



Use of biofuels and other renewable fuels in transport in Poland and the European Union

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Why should we use renewable fuels?

- Reduction of greenhouse gases emission;
- Improvement of the country's energetic safety;
- Regional development;
- New jobs;
- Taking advantage of the full agricultural production potential;
- Use of by-products, intermediate products and agri-food industry;
- Complying with the Kyoto Protocol.

EU regulations on biofuels

- Directive 2001/77/EC on the promotion of electricity from renewable energy sources from 2001
- **Directive 2003/30/EC of the European Parliament and of the Council on the promotion of the use of biofuels or other renewable fuels for transport from May 2003**
- Commission Communication of December 7, 2005 – Biomass Action Plan
- Commission Communication of 8 February 2006, “An EU Strategy for Biofuels”
- Commission Communication of 10 January 2007, “Renewable Energy Road Map”.

New EU Directive - proposed Jan. 2008

Proposals:

- establishing mandatory targets for an overall **20% share of renewable energy** and a **10% share of renewable energy in transport** in the European Union's consumption in 2020.

Reasons:

- transport sector is the sector presenting the most rapid increase in greenhouse gas emissions
- biofuels are currently more expensive to produce than other forms of renewable energy
- need to provide certainty for investors

EU Biofuel and Conventional Fuel Consumption (in 1000 MT)

	2006	2007	2008 est.	2009 est.	2010 est.
Biodiesel	4,170	5,460	6,000	7,610	8,960
Bioethanol	945	1,350	1,700	2,055	2,570
Pure Vegetable Oil	915	620	415	190	200
BtL	0	0	5	10	10
Total biofuels	6,030	7,430	8,120	9,865	11,740
Diesel (incl. biofuels)	180,570	184,360	188,230	192,190	196,220
Gasoline (incl. biofuels)	112,515	113,530	114,550	115,580	116,620
Total Fuel	293,085	297,890	302,780	307,770	312,840
Biofuels share	2.06%	2.49%	2.68%	3.21%	4.20%
EU goals	2.75%	3.50%	4.25%	5.00%	5.75%

Biodiesel Production – Major Producers (in 1,000 MT)

	2006	2007	2008	2009	2010
Germany	2,400	2,890	2,400	2,600	2,600
France	600	900	1,800	2,000	2,300
Italy	600	550	600	650	750
Benelux	50	200	500	1,000	1,500
Others (incl Poland)	872 (116)	810 (80)	400 (200)	1,050 (450)	1,450 (500)
Total	4,522	5,350	5,700	7,300	8,600

Bioethanol Production Main Producers (in 1,000 MT)

	2006	2007	2008	2009	2010
Germany	340	310	250	200	200
Spain	320	275	25	25	0
France	200	300	500	600	700
Poland	130	100	250	320	370
Sweden	60	70	70	80	80
UK	0	20	150	275	400
Benelux	0	0	100	250	600
Others	200	275	355	250	300
Total	1,250	1,350	1,700	2,000	2,650

Projections for biofuels in the EU

- Demand of 34.6 MT in 2020, of which 6.4 MT will be covered by imports
- EU production will cover four fifths of total demand
- About 15% of the arable land (or 17.5 mln ha) will be needed for the production of biofuels
- In 2020, 19% of cereals consumption in EU and 47% of oilseeds consumption in EU will be used for biofuels
- Impact on prices expected small: 3-6% cereals, 8-15 % oilseeds

Conclusion for the EU

10% biofuel target is achievable by using mainly domestic resources without putting strain on food and feed markets.

Polish legislation

- Regulation of 8 September 2006 on liquid biofuel quality requirements
 - Biocomponents and Liquid Biofuels Act and Fuel Quality Monitoring and Control Act of 25 August 2006
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- The Acts ensured full transposition of Directive 2003/30/EC into Polish law
 - Enabled farmers to produce liquid biofuels for their own use
 - Introduced incentives to promote the production of biofuels in Poland (Long-Term Biofuel Promotion Project 2008-2014)

Incentives

- exemptions from excise duty for fuels containing biocomponents
- reductions of excise duty rates
- corporation tax relief planned
- system of subsidies for farmers cultivating energy crops
- preferential treatment of public procurement purchases of vehicles
- reduction of parking charges

Financial support

- ***Research projects relating to biofuels***

In 2007, work continued on the 6 research projects. Their total cost was 327 600 dollars.

- ***Research and development projects relating to biofuels***

In 2007, work continued on the 7 research and development projects. Their total cost was 2 474 000 dollars.

