



Biodiesel in Greece

Myrsini Christou

Center for Renewable Energy Sources -
CRES

'Biodiesel-chains' Workshop

Nicosia 18 January 2007



Overview

- The Biofuels directive 2003/30 has been adopted by the Greek government as **Law 3423/05**.
- Biodiesel will be the main biofuel for the Greek transport sector with bioethanol playing a less important role until 2008.
- The current law imposes the obligatory use of all detaxed biodiesel in the existing refineries (in an up to 5% blend). Detaxed quantities are decided on an annual basis under a quota scheme.
- For 2006 14 investors have applied for detaxed biodiesel production amounting to the 91,000 m³ set for 2006 and 114,000 m³ for 2007. A much higher number of investors have expressed interest in the coming years.
- The market for pure biodiesel does not exist as yet.



Estimation of Biodiesel Required (2005 - 2010)

(1st National Annual Report on Biofuels www.ypan.gr)

Year	Estimated Automotive Diesel Consumption ('000 tons)	Biodiesel used (%)	Biodiesel Required (tons)
2005	2.084	2,00	46.976
2006	2.125	3,00	71.851
2007	2.167	4,00	97.695
2008	2.208	4,50	111.986
2009	2.249	5,00	126.739
20010	2.290	5,75	148.407



Estimation of Bioethanol required (2005 - 2010)

(1st National Annual Report on Biofuels www.ypan.gr)

Year	Estimated Automotive Gasoline Consumption ('000 tons)	Bioethanol used (%)	Bioethanol Required (tons)
2005	3.707	2,00	120.442
2006	3.800	2,50	154.329
2007	3. 892	3,00	189.678
2008	3.984	4,00	258.883
2009	4.077	5,00	331.157
2010	4.169	5,75	389.424



Key points in the annual quota scheme

In case of producing biodiesel

- **Operation permit**, according to the Law 3325/2005 for the construction and operation of industrial plants
- **Installation permit**, according to the same Law
- **Detailed data on the resources used** (seed oils, contracts with farmers, etc) **and the daily production capacity of the plant**

In case of importing biodiesel from abroad or other biodiesel plants in Greece

- **Verified contracts** (duration of contracts, total quantities imported, provisions on a monthly basis)



Bottlenecks

- ✓ ***Annual quota scheme***
 - Insecure conditions for investments
 - Competition
- ✓ ***Biodiesel quality***
 - Biodiesel standards: EN 14214
 - Testing methods standards: EN 3170, or 3171, or 14275
- ✓ ***Biodiesel production year around***
 - Obligating biodiesel provision to the refineries on a monthly basis



Support measures

There are two main financial-support instruments that provide substantial public subsidies to RES investment projects:

- ✓ **National Development Law (Law 3299/2004).** Subsidies vary from 40- 55% according to region and the type of the enterprise (in case of SMEs and specific regions they can reach up to 55%)
- ✓ **Greek Operational Programme for Competitiveness,** active until the end of 2006. Support on capital cost (up to 40%) for biodiesel plants was included in the 3rd Community Support Framework (Energy). The 4th Framework is under development and respective provisions are expected to be put forth.



Biodiesel producers

- In 2005, the first biodiesel plant 'ELVI' of 40,000 tpa was established in Kilkis (Northern Greece), while during 2006 three new plants were established.
- in Fthiotida (Central Greece) 'AGROINVEST' with a capacity of 252,000 tpa,
- in Patra (Peloponese) 'PETAS' with a capacity of 55,000 tpa, and
- in Thessaloniki (northern Greece) 'VERT OIL' with a capacity of 40,000 tpa.

End users

- Biodiesel is used only in the transport sector.

International trade

- Biodiesel is quite new to the Greek fuel market and international trade issues are not monitored at the moment.



Biodiesel

2005 (2%) 47,000 tons

2010 (5.75%) 148,000 tons

Resources

- ✓ *Vegetable oils (cotton seed oil, soy oil, etc.)*
- ✓ *sunflower*
- ✓ *rapeseed*
- ✓ *Tobacco seed*
- ✓ *Tomato seed*

Facts

- ✓ Competition from food sector
- ✓ New CAP (Reg. 2003/1782/EC)
- ✓ Energy crops subsidy of 45/ha
- ✓ Imports from Balkan countries, Turkey, etc.
- ✓ Substantial quantities available in the Greek market
- ✓ Good yielding potential for sunflower & rapeseed.



