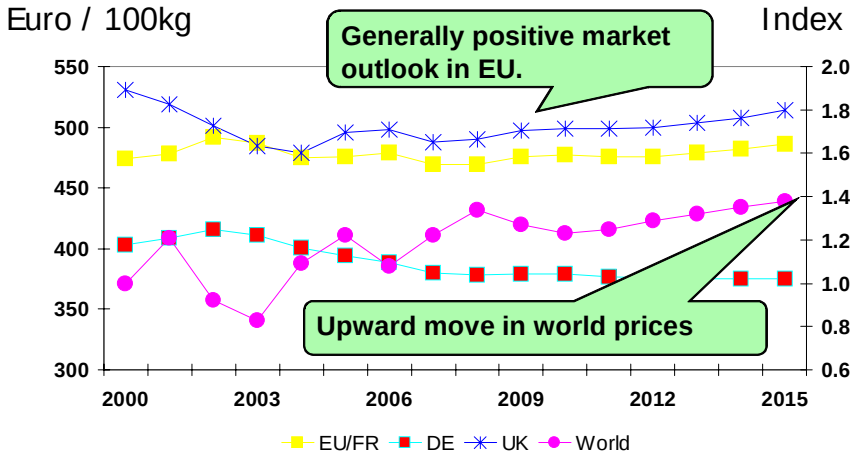
Cheese Price Baseline



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SMP Baseline EU, UK & FR

- Production
  - EU down 28%
  - UK down 33%
  - FR down 17%
- Prices
  - EU down 6%
  - UK down 8%
  - FR down 1%
- Domestic Consumption
  - EU down 12%
  - UK up 12%
  - FR down 33%

Sharp decrease in SMP production …..reflecting decline in intervention and market prices.

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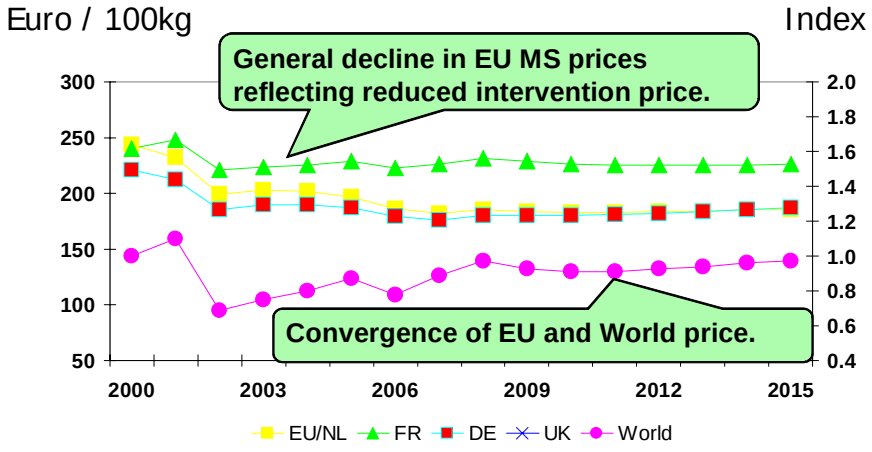
SMP Baseline Price



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Further CAP Reform Scenario

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Policy – Reminder (1)

- Under Luxembourg Agreement **most Livestock payments decoupled** across EU
- So our ***further CAP Reform*** policy shock (full decoupling) should have **limited impact** for many EU countries
  - **Obvious exceptions** for MS where premia were **recoupled** under the Luxembourg Agreement
- Reflected in model results outcome for EU meats

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Policy – Reminder (2)

- And of course for some specific commodities ……
  - FCR impact of move of full decoupling is only felt through EU key prices
  - i.e. MS where under the Baseline full decoupling was already in place
- Having said all this, the policy impacts we see are very modest

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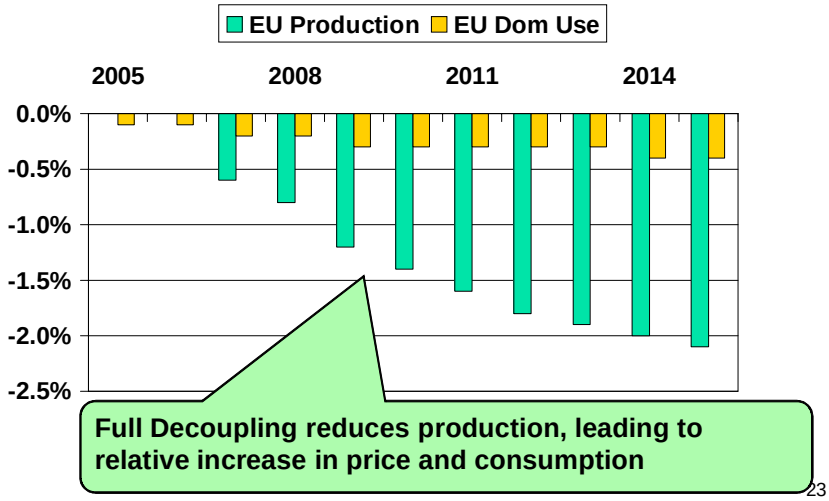
FCR Beef



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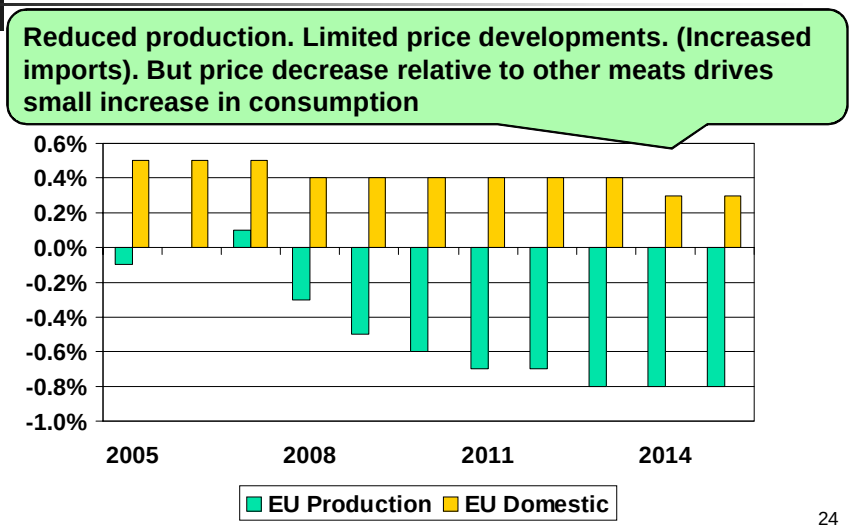
FCR Sheep



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Pigs/ Poultry FCR EU

- Limited impact on pigs and poultry
  - Policy not as big a 'player' in sector
- Some (very) small cross commodity policy/price impacts
  - Changes in beef and sheepmeat prices
  - Knock on changes in relative prices
- Overall picture differs little from the baseline

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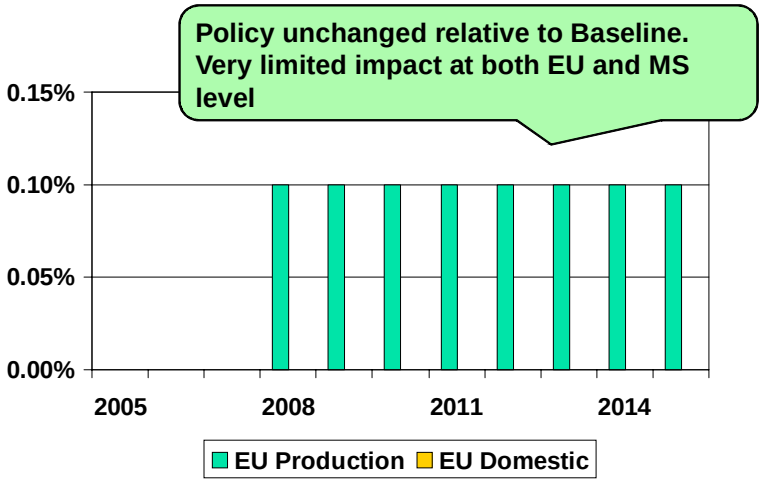
Butter FCR EU



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Cheese/SMP FCR EU

- Again very limited changes relative to the Baseline
  - a reflection of the absence of policy change in the scenario
  - MS results are similar
- Commission now watching this sector very closely ?