Use of bioethanol in petrol in 1994-2007

Year	Petrol consumption – Mm3	Of which bioethanol - Mm3	% share of volume
1994	7325	27.0	0.37
1995	8332	63.0	0.76
1996	6174	100.9	1.63
1997	6691	110.60	1.65
1998	6672	99.8	1.50
1999	7770	83.2	1.07
2000	6808	51.4	0.75
2001	6233	66.4	1.07
2002	5645	82.8	1.47
2003	5453	76.2	1.40
2004	5564	48.5	0.87
2005	5151	54.2	1.05
2006	5326	106.8	2.01
2007	5434	89.6	1.65

National Indicative Target

Compulsory percentage share of bio-components in the liquid fuel market in terms of calorific value

2007 – 2,30 %;

2008 – 3,45 %;

2009 – 4,60 %;

2010 – 5,75 %;

2011 – 6,20 %;

2012 – 6,65 %;

2013 – 7,10 %;

2014 – 7,55 %.

2020 – 10,00 %

Source: Resolutions of the Council of the Ministers establishing the National Indicative Target for the years 2008 -2013 and the multiannual promotion programme for biofuels and other renewable fuels for the years 2008-2014

Share of biofuels in transport fuels in Poland

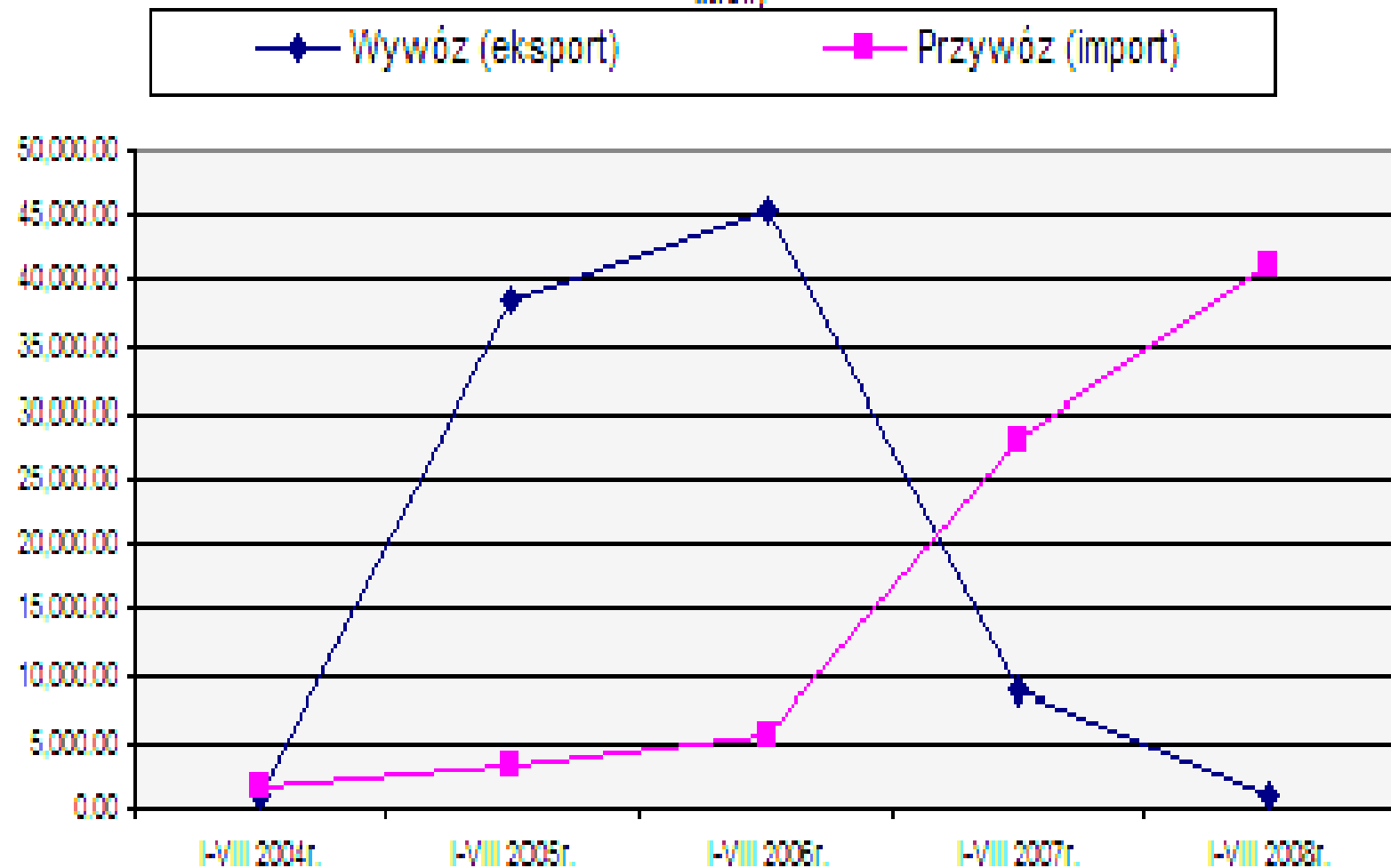
Year	Transport use (MT)				Percentage share based on energy content
	Petrol	Diesel	Bioethanol	Esters	
2000	4841	2343	40.60	0	0.35 %
2001	4484	2562	52.40	0	0.46 %
2002	4109	2940	65.30	0	0.57 %
2003	3941	3603	60.10	0	0.49 %
2004	4011	4393	38.30	0	0.29 %
2005	3915	5075	42.80	17.10	0.47 %
2006	4048	6042	84.30	44.90	0.92 %
2007	3997	7212	70.80	37.30	0.68 %
2008 – I half	2075	4900	88.30	211.30	4.30 %
2008 – projection	4080	9000	180.00	400.00	4.43 %

