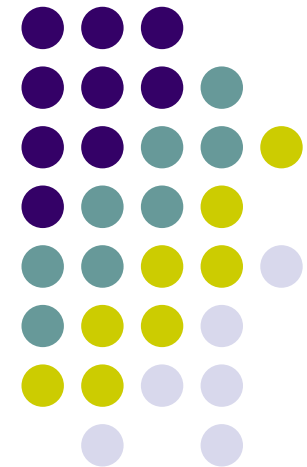


Resources and costs of feedstocks for biofuels in Greece

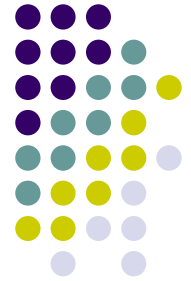
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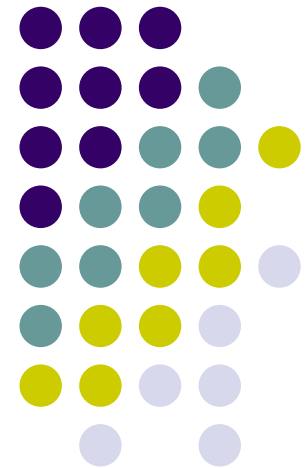


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Feedstocks for biofuels in Greece



Greece- Biodiesel (Directive 2003/30)
2005 (2%) 47,000 tonnes
2010 (5.75%) 148,000 tonnes



Resources

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

Facts

- ✓ *Competition from food sector*
- ✓ *Imports from Balkan countries, Turkey, etc.*
- ✓ *Substantial quantities are available in the Greek market*
- ✓ *Good yielding potential for sunflower & rapeseed.*

Greece- Bioethanol (Directive 2003/30)
2005 (2%) 120,000 tonnes
2010 (5.75%) 390,000 tonnes



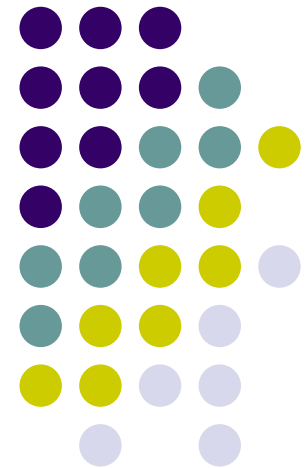
Resources

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

Facts

- ✓ ***High subsidy levels for cereals & corn cause market distortions***
- ✓ ***CAP reform***
- ✓ ***Biorefineries in sugar industry, etc.***
- ✓ ***High yields for sweet sorghum***

Cost analyses for selective crops



Crops for biodiesel

Cost analysis



	Rapeseed (irr)	Rapeseed (non- irr)	Sunflower (irr)	Sunflower (irr)
Yields (kg/strema)	300	180	300	175
Price (€/tonne)	400	400	250	250
Gross income (€/strema)	120	72	75	43,75
Total production costs (€/strema)	124,42	97,92	84,69	58,19
Profit before subsidies (€/strema)	-4,42	-25,92	-9,69	-14,44
Subsidies(€/strema)	29,39	29,39	29,39	29,39
Profit after subsidies (€/strema)	24,97	3,47	19,70	14,95

Crops for biodiesel

Vegetable oil prices from industrial production in Greece



	Euro/kg
Unrefined soya oil	0.40
Refined soya oil	0.48
Unrefined cotton seed oil	0.41
Refined cotton seed oil	0.51
Refined sunflower oil	0.76
Refined palmoil	0.62

