

Biotechnology in Lithuania

Science and Industry

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Institutions related to biotechnology in Lithuania

Biochemistry and modern biotechnology (location - Vilnius)

Scientific institutions	
Institution	Activities
Institute of Biotechnology	DNA - Protein interactions; DNA methylases; Restriction endonucleases; Drug design; Molec. vaccines & diagnostic tools, bioinformatics...
Institute of Biochemistry	Biosensors, Enzymology, Genetic engineering
Dept. Biochemistry & Biophysics, Vilnius University	Biochemistry - Basic Research
Dept. Chemistry & Bioengineering, Vilnius Gediminas Techn.University	Recombinant proteins, Bioinformatics
Manufacturing companies	
Fermentas UAB	Restriction endonucleases and other Instruments for genetic engineering and molecular biology
Sicor Biotech UAB	Recombinant protein pharmaceuticals
Biocentras UAB	Environmental services
Biosinteze UAB	Bulk enzymes (amylases, proteases, etc.)

Institute of Biochemistry (established in 1967)



Institute of Biotechnology (1975)

UAB “Fermentas” (1994)



UAB “Sicor Biotech” (1994)



Institutions related to biotechnology in Lithuania

Medical institutions		
Institution	Location	Activities
Dept. Human & Med. Genetics, Vilnius University	Vilnius	Molecular diagnostics of hereditary diseases
Institute of Immunology, Vilnius University	Vilnius	Molecular immunology
Institute of Oncology, Vilnius University	Vilnius	Cancer diagnostics – molecular methods
Agricultural institutions		
Lithuanian Institute of Agriculture	Kedainiai	Agro-biotechnology
Lithuanian Institute of Horticulture	Kaunas	Agro-biotechnology
Lithuanian Forest Research Institute	Kaunas	Forest biotechnology
Dept. Crop Sci., Fac. of Agronomy, Lithuanian U-ty of Agriculture	Kaunas	Agro-biotechnology
Dept. Animal Breeding & Genetics, Lithuanian Veterinary Academy	Kaunas	Animal genetics
Lithuanian Institute of Animal Sci.	Radviliskis	Animal feeds

Institutions related to biotechnology in Lithuania

Other institutions		
Institution	Location	Activities
Institute of Botany	Vilnius	Industrial yeasts, Biodeterioration, Plant genetics
Institute of Ecology, Vilnius University	Vilnius	Birds population genetics
Dept. Process Control, Kaunas University of Technology	Kaunas	Optimization and control of lab. & industrial scale biotech (fermentation) processes
Dept. Food Technology, Kaunas University of Technology	Kaunas	Flavors, antioxidants, antimicrobials of plant origin



A European Technology Platform For
SUSTAINABLE CHEMISTRY



July 2004

Formation of Lithuanian National Programm of Industrial (White) Biotechnology (2006-2010)

- **2004 May** – **Working group assembled**
- **2004 October** – **First draft of the programm ready**
- **2005 November** – **The feasibility study ready**
- **2005 December** – **Corrected programm ready**

Biomass of agricultural plants in Lithuania

The main agricultural products (thousands tons per year).

	Average of 2001-2004	2006	2010	2015
Grain	2682	2970	3030	3580
Rape seed	136	322	546	690
Sugar-beet	899	1170	1117	1102

Secondary agricultural production (thousands tons per year).

	Average of 2001-2004	2006	2010	2015
Straw	2757	2900	3000	3600
Rape straw	180	435	737	930
Sugar-beet	540	702	670	661

Potential feedstock for industrial biotechnology in 2010 may reach 1-2 mln. tons of grain, 0.5-0.6 mln. tons of rape seed, 2-2.5 mln. tons of lignocellulosic biomass.

General characteristics of Lithuanian forests

Parameter	1998	2004	2005
Forest land area, thousands ha	1978	2069	2091
Of which plantations, thousands ha	424	464	463
Total growing stock volume, millions m ³	347.6	387.9	393.2
Mean volume per ha, m ³	184	197	198
Total volume of mature stands, millions m ³	59.4	79.6	81.5
Gross annual increment, millions m³	11.6	12.5	12.8
Forest coverage, %	30.3	31.7	32.0

Total amount of forestry residues which may be used as fuel or as raw materials for industrial biotechnology equals 1.70 mln m³ per year (approx. 0.85 million tons). It is expected that short rotation tree plantations will add much to this amount in the future.