Export and import of bioethanol in 2004 – 2008 (from the EU)

Period	Export		Import	
	In MT	Value in thousand EUR	In MT	Value in thousand EUR
I – VI 2004	913,0	968,0	91,0	71,0
I – VI 2005	26 009,0	12 332,0	2 592,0	1 229,0
I – VI 2006	37 055,0	19 440,0	4 991,0	3 111,0
I – VI 2007	6 823,0	3 997,0	22 910,0	14 852,0
I - VI 2008	719,0	706,0	26 136,0	19 108,0

Source: Polish Ministry of Finance and the Ministry of Agriculture and Rural Development

Przywóz i wywóz alkoholu etylowego w latach 2004 - 2008 (w tys. litrów)



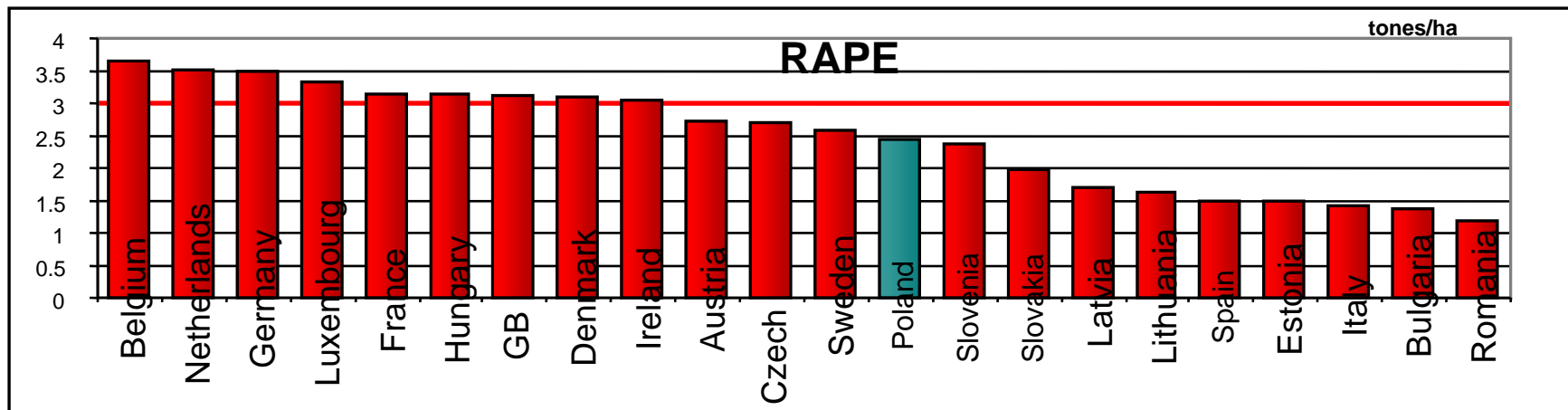
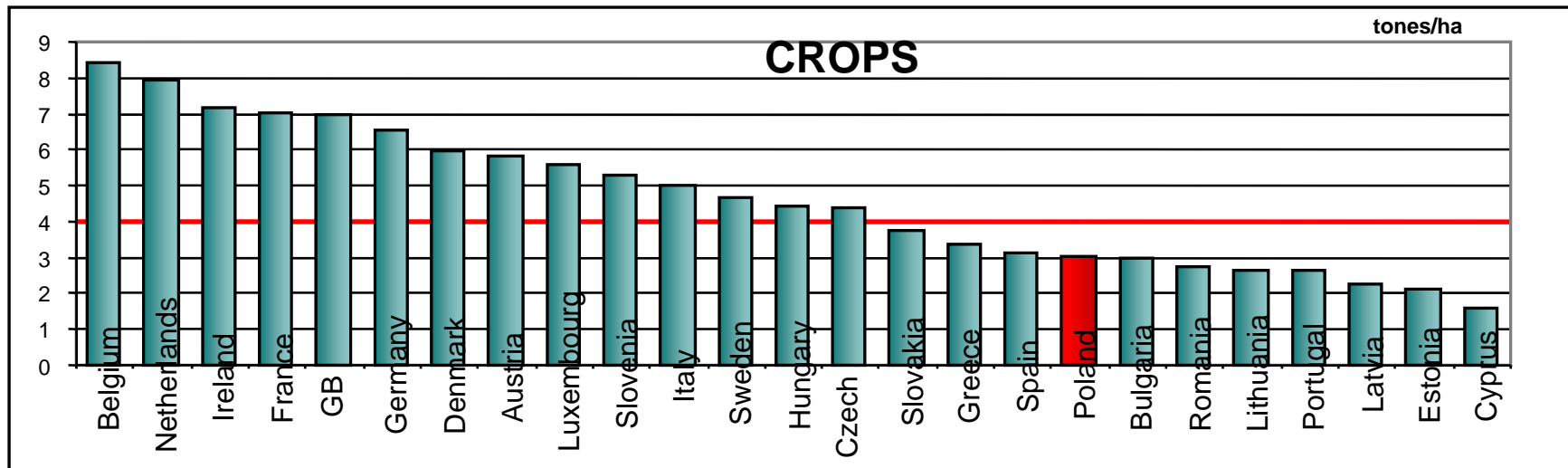
Projection of demand for agricultural products needed for production of biocomponents