Source: NSSG, 2001

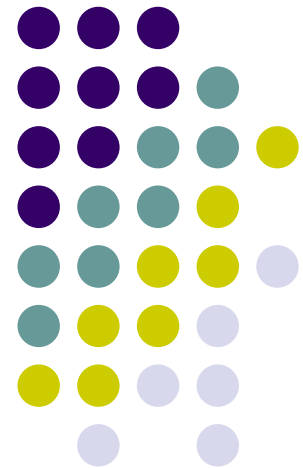
Crops for bioethanol

Cost analysis

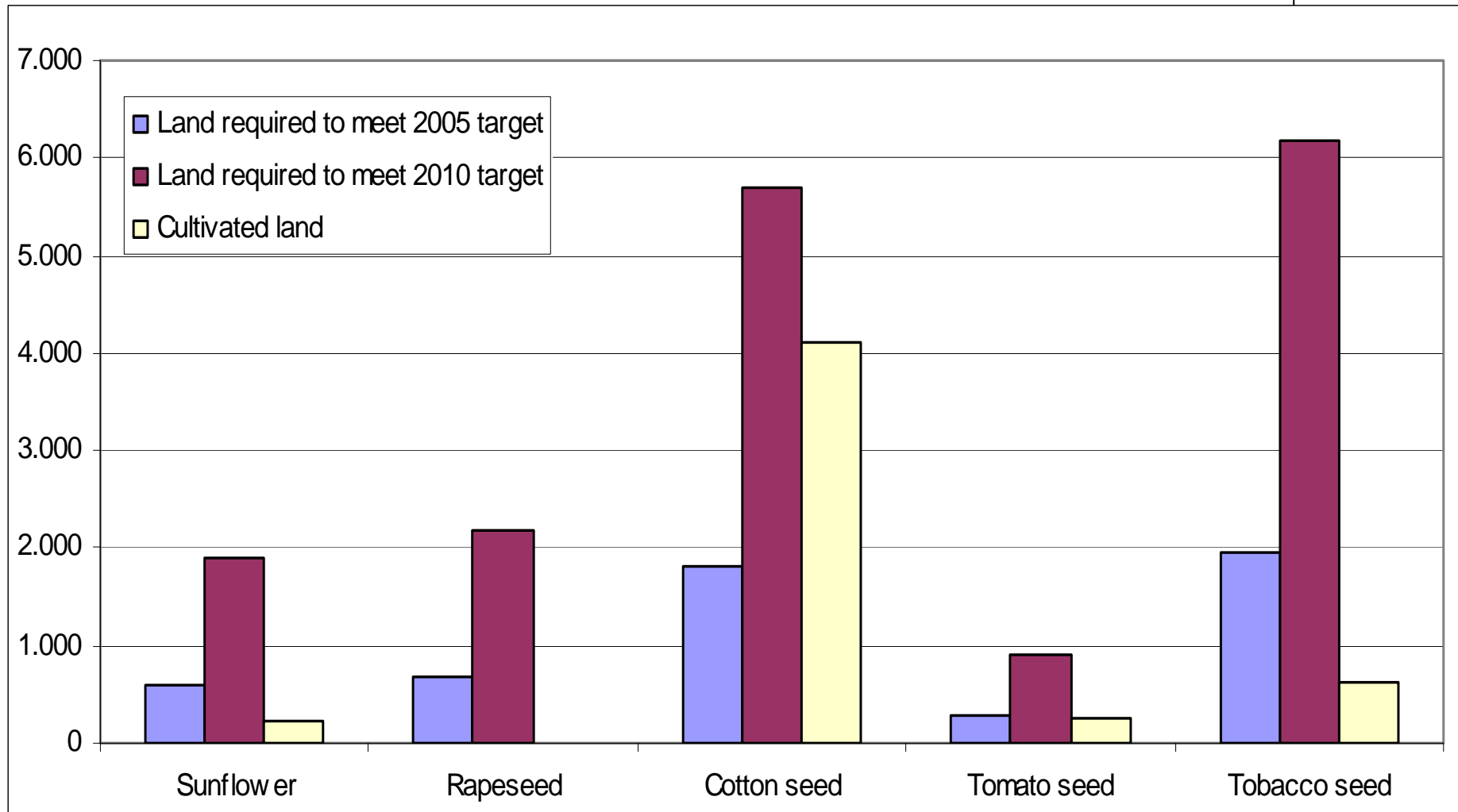


	Durum wheat (irr)	Durum wheat (non- irr)	Sweet sorghum	Sugarbeet	Corn
Yields kg/strema)	550	300	7.000	6.700	1.172
Price (€/tonne)	130	130	20	50	132
Gross income (€/strema)	71,5	39	140	335	147,44
Total production costs (€/strema)	98,86	72,36	122,96	272,92	179,19
Profit before subsidies (€/strema)	-27,36	-33,36	17,04	62,1	-31,75
Subsidies (€/strema)	51,05	51,05	26,02		59,02
Profit after subsidies (€/strema)	23,69	17,69	43,06	62,1	27,27