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What's the Take Home Message ? (1)

- Baseline EU Meats
  - Pig and poultry production & consumption growth
  - Beef and sheep more modest production & consumption changes
- Baseline Country Level Meats
  - Differences in national level production paths
  - Largely attributable to decoupling policy choice
  - More uniformity in developments in consumption

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What's the Take Home Message ? (2)

- FCR Scenario EU Meats
  - Beef and sheep
    - **Further limited declines** in production
    - Most MS had fully decoupled under LA implementation
  - Pigs and Poultry
    - **Negligible policy impact**
    - Technical change, declining real prices and favourable consumer preferences are key drivers of markets (all of which are reflected in baseline)

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What's the Take Home Message ? (3)

- **Baseline EU Dairy**
  - Cheese production & consumption growth
  - Butter & SMP production decline
  - Reflects change in intervention supports
  - Reduces EU 3rd country export capacity/dependence
- Baseline Country Level Dairy
  - Relatively **little difference in national** level production and consumption **paths**
- **FCR Scenario Dairy**
  - **No impact** due to absence of change in dairy policy in scenario

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Conclusion

- **Impacts** of **FCR** scenario are **small**
  - To be expected given that **policy switch** is **limited**
- Main **driver** of change in **Baseline outcome**
- More work to do:
  - Need to **examine** country level results in more detail
  - Are country level **differences** plausible ?
  - Are country level **similarities** plausible ?
  - **Interrogate** models (and modellers !!!)
    - Note perspective of the 'bread and butter' market experts
  - Encourage/seek/enforce necessary model revisions

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Pigs & Poultry Baseline EU, FR & UK

- Production
  - EU up 16% (pigs)
  - EU up 12% (poultry)
- Prices
  - EU pig up 6% (pigs)
  - EU down 14% (poultry)
- Domestic Consumption
  - EU pigs up 10% (pigs)
  - EU up 23% (poultry)
- Production
  - UK up 46% (pigs)
  - UK up 18% (poultry)
  - FR up 6 (pigs)
  - FR down 1 (poultry)
- Prices
  - UK pig up 4% (pigs)
  - UK down 12% (poultry)
  - FR up 4% (pigs)
  - FR down 4% (poultry)
- Domestic Consumption
  - UK pigs up 18% (pigs)
  - UK up 44% (poultry)

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15. E. Erjavec (University of Ljubljana, Slovenia) – M. van Leeuwen (LEI, The Netherlands): AGMEMOD Country Models Preliminary Results. Development of Commodity Markets in NMS/CC

IPTS Workshop *"Commodity Modelling in Enlarged Europe"*
Seville, November 6th 2006

AGMEMOD Country Models Preliminary Results

Development of commodity markets in NMS/ CC

Names of Authors: **Emil Erjavec**
Myrna van Leeuven
Name of their Institute: **University of Ljubljana**
WUR-LEI

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Motivation

- **New member states (NMS)**
  - Long-term market and policy convergence impacts
  - Diff. CAP: but (decoupled) single area payments
- **Candidate countries (CC)**
  - Which accession shifts (shocks?) are expected?
  - Impacts of accession negotiations?
- **Maturity of Agmemod Country Models**
  - Are the model results relevant for decision makers at the national and multi-national level?
  - Strengths and Weaknesses

2

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Background Information

- **Bottom up country model building**
  - specific economic characteristics efficiently integrated, but the quality depends on partners knowledge and expertise.
  - Preliminary results: models only partially validated!
- **Specific modelling features**
  - Price convergence over time
  - Dummies for accession effects
  - Different policy multipliers for decoupling effects:
    - higher: Pre-accession policy (mainly coupled); CAP coupled measures, CNDP national measures
    - lower: SAPS or SPS (regional version)
  - Reform scenario for NMS means:
    - single area payment as the only measure at the end
    - phasing-out (or immediate abolition) of national coupled measures

3

NMS Results : Some Highlights

Crops

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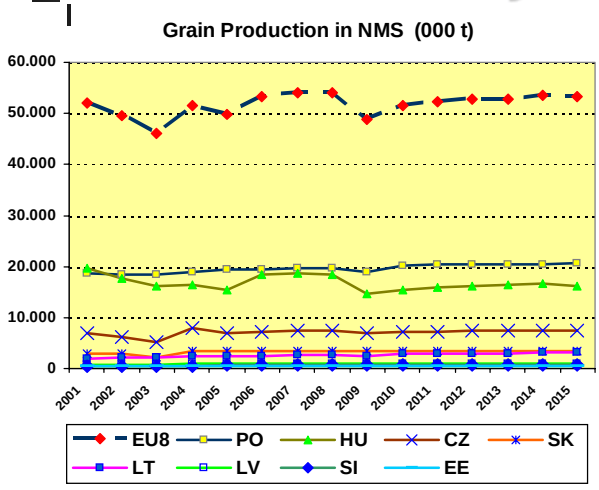
NMS Baseline Projections (Grains)



- Relatively rigid production trends understandable,
- …however, note that increase in subsidies
- …and technological development should lead to at least a moderate increase of production.
- PO and HU main players.

5

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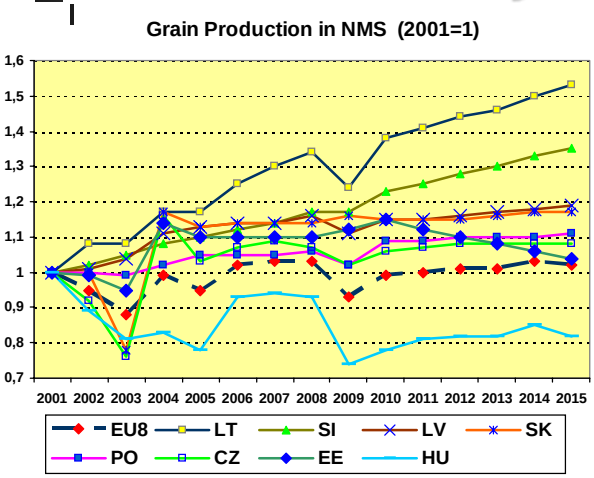
NMS Baseline Projections (Grains)



- Majority of MS shows predictable increases…
- Stagnation in production is only result of HU and PO.
- Fact: improvement in HU and PO submodel for grains necessary…