Projects for the National Program of Industrial Biotechnology

1. Biomass feedstock

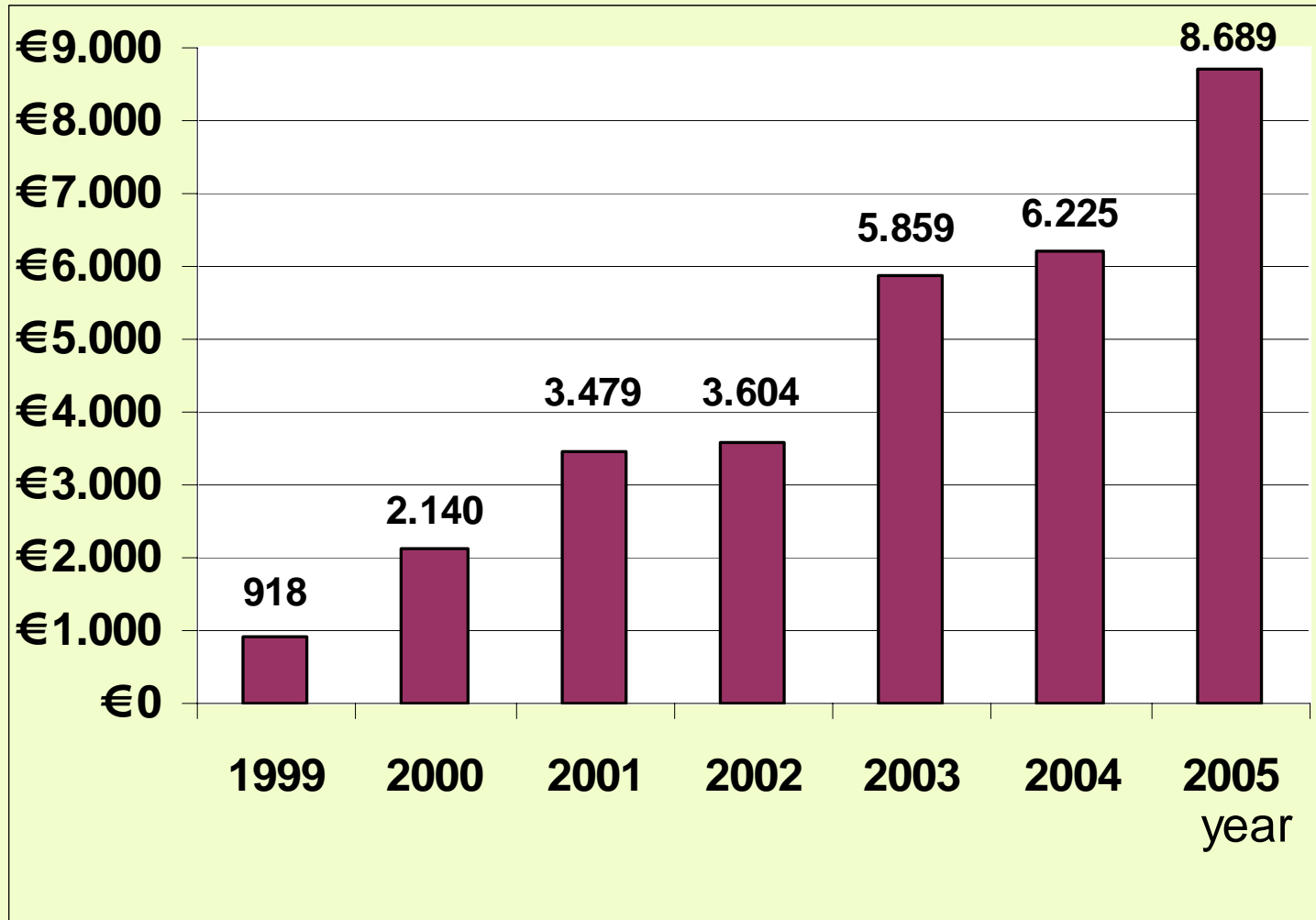
2. Biocatalysts and biotechnological processes