Bioethanol

2005 (2%) 120,000 tonnes

2010 (5.75%) 390,000 tonnes

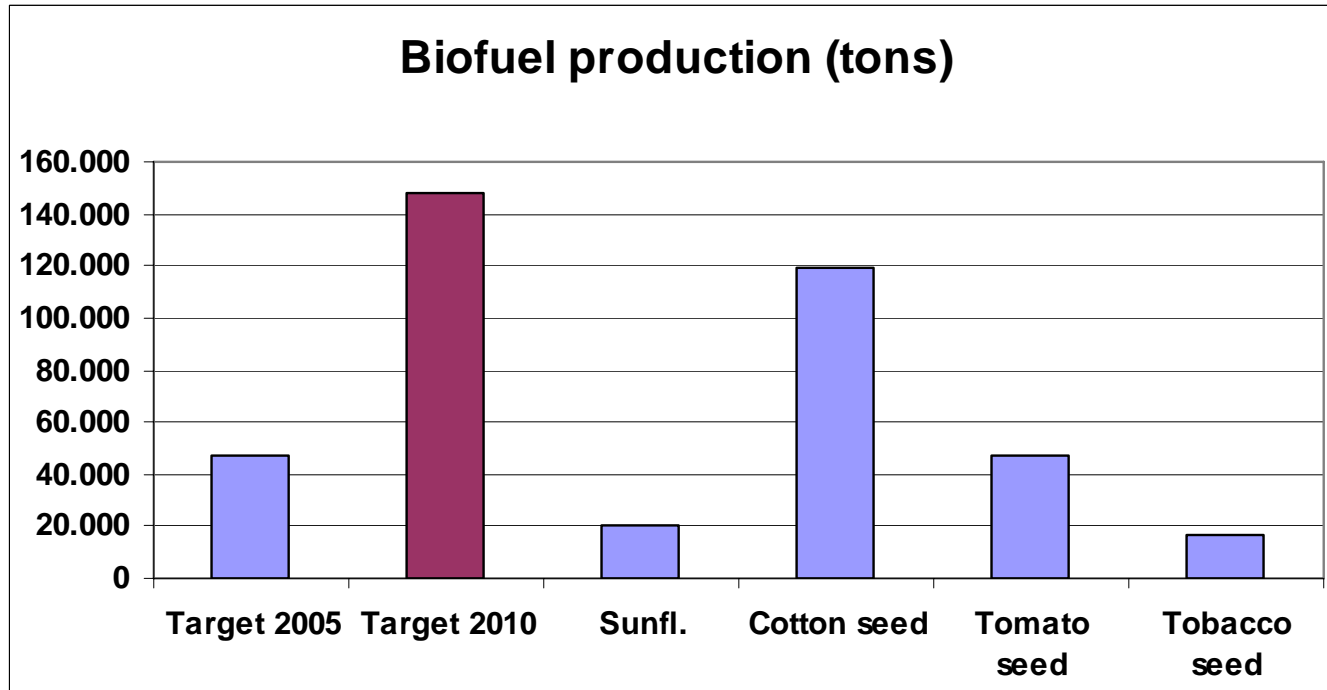
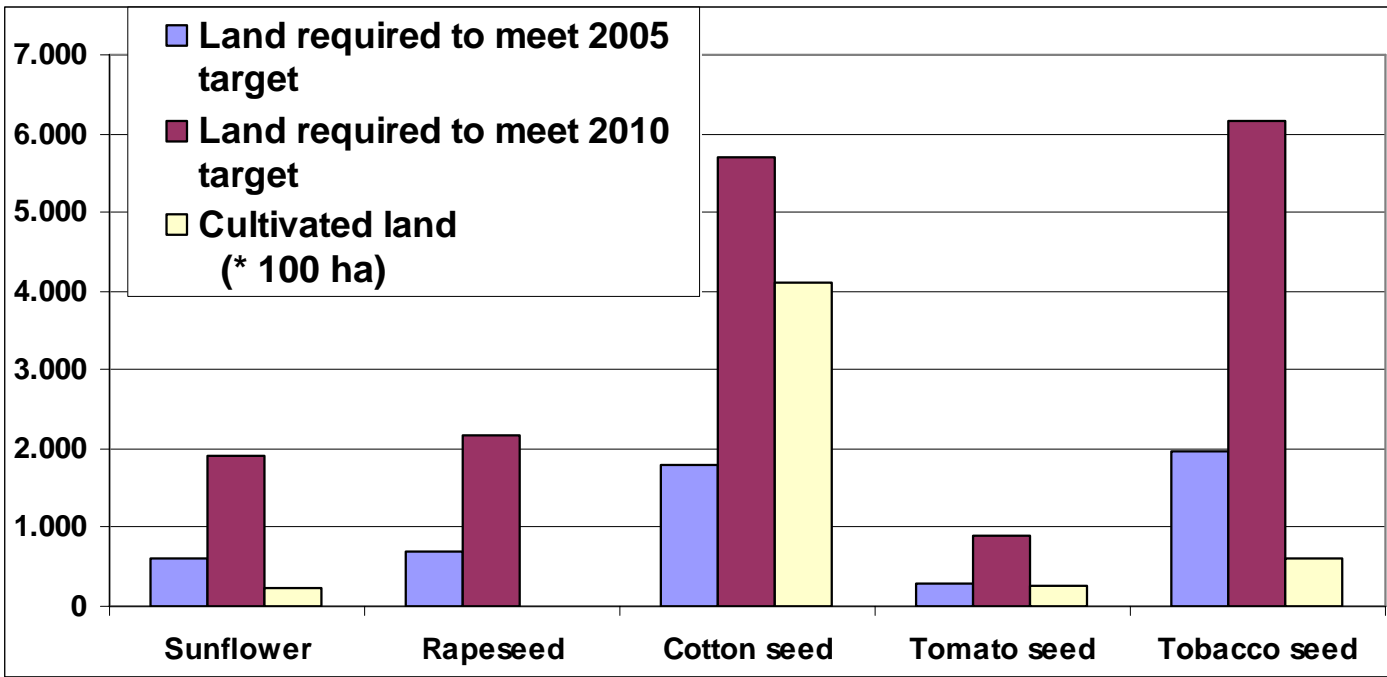
Resources