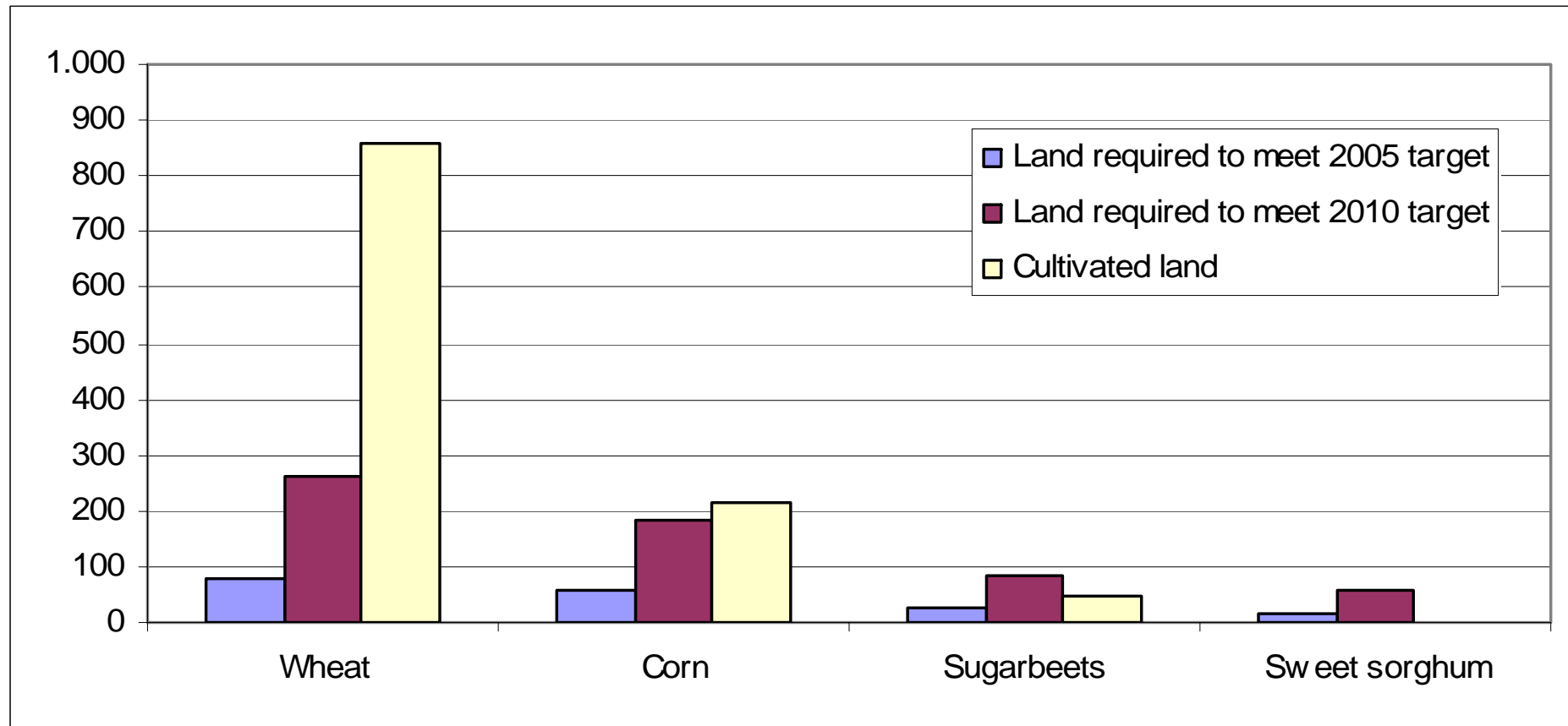
Scenarios to reach the 2003/30 Directive