6

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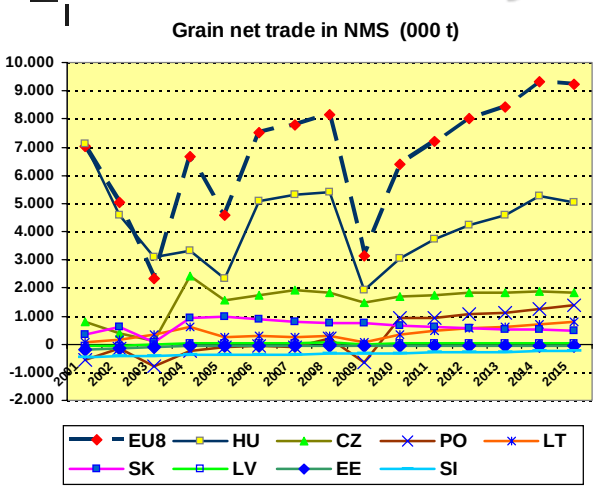
NMS Baseline Projections (Grains)



- Despite rigid production clear indication of export potential.
- In 2015: EE and SI net importers only remain.
- HU is the key player…
- Export potential is definetly growing…

7

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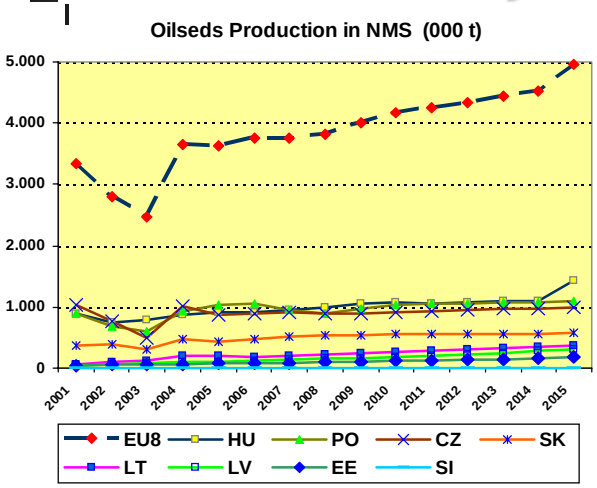
NMS Baseline Projections (Oilseeds)



- Mainly rapeseed.
- Around 50 % increase over 2001 due to change in area and yields.
- Exports from the region double!
- Main producers: HU, PO, CZ.
- Main exporters: HU, SK, CZ.
- Still more growth potentials?
- Models provide reasonable results…

8

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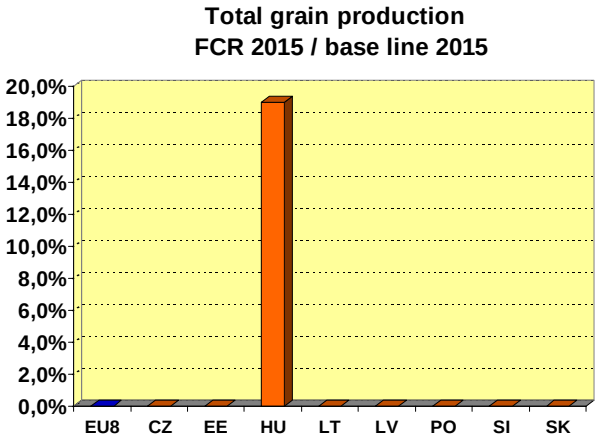
FCR Results: Total grain



- No changes, except HU.
- This is predictable, due to similarity between SAPS and SPS.
- Coupled national measures evidently less important in this sectors.
- Need to review some aspects of the HU models and scenarios.

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NMS Results : Some Highlights

Livestock
Dairy

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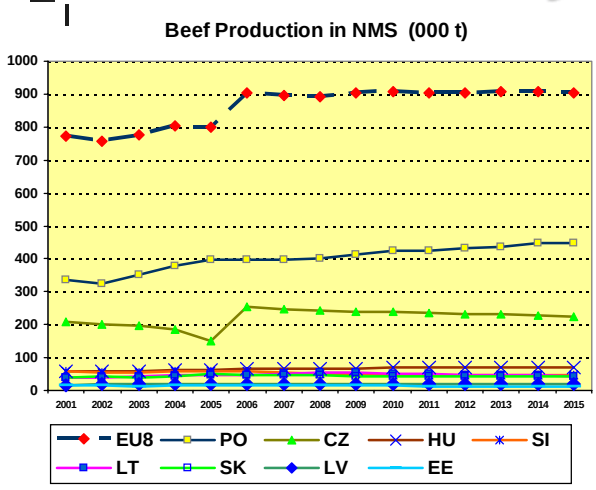
NMS Baseline Projections (Beef)



- Moderate increase or stagnation!
- No price and subsidy effects (decoupled payments!)…
- Key player are PO and CZ.
- No more optimistic picture?

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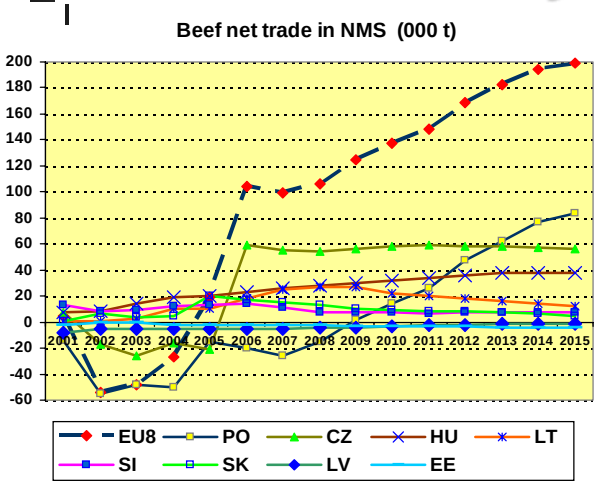
NMS Baseline Projections (Beef)



- However, the region becomes a net exporter of beef.
- Main impact is in PO.
- One could expect even more positive trends,
- …but the impact on EU 25 will be still limited.

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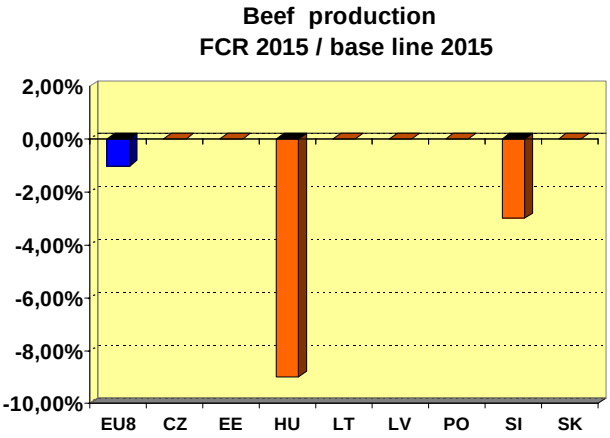
FCR Results: Beef



- Further decoupling (exclusion of any coupled measures) should have impact on production…
- …but partially compensated through price increases.
- Only in HU (too strong?) and SL we see impacts.
- Further testing and harmonisation of scenarios necessary.

