Bio-fuel in the EU: a complex topic
- Energy security/price
- Climate change
- Environment
- Trade balance
- Trade policy
- Public budget
- Competition policy
- Farm income/policy

The EU bio-fuel policy
- 2003 Directive sets a target for consumption
  - Member states implement it (tax exemptions/surchage; obligations)
- Common Agricultural Policy
  - Set aside and energy crop direct payments
- Assessment
  - Only one macroeconomic study by the EC (crude assumptions on imports/animal/labour)

Our modelling framework
- CGE model for EU15
- Simulation of CAP/WTO scenarios
- Flexible representation of economic behaviour
- Fine coverage of farm and food processing sectors

Farm products
### Food and other products

**FOOD PROCESSING**
- Meat industry: Bovine meat, Pig meat, Poultry meat, Veal, sheep and goat meats, Carcass meals, Animal fats
- Dairy industry: Butter, Skimmed milk powder, Cheese from cow, cheeses from sheep and goat, Whole milk powder, Fluid milk, Other dairy products
- Compound feed industry: Compound feed
- Cereal processing industry: Grains bran, Corn gluten feed, Iso-glucose, Other cereal processed products, Bio-ethanol
- Oilseed crushing industry: Rape oil, Sunflower oil, Soybean oil, Rape cake, Sunflower cake, Soybean cake, Palm oil
- Sugar industry: A&B sugar, C sugar, Sugar beet pulp, Molasses

**AGRICULTURAL STATIONERIES**
- Mono product sectors: Mineral nitrogen, Mineral phosphate, Mineral potassium, Pesticides, Veterinary products, Fish meals, Other energy rich feed, Other protein rich feed, Other feed ingredients, Seeds

**OTHER SECTORS**
- Food retail trade: Food retail trade services
- Other sectors: Other products and services

### Baseline assumptions
- Productivity
- Household preferences
- Macro-economic conditions
- World market conditions
- Supply of primary factors
- No new CAP, no new WTO agreement
- No Biofuel

### Definition of experiment
- EC estimate of fuel consumption
- 8 Millions tons of Rape oil
- 7.3 Millions tons of Bio ethanol (from sugar beet or soft wheat)
- Specific duty on bio ethanol
- Set aside / Blair House agreement

### Impacts on the oilseed products

|          | Rape oil | Rape meal | Rape meal+ | Volume
|----------|----------|-----------|------------|--------|
| Production | 12%      | 10%       | 10%        | 6.8%
| Domestic   | 12%      | 10%       | 10%        | 6.8%
| Exports    | 21%      | 16%       | 16%        | 9.8%
| Domestic duties | 12% | 10% | 10% | 6.8%
| Set aside/Blair House | - | - | - | -
| World prices | 12% | 10% | 10% | 6.8%
| Domestic prices | 12% | 10% | 10% | 6.8%
| World prices | - | - | - | -

### Impacts on cereals, oilseeds and sugar

|          | Wheat | Sugar | Sunflower | Oilseed | Total
|----------|-------|-------|-----------|---------|-------|
| Domestic | 12%   | 10%   | 10%       | 6.8%    | 6.8%
| Exports  | 21%   | 16%   | 16%       | 9.8%    | 9.8%
| Domestic duties | 12% | 10% | 10% | 6.8%
| Set aside/Blair House | - | - | - | -
| World prices | 12% | 10% | 10% | 6.8%
| Domestic prices | 12% | 10% | 10% | 6.8%
| World prices | - | - | - | -

### Production costs of bio-ethanol

|          | Domestic | Imported
|----------|----------|----------|
| Gross Domestic Value Added | 13% | 13%
| Exported Value Added | 13% | 13%
| Domestic Ethanol | 13% | 13%
| Domestic Federation | - | -
Impacts on livestock sectors

<table>
<thead>
<tr>
<th>Sector</th>
<th>Compound feed</th>
<th>Butter</th>
<th>Beef</th>
<th>Poultry meat</th>
<th>Pork</th>
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</thead>
<tbody>
<tr>
<td>World prices ($/T)</td>
<td>257</td>
<td>0.7%</td>
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<tr>
<td>Domestic prices (€/T)</td>
<td>-342</td>
<td>-6.6%</td>
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<tr>
<td>Net exports (Millions T)</td>
<td>121032</td>
<td>0.8%</td>
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<tr>
<td>Total demand (Millions T)</td>
<td>124698</td>
<td>0%</td>
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</tbody>
</table>

Sensitivity analysis

- Availability of land
- Price elasticity of farm supply
- Fossil oil price

Efficiency in terms of farm support

- Public expenditure: 10.5 b€
- Leakage to foreign producers: 4.8 b€
- Leakage to food industry: 2.5 b€
- Farm incomes: 3.2 b€
  - Land and quota rents: 1.0 b€
  - Capital rewards: 0.7 b€
  - Labour rewards: 1.5 b€
- Farm job creation: 42000 Units