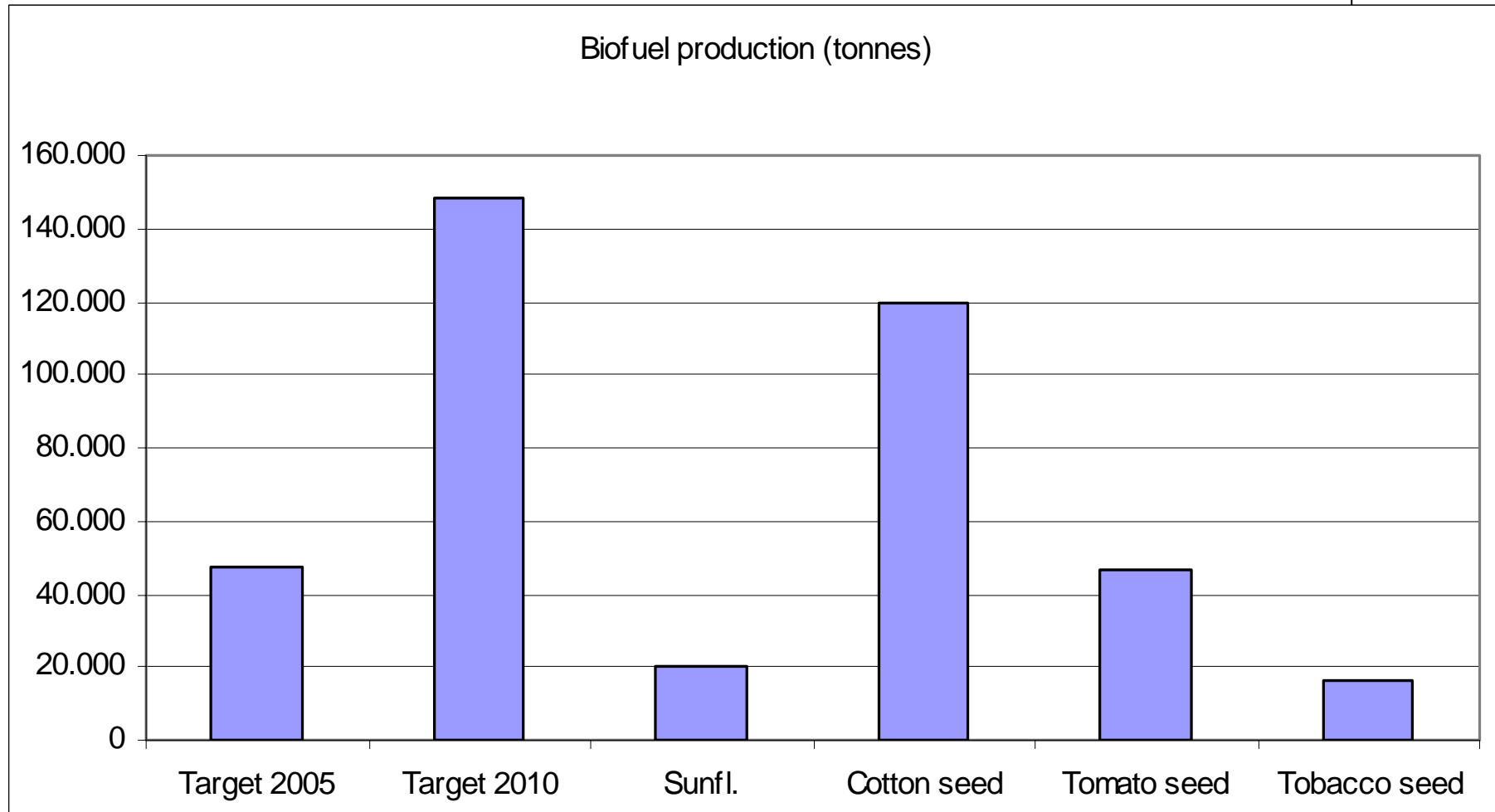
Biodiesel- Land issues (1,000 ha)