3. Biopolymers. Production, modification and application

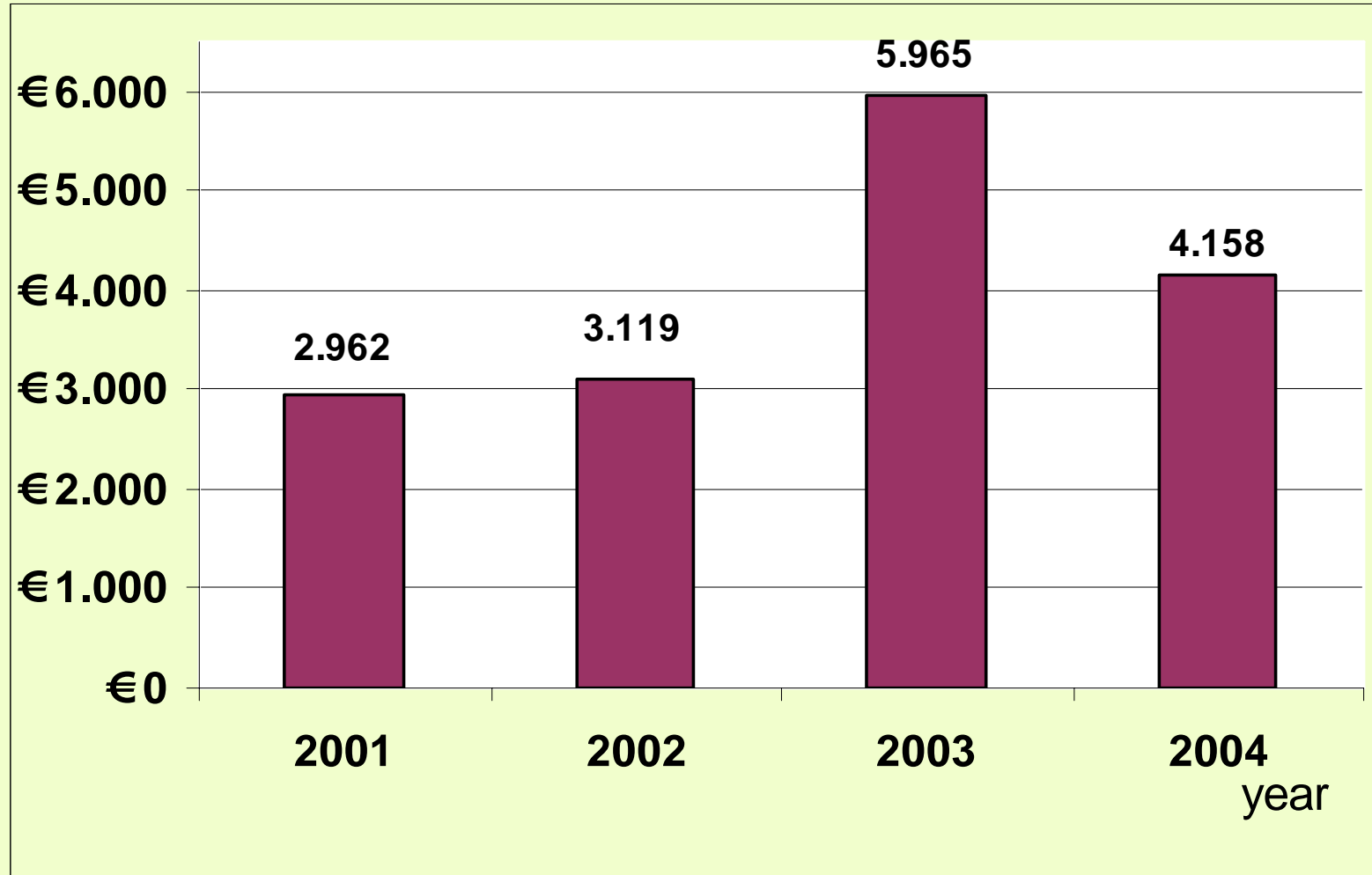
4. Pharmaceutical biotechnology