- ✓ Small grain cereals
- ✓ Corn
- ✓ Sugarbeets
- ✓ Sweet Sorghum

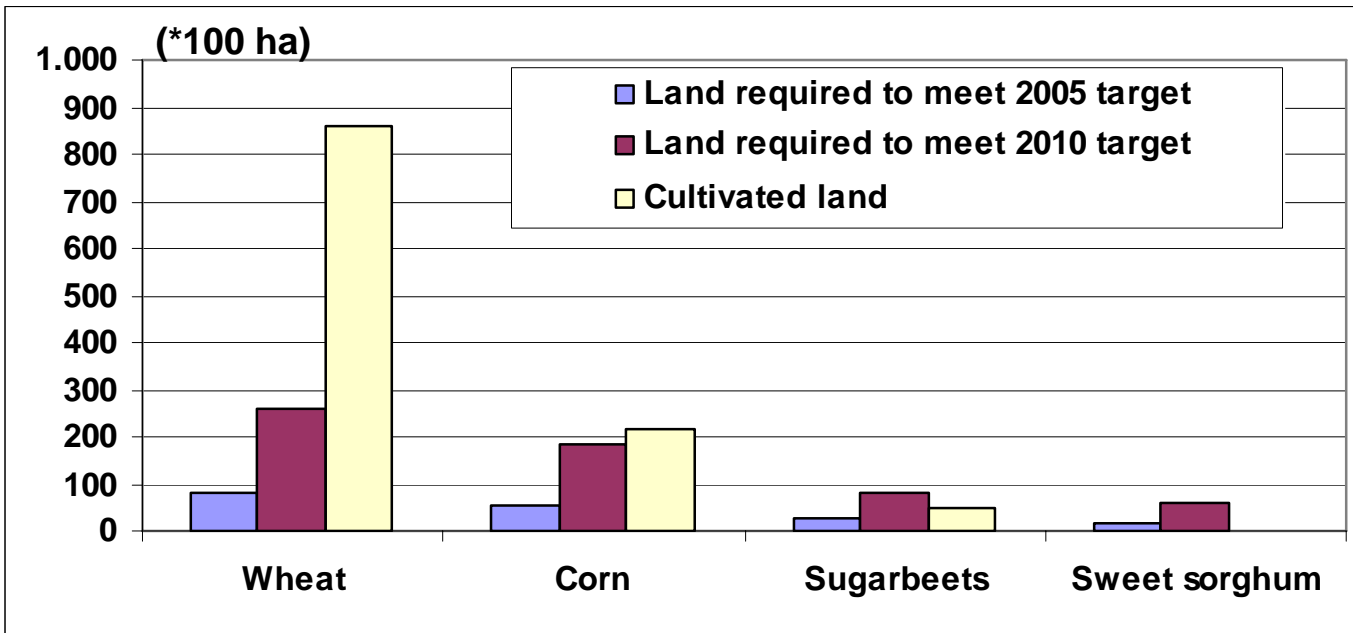
Facts

- ✓ High subsidy levels for cereals & corn cause market distortions
- ✓ New CAP (Reg. 2003/1782/EC)
- ✓ Energy crops subsidy of 45/ha
- ✓ Biorefineries in sugar industry, etc.
- ✓ High yields for sweet sorghum