Demand for:	2008	2010	2020
Bioethanol in thousand m ³	288,77	463,37	805,75
Crops (80% share) in thousand tons	688,24	1 112,09	1 933,80
Esters in thousand m ³	356,16	648,46	1 127,76
Rape (75 % share) in thousand tons	747,94	1 361,77	2 368,30

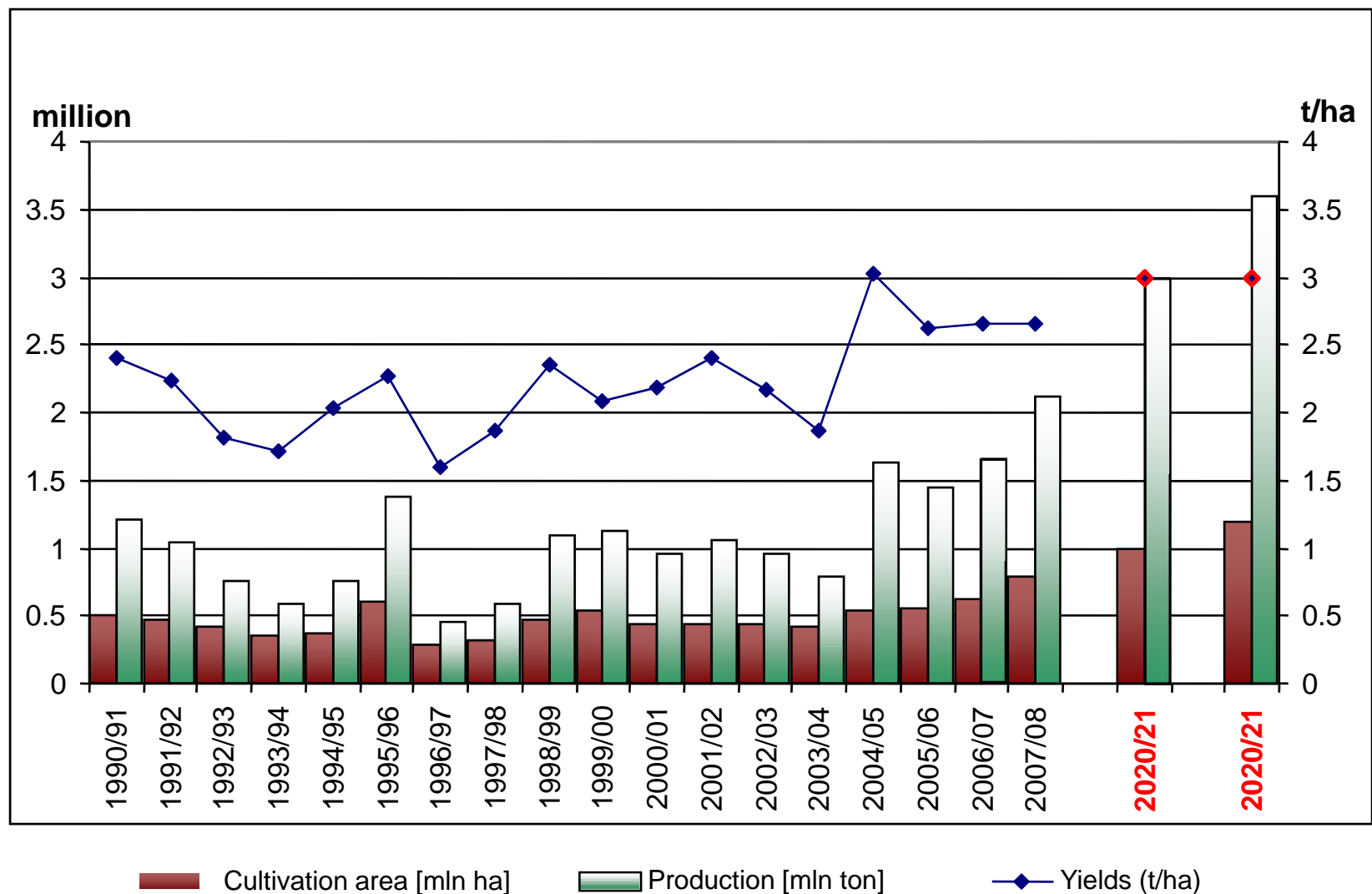
Condition: the biocomponents must be produced on the basis of the internal sources (EU sources).