5. Biofuel

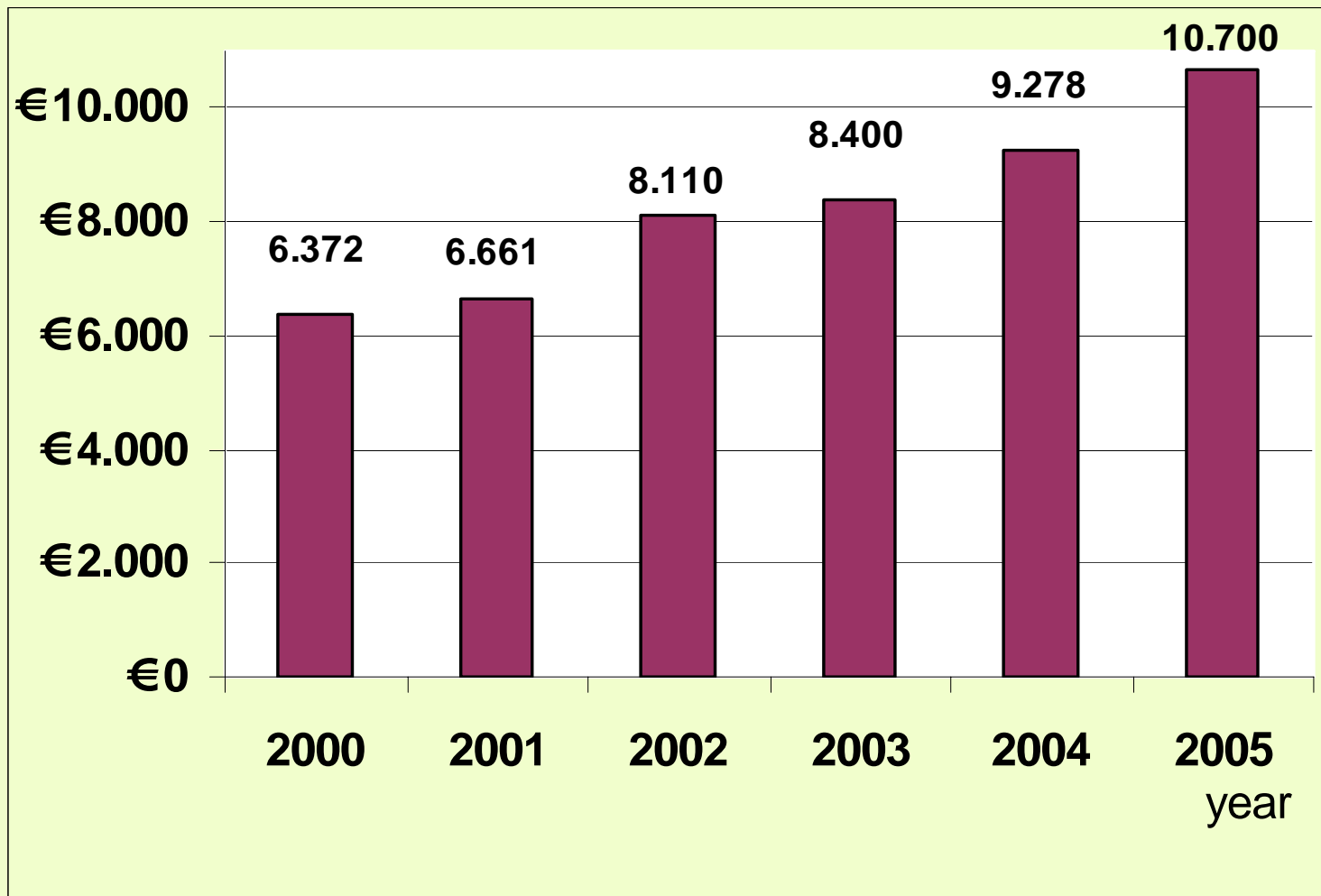
Sales of recombinant proteins by UAB „SICOR Biotech“ (mln. €)