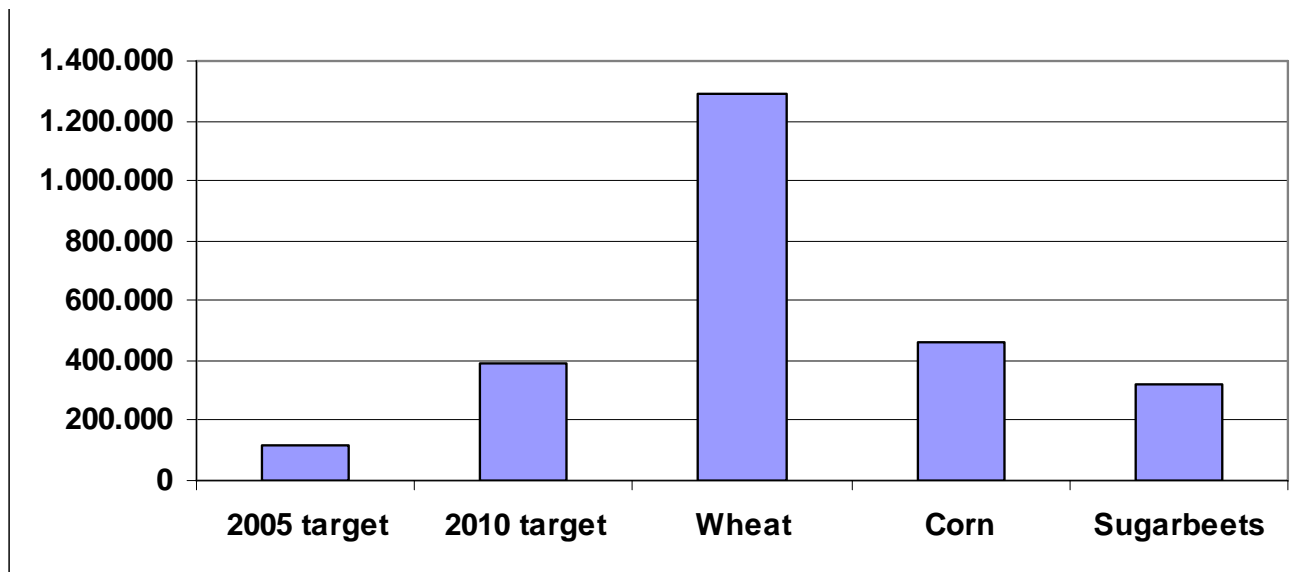


Biodiesel



Bioethanol

Biofuel production (tons)



Cost analysis of biomass production for biodiesel

	Ελαιοκράμβη Αρδ.	Ελαιοκράμβη Ξηρ.	Ηλίανθος Αρδ.	Ηλίανθος Ξηρ.
Απόδοση (kg/στρ.)	300	180	300	175
Τιμή (€/kg)	0.20	0.20	0.20	0.20
Ακαθάριστο εισόδημα (€/στρ.)	60.00	36.00	60.00	35.00
Ενοίκιο Γης (€/στρ.)	30.00	9.00	30.00	9.00
Κόστος Παραγωγής (€/στρ.)	77.80	67.80	56.94	46.94
Κέρδος προ επιδοτήσεων (€/στρ.)	-47.80	-40.80	-26.94	-20.94
Επιδότηση (€/στρ.)	18.50	18.50	18.50	18.50
Κέρδος προ φόρων και τόκων (€/στρ.)	-29.30	-22.30	-8.44	-2.44
Κέρδος (χωρίς το ενοίκιο γης) (€/στρ.)	0.70	-13.30	21.56	6.56

For more information:

Links:

www.ypan.gr

www.elke.gr

www.cres.gr

CRES - Biomass Department

Tel: +30 210 6603300

Fax: +30 210 6603301

E-mail: mchrist@cres.gr