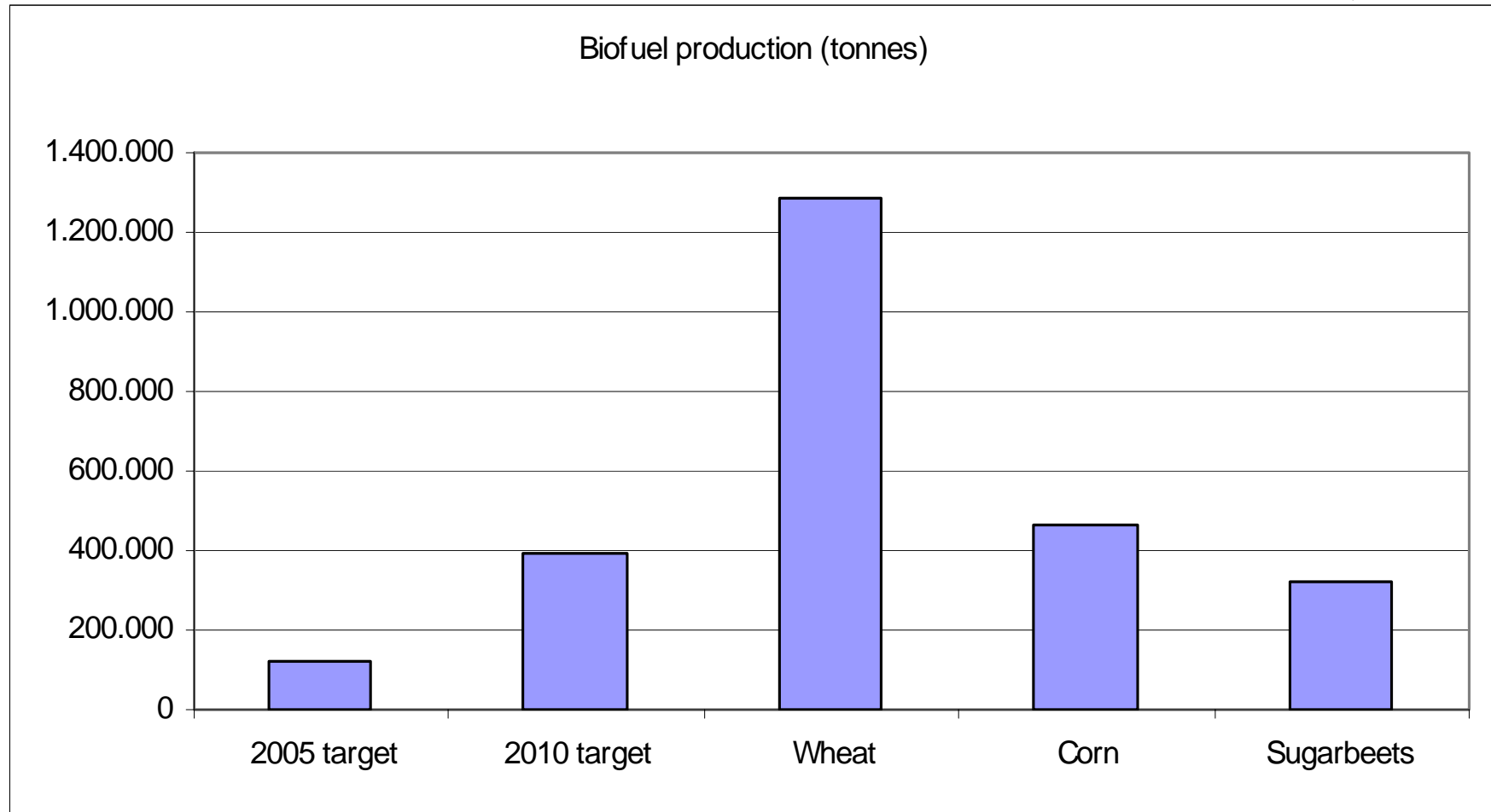
Bioethanol- Land issues (1,000 ha)



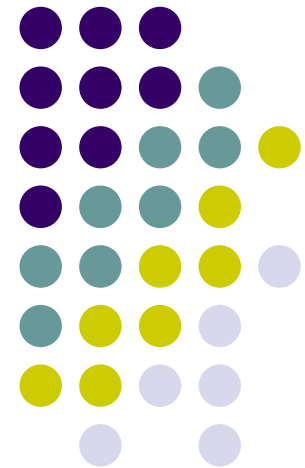
Biodiesel from current resources



Bioethanol from current resources



International costs of biofuels



Estimated resource costs for 2002 in cents euro/liter (source: www.dti.gov.uk)



Option & Fuel type	Feedstock	Source	Costs (euro/liter)		
			Product	Distrib'n	Total
1. Biodiesel	Oil seeds	US	49.86	4.82	54.68
		EU15	61.79	4.55	66.33
2. Biodiesel	Oil seeds – UK production	US	49.86	9.18	59.04
		EU15	61.79	8.34	70.13

Estimated resource costs for 2002 in cents euro/liter (source: www.dti.gov.uk)



Option & Fuel type	Feedstock	Source	Costs (euro/liter)		
			Product	Distrib'n	Total
3. Bioethanol	Wood – Acid hydrolysis	US	32.18	4.47	36.63
4. Bioethanol	Straw - Acid hydrolysis	EU15	61.68	4.20	65.88
5. Bioethanol	Wheat	EU15	44.87	4.20	49.08
6. Bioethanol	Corn	US	23.42	4.47	27.89
7. Bioethanol	Sugar cane	Brazil	18.90	4.47	23.37
8. Bioethanol	Sugar cane – UK production	Brazil	65.57	6.93	72.50
9. Bioethanol	Sugar beet	EU15	51.06	4.20	55.26