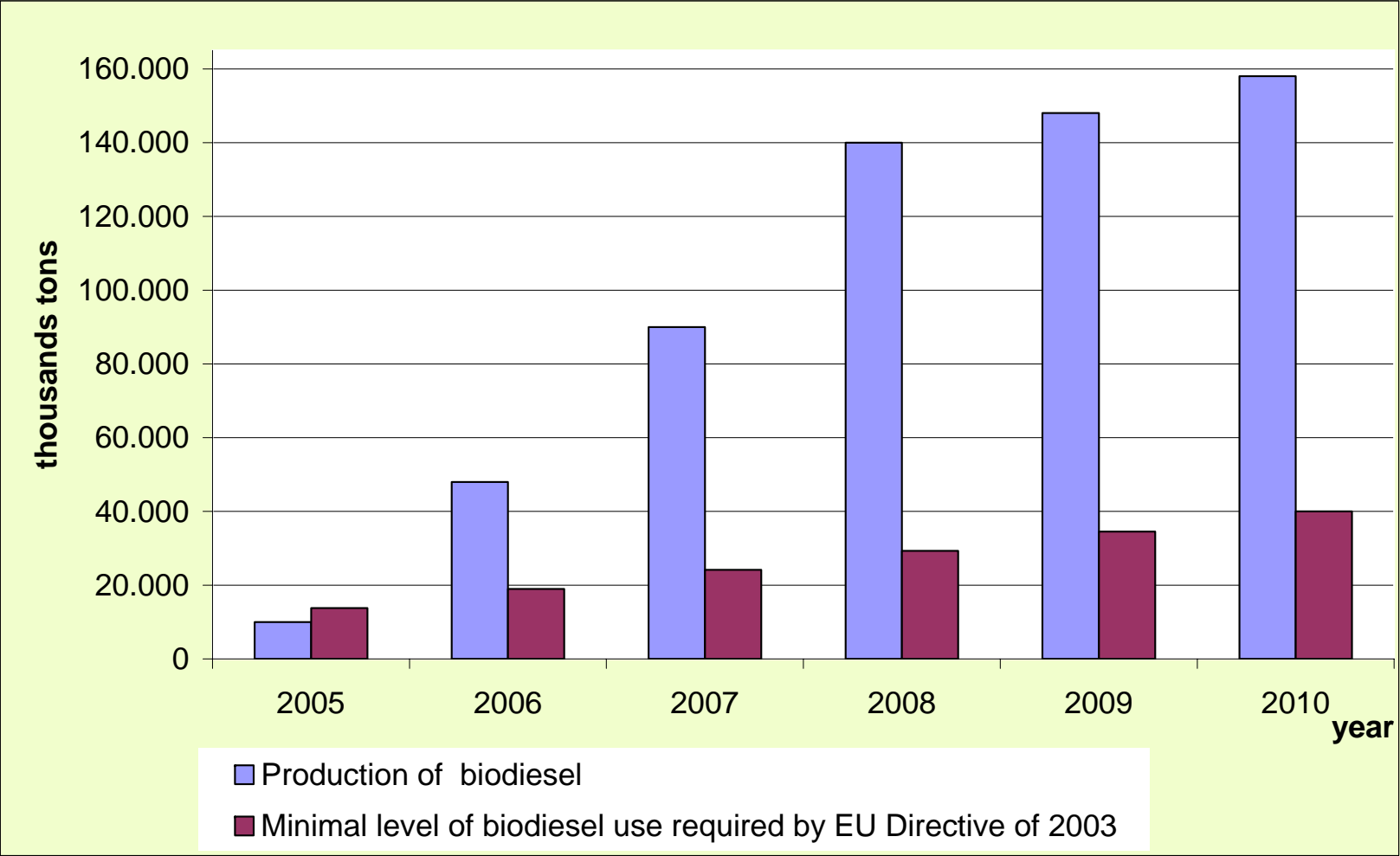
Expences for R&D UAB „SICOR Biotech“(mln. €)