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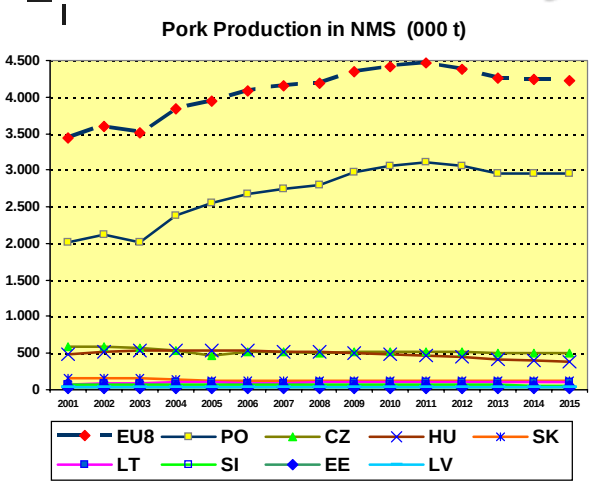
NMS Baseline Projections (Pork)



- Increase of production due to trends in PO pork industry (key player). Other more pessimistic trends.
- The region remains a net importer. Exporting country PO and HU.
- The modelling approach does not enable technological development scenarios…
- No FCR effects (reasonable).

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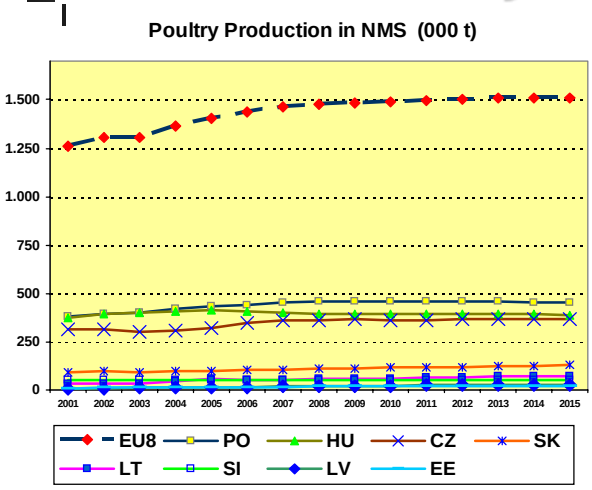
NMS Baseline Projections (Poultry)



- No real changes in production and trade. Except in Baltic states!
- Important producer PO, CZ and HU.
- Significant increase in consumption.
- The region remains net importer. Exporting country PO and HU.
- Some technological development scenarios?
- No FCR effects.

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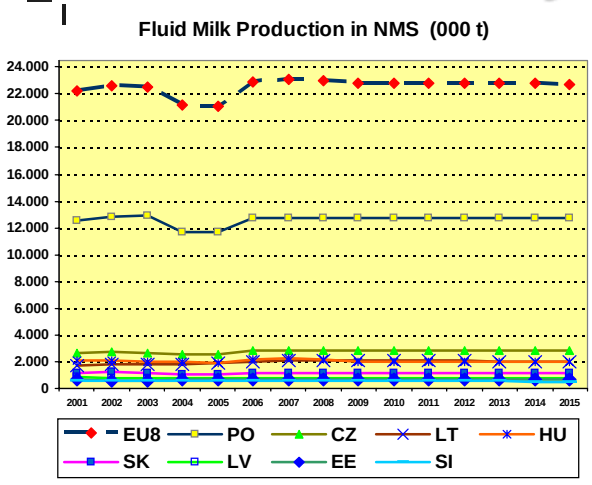
NMS Baseline Projections (Milk)



- Very stable production.
- Milk quota system stabilises the markets after minor accession.
- Only PO important share in EU 25.
- Export potentials limited…
- No real FCR effects.

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Accession Results for Bulgaria:

Some Highlights

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Bulgarian Accession Background Informations

- **Baseline**
  - Relatively low prices (60 - 90 % of the EU 25 levels)
  - Structural breaks in statistics (pork!)
  - Meaningless budgetary support
  - Low production intensity level
  - Price convergence already starting before accession
  - Reduction of population for 1 mio. (2000-2015)
  - Results:
    - Strong production increase: sunflower seeds
    - Weak production increase: beef
    - Reduction of production: pork (statistical effect also)
- **Accession Assumptions**
  - Price convergence over a brief period or immediate (overnight)
  - Increase in subsidies for 6 steps (until 2015)
  - SAPS and 20 % top-up with national funds

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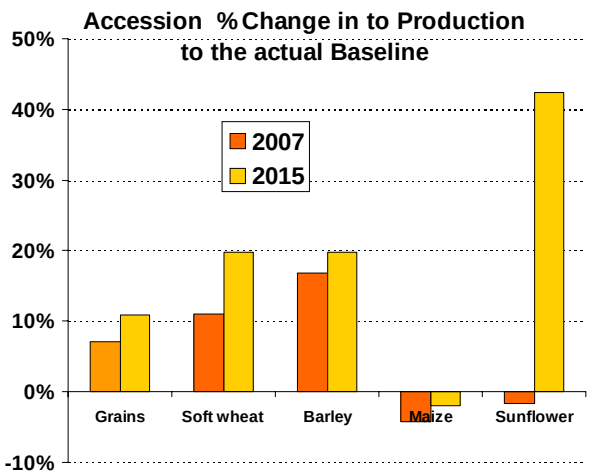
Bulgarian Accession: Crops



- Significant production increases!
- Especially in sunflower. Important player in EU market (more than 10 % share).
- Increase in exports also for grains. Intervention purchases interesting alternative!?
- Maize under pressure due to lower livestock production.

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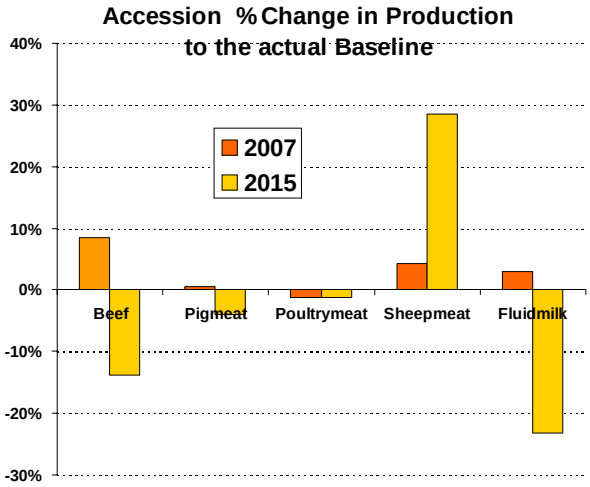
Bulgarian Accession: Livestock



- Except sheepmeat no improvements!
- Positive impact of price and subsidies increase is overcome by the restricted milk quota.
- Actually uncompetitive pork and poultry production!
- Technological change and structural support is not included in modelling!

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Conclusions

NMS/ CC

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Conclusions - NMS

- **Market outlooks**
  - Shift to plant production evident, growing export features, but oilseeds only really growing sector. Too pessimistic for grains!
  - Livestock shows limited growth potential. Restrictions through quotas and lack of competitiveness.
  - Limited market effects of decoupled SAPS payments!
- **Further CAP reform**
  - Generally, there should be no significant effect of further decoupling of the direct payments for NMS. The Single area payment is decoupled, effect of exclusion of national coupled measures is limited.
- **Modelling tasks**
  - Partnership could provide applicable and reasonable results for decision makers.
  - Still some improvements to be done. Need to focus on HU and PO models for grains (HU for pork).

