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The IENICA Project and Bioplastics





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Drivers for non food crops include:-

- * sustainability of agriculture, the rural economy and industry at large
- * environmental protection
- * legislation and cost of non-compliance
- * public opinion
- * international agreements of various types but with the common resolution of demanding renewable sustainable feedstocks eg Kyoto; WTO discussions.



The development of non-food crops in recent decades was caused by the Common Agricultural Policy of EU and was essentially an alternative land use for cereals, especially wheat, and oilseeds, primary oilseed rape and sunflower.



Projected EU Cereal Intervention Stocks under Agenda 2000 (million tonnes)

	97/ 98	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	03/ 04	04/ 05	05/ 06	06/ 07
Wheat	3	7	12	16	20	25	31	40	50	60
Course Grains	11	13	26	15	11	8	6	6	7	9
Total	14	20	38	31	30	37	38	46	57	70

Source: Timms (1999)



IENICA



Market opportunities

Sector segments discussed are:

- Oils
- Fibres
- Carbohydrates
- Speciality Products
- Proteins



Oils

- Overall usage of vegetable oils and animal fats in the non-food sector of EU-15 is approximately 3 million tonnes per annum.
- Bio-lubricants – the potential EU market is approximately 370,000 tonnes/annum.
- Bio-printing inks - the EU market is in excess of 120,000 tonnes/annum.
- Bio-solvents – the EU solvent market is approximately 4 million tonnes
- Linoleum - the EC demand for linoleum is likely to rise to 56 million m² by 2003.



Fibres:

- clothing - no significant opportunities
- cars/aircraft - about 350,000 tpa fibre
- low value uses eg geotextiles?



Carbohydrates

- * Starch markets in EU and elsewhere are well developed and organised.
- * 3.7 million tonnes is in the non-food sector, 1.4 million tonnes in paper and cardboard making, 1.1 million tonnes in plastics and detergents and 1.2 million tonnes in fermentation and other technical uses.



Speciality Products

Market segments include:

- Essential oils
- Pharmaceuticals
- Popular health products
- Colourants and dyes
- Perfumes
- Personal care/beauty products
- Novel plant protection products
- Intermediates for processing



Some speciality products markets

- * Essential oils markets worldwide are approximately 45,000 tonnes/annum.
- * Aromatic plants have a world market > 50,000 tonnes/annum.
- * Estimates of medicinal plant markets suggest 70,000 tonnes/annum.
- * European collection of aromatic and medicinal plants amounts to 20-30,000 tonnes/annum.
- * The European herbal supplements market is valued in excess of €7 billion/annum.



And Bioplastics

- Packaging (30 million tpa EU -
25,000 tpa bio.)
- Moulded materials (? market size)
- Automotive industry (But EVL)



Revision of Directive (04/62/EC)

	2001 Directive	2006 Directive
	Targets	Targets
Overall Recovery	50 - 65%	60 - 75%
Overall Recycling	24 - 45%	55 - 75%

Material Specific Recycling

Glass	15%	60%
Paper and Board	15%	55%
Metals	15%	50%
Plastics	15%	20%

(Mechanical and Chemical recycling only)



Conclusions : 1

Without doubt scientific and technological developments have developed so as to permit the exploitation of biorenewable products.

Some key areas are still incomplete:

- * political and administrative co-ordination of effort
- * awareness of opportunities in all sectors of industry
- * assessment of environmental benefits
- * focussed technology transfer



Conclusions : 2

We can exploit significant new markets if we

- link producers and end users
- focus on technical specification