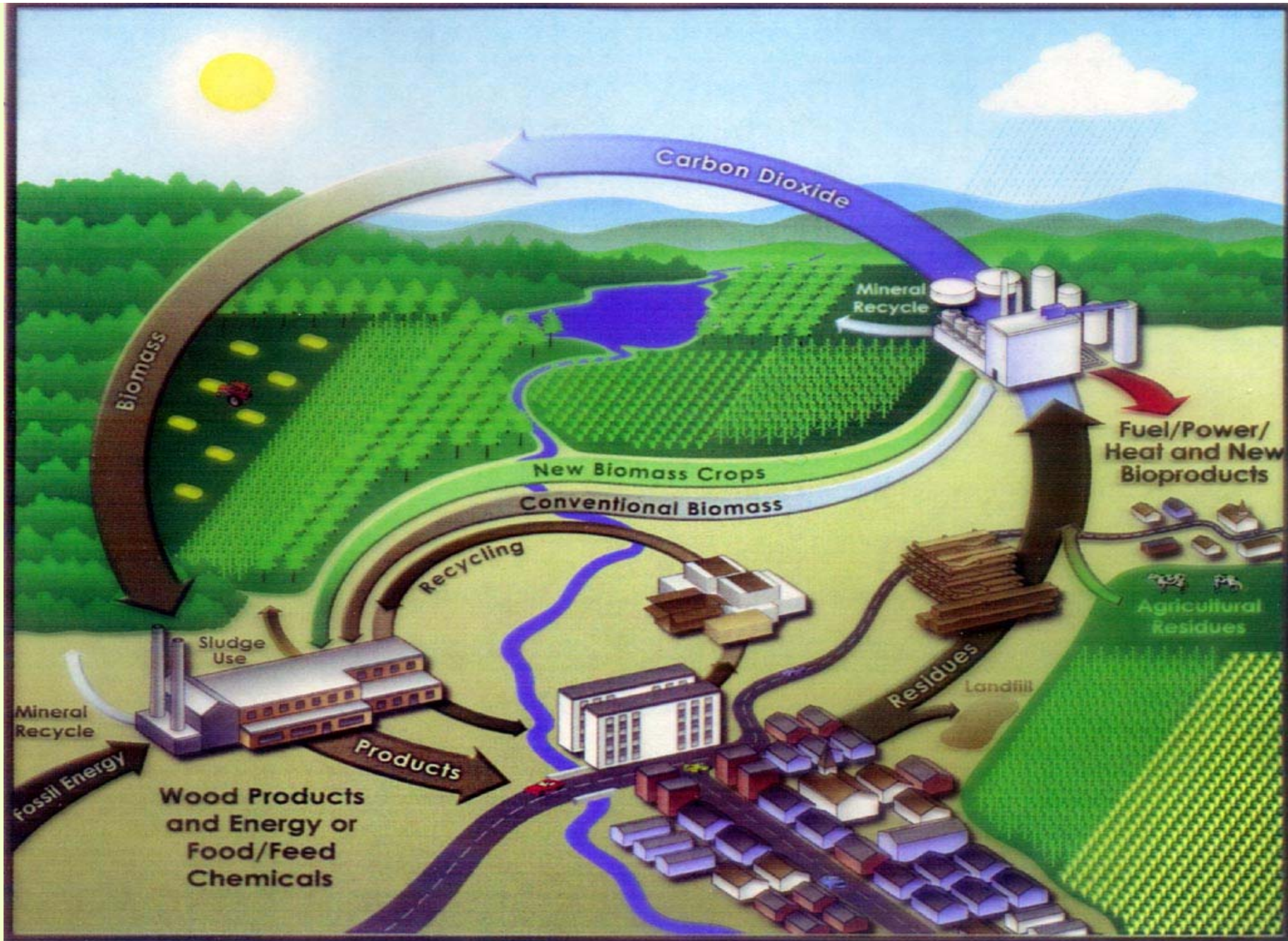
Sales by UAB „Fermentas“ (mln. €)



Production and use of biodiesel in Lithuania



Ačiū už dėmesį



Biorefinery - biokombinatas