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Conclusions - Accession

- **Bulgaria**
  - Favouralbe conditions after accesion (higher prices and multiple increase in subsidies).
  - Positive effect only in crop production! Especially, sunflower production and export are growing. Grains for interventions?
  - Less competitive livestock production and limitations by milk quota. Some anomalyities in Accession negotiations!?
  - Some important products not included yet: wine, vegetables, tobacco.
- **Romania**
  - The model still under construction. Some important steps were done: first baseline.
  - Very weak statistics. Important agricultural country in the EU 27 framework…

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Agri-food projections AGMEMOD for EU member states

To learn more about AGMEMOD and our IPTS project see:

www.tnet.teagasc.ie/agmemod

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16. J. Gallego (European Commission, JRC -ISPRA): MARS STAT Activities on Agro-meteorology and Remote Sensing

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MARS STAT
activities on
Agro-meteorology and remote sensing

Javier.gallego@jrc.it

http://www.agrifish.jrc.it

Meeting on comodities modeling. IPTS November 20, 2006 : MARS Agrometeorology 1

MARS

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Rationale

PRODUCTION = YIELDS * ACREAGE

Early forecast crop yields

Precise Crop Area Estimates

M *ars*
C *rop*
Y *ield*
F *orecasting*
S *ystem*

L *and*
U *se*
C *over*
A *rea-frame*
S *tatistical survey*

eurostat

Regional Inventories
Rapid estimates

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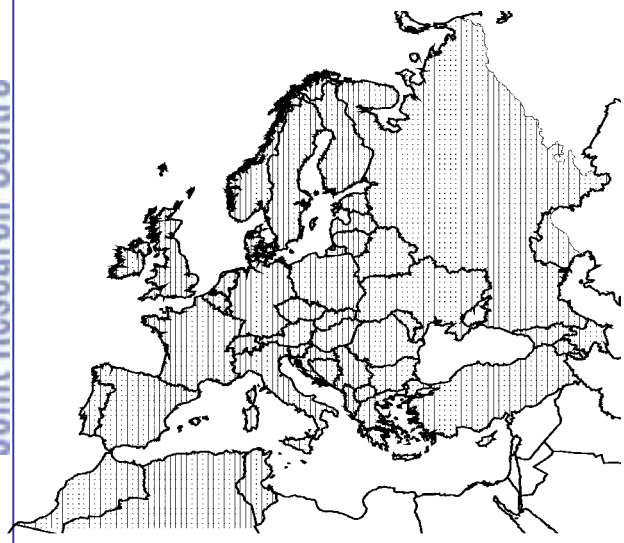
MCYFS: Areas of interest



- **EU-25**
- **Candidates Countries**
- **Maghreb**
- **Russia** (European part)
- **Ukraine**
- **Belorussia**

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MCYFS: Areas of interest

11 simulated crops:

Wheat
Barley
Maize
Rice
Sunflower
Rapeseed
Sugar Beet
Potato
Field Beans/Peas
Soy Beans
Pastures (Rye Grass)

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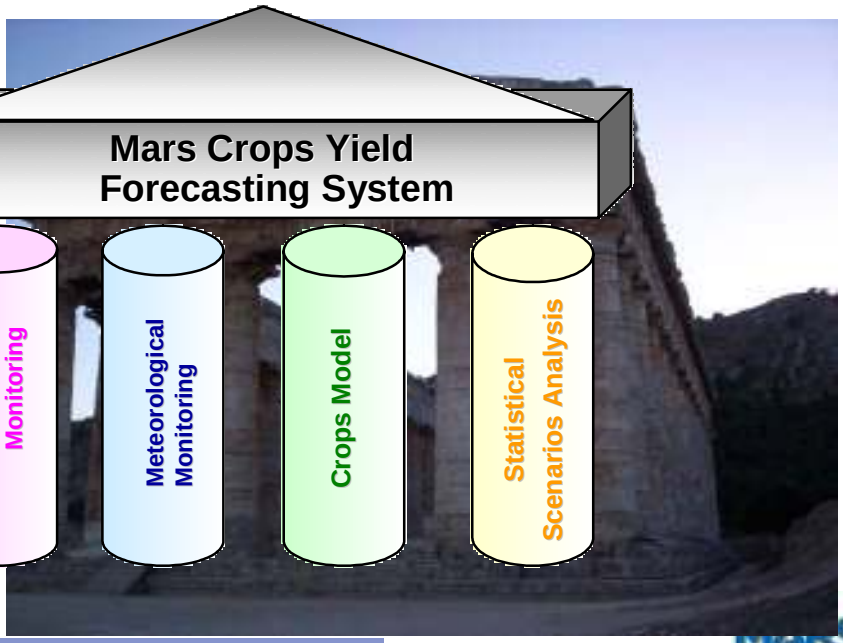
We exist since a while



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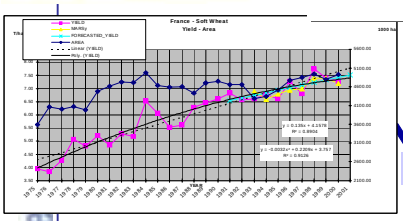
MCYFS: Methodological approach



Indicators from low resolution satellite data (since 1981)

DB

DB

Statistical analyses: time series, tenden analyses, etc.

Yield forecasts

Indicators from meteo data sets (since 1975)

DB

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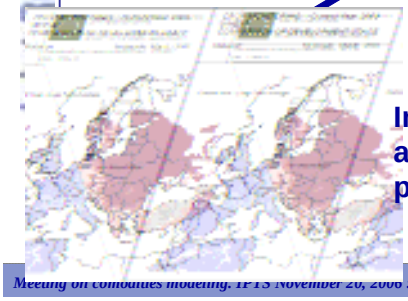