Source – MRiRW

Average crop and rape yields in Poland and other EU countries



Rape production potential in Poland



Basic information on long-term cultivation of energy crops

- To meet the goals set in the Energy Strategy, the energy crop farms shall have the area of:
 - 340 thousand ha in 2010,
 - 660 thousand ha in 2015

- Current farmland in Poland:
 - 16 177 t/ha: 11 456 cultivated (the rest are fallow, grass lands and others)

- Available area:
 - **Currently** - 1 million ha – fallow and uncultivated land,
 - **Land that may be included** – 0.6 to 0.8 million ha – possible reduction of farmland used for cultivation of crops for food industry as a result of increase in efficiency.

Use of production potential for biocomponents

	Number of producers		Production capacity declared a year: [th. m ³]	Amount of biocomponents produced in I half of 2008: [th. m ³]	Production capacities used in I half of 2008:
	Registered to 06.30.2008	Producing			
Producers of bioethanol	14	7	564	55,63	19,73 %
Producers of esters	27	8	840	73,31	17,45%
Producers of pure vegetable oil	4	1	434	63,9	29,45%
Farmers registered as producers	3	-	0,17	-	-

• data of ARR and MRiRW

Summary

- **Agriculture can secure raw materials** necessary to produce biofuels at the level ensuring accomplishment of purposes determined in NIT for 2008 – 2013, and purpose set for 2020.
- Increase in renewable fuels use should occur on the basis of **balanced production**. Due to development of modern technologies (second and third generation) it is possible to achieve assumed objectives without negative impact on food demand level.

Summary

- **Agricultural by-products**, including ones that require utilization (e.g. animal excrements, food processing wastes, etc.), **should be used in the first place for energy purpose**. Utilization can be carried out in biogas facilities, obtaining at the same time biogas, which can be used easily for energy and transport purpose. This way of implementing purpose related to environmental protection seems to be more efficient than currently implemented biomass.

When **estimating energy potential of national agriculture**, one should not consider only present situation. Estimate done for energy potential of national agriculture must include agri-climatic conditions and yield potential which enables the real growth of agricultural plant crops, and subsequently, which enables to determine this part of farmlands, which can be released for purposes other than food production.

Summary

- Frequently, Poland stressed the necessity to **act against liberalisation of biomass import for energy purpose**. In the opinion of Poland, taking into account the current implementation of social, environmental, energy and agricultural policies as well as their impact on food prices, it is necessary to determine explicitly the maximum level of biomass of agricultural origin, which might be used for energy purpose that would not have negative impact on food prices as well as on farm income level. Such action requires an explicit determination of the energy potential of agriculture so as to take into consideration any possible circumstances.

Thank you