Indicators from agrometeo parameters

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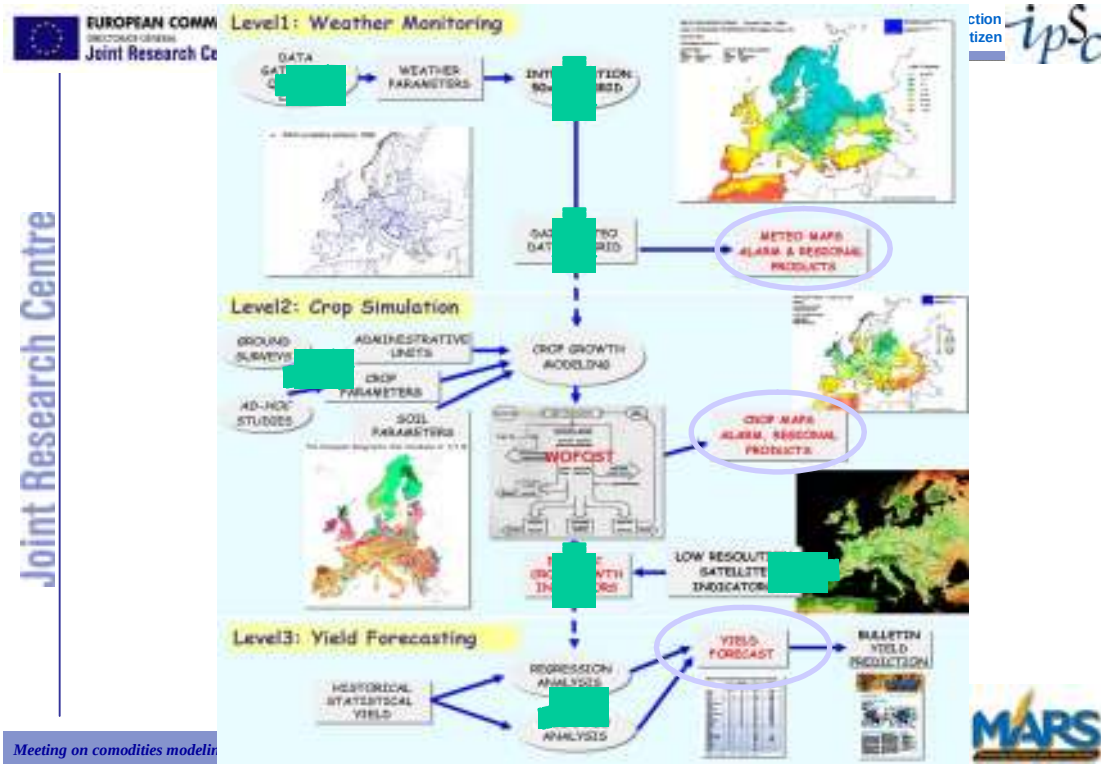
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Joint Research Centre
Level1: Weather Monitoring
WEATHER PARAMETERS
METEO MAPS
ALARM & REGIONAL PRODUCTS
Level2: Crop Simulation
ADMINISTRATIVE UNITS
CROP PARAMETERS
SOIL PARAMETERS
CROP GROWTH MODELING
WOFOST
CROP MAPS
ALARM, REGIONAL PRODUCTS
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HISTORICAL STATISTICAL YIELD
REGRESSION ANALYSIS
YIELD FORECAST
BULLETIN YIELD PREDICTION
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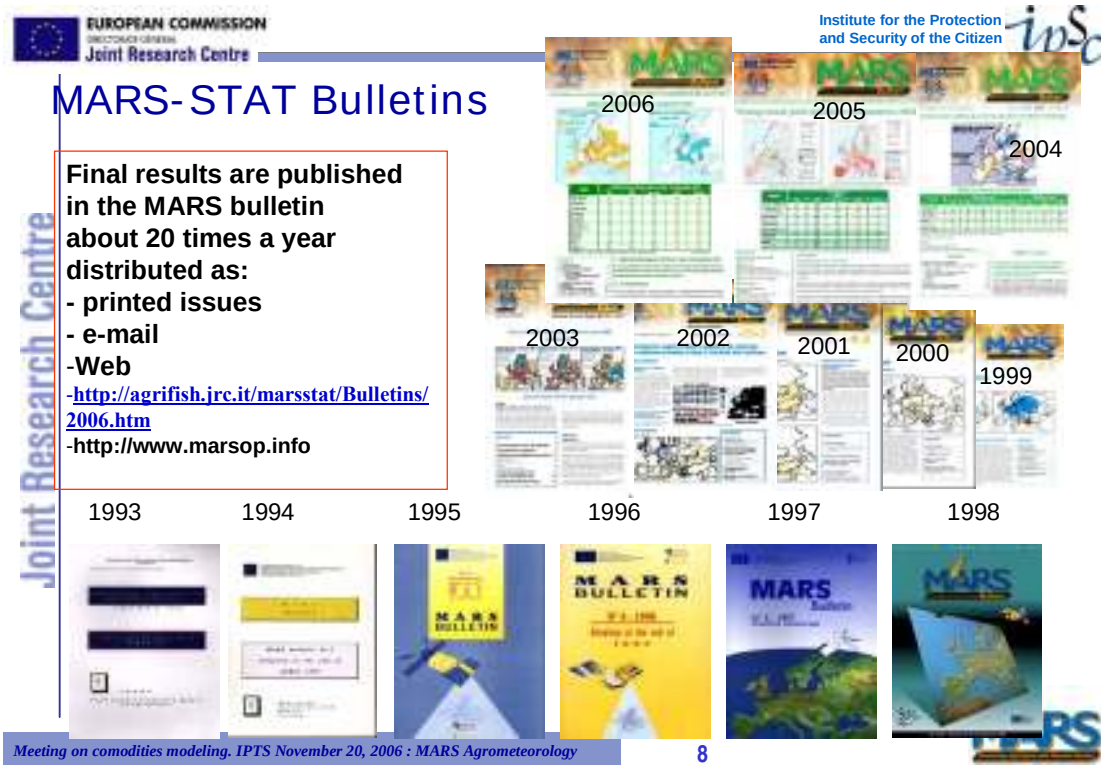
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MARS-STAT Bulletins
Final results are published in the MARS bulletin about 20 times a year distributed as:
- printed issues
- e-mail
-Web
-http://agrifish.jrc.it/marsstat/Bulletins/2006.htm
-http://www.marsop.info
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8

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MARS-STAT Bulletins

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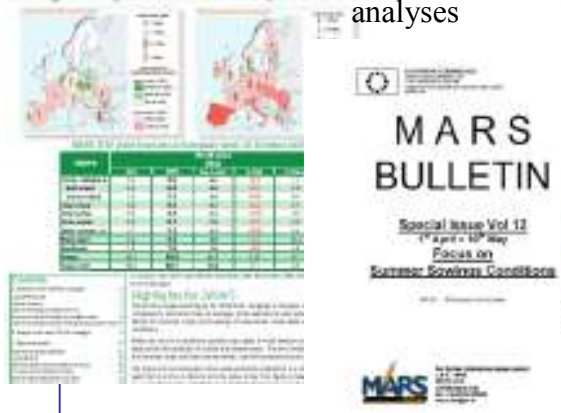
Full analyses by Countries

Special ad hoc analyses



Climatic updates and forecasts updates

http://agrifish.jrc.it/marsstat/Bulletins/2006.htm

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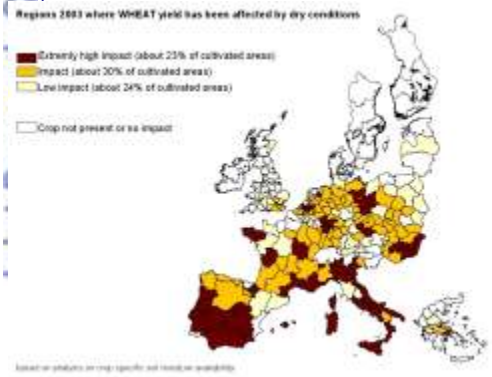
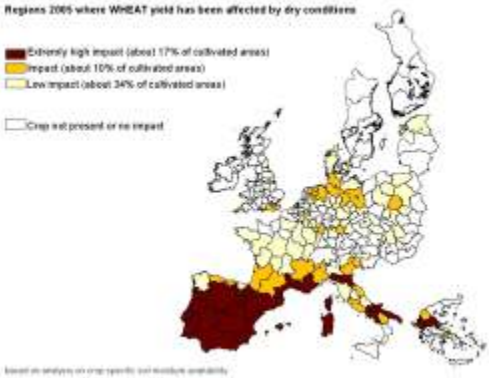
- Press release August 2003 on impact of severe summer drought
- Press release late June 2005 on impact of persistent drought in western areas





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MARS-RESULTS Main use

- *MARS FORECASTS and ANALYSIS are used since 2001*
  - as benchmark by DG-AGRI analysts
  - in charge of food balance estimates for CAP decisions

- *MARS FORECASTS are used since 2003*
  - in the official EUROSTAT forecast system
  - used within the Crop Production Committee of Member States

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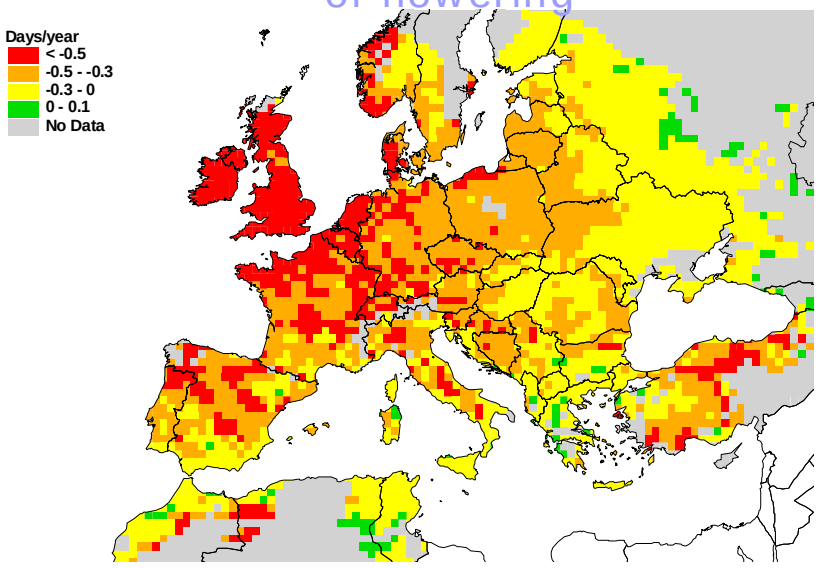
Changes of the occurrence of "beginning of flowering"



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LUCAS: Support to Eurostat on area estimates

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LUCAS 2006 (Land Use/Cover Area-frame Survey):
~ 1,000,000 points photo-interpreted for stratification (systematic sample of 2 km),
~ 170,000 points visited

Role of IPSC/Agrifish:
- **optimisation of sampling design**
- **Software for LUCAS data inspection**
- **Software for computation of estimates**

17. Conclusions for the AGMEMOD model

The main objective of the workshop was to validate the AGMEMOD model projections of EU agricultural commodity markets, to discuss methodological approaches with modellers and national experts, and to discuss results with policy-makers from respective Commission Services.

Strengths and weaknesses of the AGMEMOD model were discussed:

Strengths of the AGMEMOD model:

- EU25/27 combined model (dynamic, recursive, multi-country, multi-market partial equilibrium);
- Individual models from the EU 27 Member States and Ukraine, Russia, Macedonia and Croatia;
- Modelling and analysis of the potential impact of policy scenarios;
- Harmonised database;
- Network of national experts.

Weaknesses of the AGMEMOD model:

- Credibility of certain modelling approaches;
- Reliability of particular results;
- Specific country team problems;
- Difficulties of large consortium management.

For the *future* of the AGMEMOD model the following tasks have to be considered:

- Improvement of modelling of coupling/decoupling effects on production through multipliers;
- Incorporation of the rest of the world impact on the EU markets by exogenous world market prices (based on FAPRI projections);
- Justification of key prices applied in the AGMEMOD model;
- Improvement of individual country projection reliability (e.g. the cereal sector in Hungary; the pork sector in Poland; demands of the commodity markets in UK);
- Contribution of the AGMEMOD partnership with commodity market studies to EU policy making process.

The agricultural market projections presented by the different modelling groups (AGMEMOD, FAPRI, ESIM, AGLINK and CAPSIM) showed some variations, however, followed the common general trends in EU commodity markets. Modelling approaches were found in many cases as complementary. A need for closer co-operation of modellers was underlined, especially with regards to the sharing of data bases and results. Co-operation with national experts for the validation of results and with policy makers to develop policy relevant scenarios, were also seen as important preconditions for successful supporting the policy making process.

18. Annex 1: Workshop Agenda "Commodity Modelling in an Enlarged Europe"

JRC-IPTS, Sevilla, 6 November 2006

Time	Presentation and Discussion	Person
9.15 – 9.30	Welcome. Presentation of participants. Policy research in FP7 Background of workshop	Per Sorup (DG JRC) Hans-Jörg Lutzeyer (DG RTD) Robert M'barek, (DG JRC)
9.30 – 10.30	**Session 1: Agricultural commodity market prospective** 1.1.FAPRI commodity market prospective 1.2 CAP reform from the US perspective 1.3 Use of models for policy decision making and the baseline analysis in DG AGRI	**Chair: Robert M'barek (DG JRC)** Pat Westhoff (FAPRI) David Kelch (ERS USDA) Wolfgang Münch (DG AGRI)
10.30 - 10.45	***Coffee break***	
10.45 - 13.30	**Session 2: Modelling approaches and baseline results for EU 25/27** *Presentation of main features of modelling **approach** and baseline results EU25/27 (focussing on selected commodities: cereals/oilseeds and meat/dairy).*	**Chair: Pat Westhoff (FAPRI)**
(30 min)	2.1 AGLINK 2.2. AGLINK-COSIMO	Martin von Lampe (OECD) Holger Matthey (FAO)
(20 min)	2.3 ESIM	Martin Banse (LEI)
(20 min)	2.4 CAPSIM	Peter Witzke (University Bonn)
(20 min)	Discussion	All
12.15 - 12.30	***Coffee break***	
(30 min)	**Session 2: continued** 2.5 AGMEMOD general features 2.6 AGMEMOD baseline results	**Chair: Wolfgang Münch (DG AGRI)** Myrna van Leeuwen (AGEMOD) Petra Salomon, Oliver von Ledebur (AGMEMOD)
(10 min)	2.7 Comparison of selected agricultural market outlooks	Lubica Bartova (IPTS)
(20 min)	Discussion of validation of AGMEMOD results	All
13.30-14.30	***Lunch break***	
14.30-15.30	**Session 3: Commodity markets in detail EU25/27 (AGMEMOD)** *Presentation of main results, highlighting selected country results; **baseline and scenarios***	**Chair: Martin Banse (LEI)**
(30 min)	3.1 Cereals/Oil incl. discussion (15 min)	Kevin Hanrahan (AGMEMOD)
(30 min)	3.2 Meat/Dairy incl. discussion (15 min)	Trevor Donnellan (AGMEMOD)
15.30-15.45	***Coffee break***	
15.45-17.15	**Session 4: Development of commodity markets in NMS/CC** *Presentation of the most interesting results of CAP reform scenario*	**Chair: Lubica Bartova (DG JRC)**
(30 min)	4.1 AGMEMOD	Emil Erjavec, M. van Leeuwen (AGMEMOD)
(20 min)	4.2 ESIM	Martin Banse (LEI)
(20 min)	4.3 CAPSIM	Peter Witzke (University Bonn)
(20 min)	Discussion with contributions of experts from NMS	
17.15-18.00	**Final Discussion** Forecasting crop production with agrometeorological models in the EU AGMEMOD: - Ongoing work on development of the AGMEMOD model - Expected contributions of model outcomes to policy decision making process - Suggestions for further development of the AGMEMOD model	**Chair: Ken Thomson (University of Aberdeen)** Javier Gallego (DG JRC) All

19. Annex 2: List of Participants

Participants of AGMEMOD Workshop. Seville, November 6th, 2006	
	Institution
Presenters and invited experts	
Banse, Martin	Agricultural Economics Research Institute (LEI), The Hague, Netherlands
Jasjko, Danute	Riga International School of Economics and Business Administration, Latvia
Kabat, Ladislav	Komenius University, Bratislava, Slovakia
Kelch, David	ERS USDA
Matthey, Holger	FAO, Commodities and Trade, ESC Division, Rome
Thomson, Kenneth	University of Aberdeen, UK
von Lampe, Martin	OECD, Agricultural Markets and Trade, Paris
Westhoff, Patrick	FAPRI, USA
Witzke, Peter	University Bonn, Germany
AGMEMOD participants and presenters	
Bouma, Foppe	Agricultural Economics Research Institute (LEI), The Hague, Netherlands
Chantreuil, Frédéric	Centre of Agricultural Economics (INRA-ESR), Rennes, France
Ciaian, Pavel	Slovak Agricultural University (SAU), Nitra, Slovak Republic
Dol, Wietse	Agricultural Economics Research Institute (LEI), The Hague, Netherlands
Donellan, Trevor	Teagasc-Rural Economy Research Centre (RERC), Co. Galway, Ireland
Erjavec, Emil	University of Ljubljana, Biotechnical Faculty (LJUB), Ljubljana, Slovenia
Ferenczi, Tibor	Corvinus University of Budapest (CUB), Budapest, Hungary
Foltyn, Ivan	Research Institute of Agriculture Economics (VUZE), Prague, Czech Republic
Gavrilescu, Camelia	Institute of Agricultural Economics (IEARO), Bucharest, Romania
Gracia, Azucena	Unidad de Economia Agraria, Centro de Investigacion y Technologia Agroalimentaria da Aragon (CITA), Zaragoza, Spain
Hanrahan, Kevin	Teagasc-Rural Economy Research Centre (RERC), Co. Galway, Ireland
Ivanova, Nedka	Institute of Agriculture Economics (IEABG), Sofia, Bulgaria
Krisciukaitiene, Irena	Lithuanian Institute of Agrarian Economics (LAEI), Vilnius, Lithuania
Lobianco, Antonello	Polytechnic University of Marche-Ancona (INUVPM), Ancona, Italy
Salamon, Petra	Bundesforschnsanstalt fur Landwirtschaft (FAL), Braunschweig, Germany
Ludmila Fadejeva	Latvian State Institute of Agrarian Economics (LSIAE), Riga, Latvia
Sepp, Mati	Institute of Economics and Social Sciences of Estonian Agricultural University (EAU), Tartu, Estonia
van Leeuwen, Myrna	Agricultural Economics Research Institute (LEI), The Hague, Netherlands
von Ledebur, Oliver	Bundesforschnsanstalt fur Landwirtschaft (FAL), Braunschweig, Germany

Wu, Ziping	Queen's University of Belfast (QUB), Belfast, UK

Participants of AGMEMOD Workshop. Seville, November 6th, 2006

European Commission participants

Bartova, Lubica	DG JRC-IPTS
Basaran, Pervin	DG JRC-IPTS
Gay, Hubertus	DG JRC-IPTS
Gallego, Javier	DG JRC-IPSC
Gomez, Manuel	DG JRC-IPTS
Giray, Fatma	DG JRC-IPTS
Lutzeyer, Hans-Jörg	DG RTD
M'barek, Robert	DG JRC-IPTS
Munch, Wolfgang	DG AGRI
Perez, Ignacio	DG JRC-IPTS
Pilzecker, Andreas	DG AGRI
Santuccio Federica	DG JRC-IPTS
Sorup, Per	DG JRC-IPTS
Stein, Alexander	DG JRC-IPTS
Van Driel, Martin	DG AGRI
Velazquez, Beatriz	DG AGRI

20. Annex 3 AGMEMOD Partnership:

- *Agricultural Economics Research Institute (LEI), The Hague, The Netherlands:* Hans van Meijl, Myrna van Leeuwen, Andrzej Tabeau
- *Bundesforschungsanstalt für Landwirtschaft (FAL), Braunschweig, Germany:* Petra Salamon, Oliver von Ledebur
- *Centre of Agricultural Economics, INRA-ESR, Rennes, France:* Frédéric Chantreuil, Fabrice Levert
- *Teagasc-Rural Economy Research Centre (RERC), Athenry, Co. Galway, Ireland:* Trevor Donnellan, Kevin Hanrahan
- *Latvian State Institute of Agrarian Economics (LSIAE), Riga, Latvia:* Danute Jasjko, Guna Salputra, Ludmilla Fadejeva
- *University of Ljubljana, Biotechnical Faculty (LJUB), Ljubljana, Slovenia:* Emil Erjavec, Stane Kavcic, Darja Regoršek
- *Universitat fur Bodenkultur Wien (BOKU), Wien, Austria:* Martin Kniepert
- *Université Catholique de Louvain (UCL), Louvain-La-Neuve, Belgium:* Bruno Henry de Frahan, Olivier Harmignie
- *Institute of Agriculture Economics (IEABG), Sofia, Bulgaria:* Nedka Ivanova, Mariya Peneva
- *Research Institute of Agriculture Economics (VUZE), Prague, Czech Republic:* Ivan Foltyn, Jan Kubát
- *Food and Resource Economic Institute (FØI), Frederiksberg C, Denmark:* Jorgen Dejgaard Jensen
- *Institute of Economics and Social Sciences of Estonian Agricultural University (EAU), Tartu, Estonia*: Mati Sepp
- *MTT Agrifood Research Finland (MTT), Helsinki, Finland:* Jyrki Niemi, Lauri Kettunen
- *Department of Economics, University of Athens (NKUA), Athens, Greece:* Elias Mantzouneas
- *Corvinus University of Budapest (CUB), Budapest, Hungary:* Tibor Ferenczi
- *Polytechnic University of Marche-Ancona (UNIVPM), Ancona, Italy:* Roberto Esposti, Antonello Lobianco
- *Lithuanian Institute of Agrarian Economics (LAEI), Vilnius, Lithuania:* Irena Krisciukaitiene, Salomeja Andrekiene, Andrej Jedik, Willi Meyers, Aiste Galnaityte
- *Warsaw School of Economics (WSE), Warsaw, Poland:* Sylwia Krawczyńska, Katarzyna Kowalska
- *Institute of Agricultural Economics (IEARO), Bucharest, Romania:* Camelia Serbanescu, Cristian Kevorchian
- *Slovak Agricultural University (SAU), Nitra, Slovak Republic:* Lubica Bartova, Pavel Ciaian, Jan Pokrivcak
- *Unidad de Economia Agraria, Centro de Investigacion y Tecnologia Agroalimentaria de Aragon, (CITA), Zaragoza, Spain*: Azucena Gracia
- *Queen's University of Belfast (QUB), Belfast, UK:* Zi Ping Wu, Philip Kostov

European Commission

EUR 22940 EN/5 – Joint Research Centre – Institute for Prospective Technological Studies

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Abstract

This proceedings consist of presentations and conclusions of a workshop on "Commodity Modelling in an Enlarged Europe" held in November 2006. The workshop discussed results of the study "Impact Analysis of CAP Reform on the Main Agricultural Commodities" carried out by the AGMEMOD Partnership, under the management of the Agricultural Economics Research Institute (LEI, Netherlands), in cooperation with the Joint Research Centre – Institute for Prospective Technological Studies (JRC-IPTS). The objective of the study was to generate projections for the main EU agricultural commodity markets for each year from 2005 until 2015.

Detailed documentation on the AGMEMOD modelling approach, as well as results of the study, has been published in five reports within the JRC-IPTS Scientific and Technical Report Series under the heading "Impact analysis of Common Agricultural Policy reform on the main agricultural commodities".

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