



KRAJOWA SPÓŁKA CUKROWA S.A.

BIOFUELS AS AN ALTERNATIVE  
FOR SUGAR INDUSTRY IN POLAND

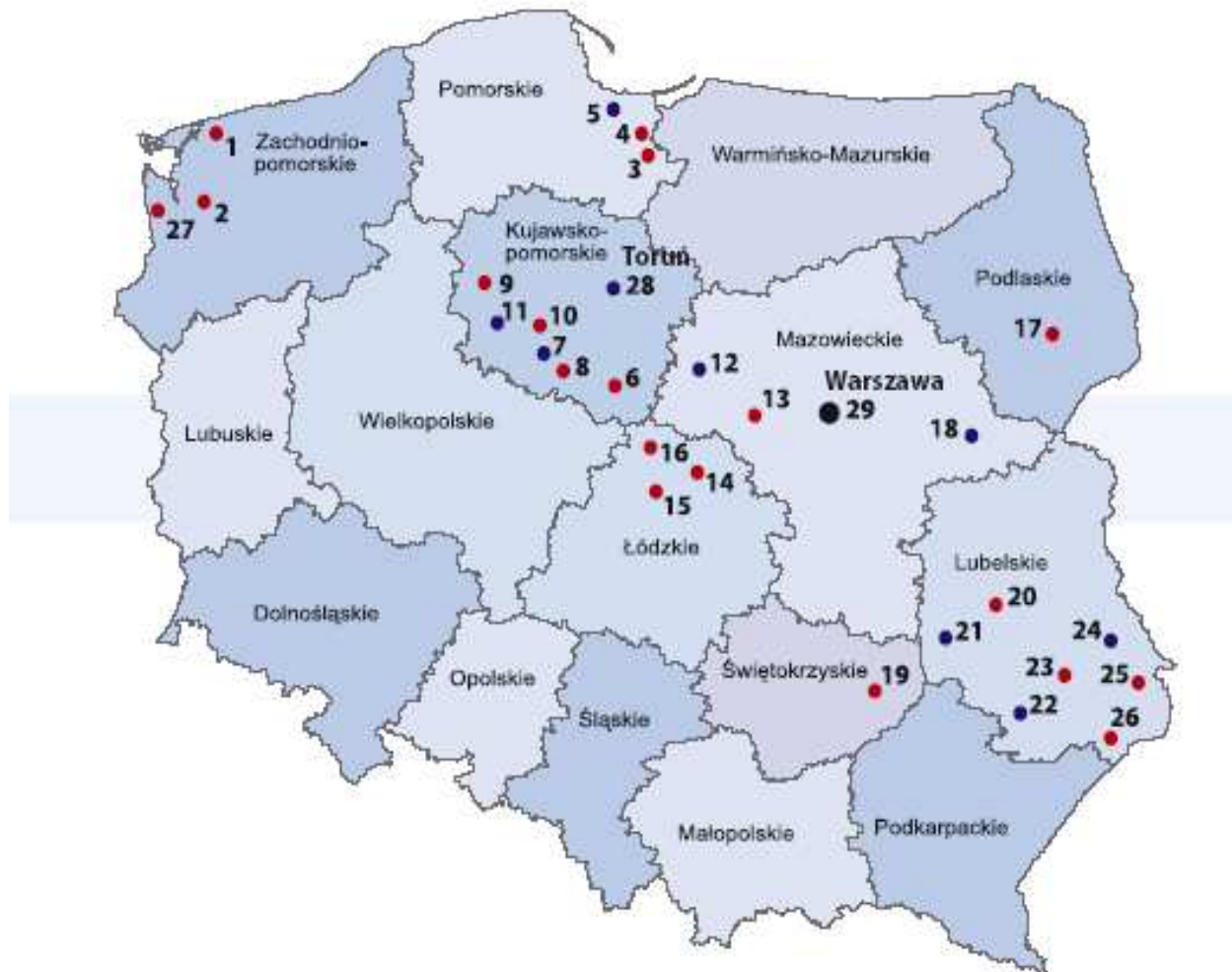
RESIPE

WARSAW, 17.06.2008

# GENERALY PRESENTATION COMPANY KSC S.A.

The company was established 26.08.2002. The company consists of 27 sugar factories, 81,08% is the property of State Treasury. In campaign 2007/08 11 sugar factories worked and 16 was out of quota sugar production. In campaign 2008/09 7 sugar factories will work.

# KSC S.A. Sugar Factories



# Market position

- Share in the sugar market in PL - 39,4 %
- Share in the EU sugar market - 4,0 %

# Quantity of sugar production

2005/06 - 800 000 t

2006/07 - 611 000 t

2007/08 – 722 442 t

# Target KSC S.A

- Sugar production and sales
- Finalizing the restructuring process
- Start of biofuel production

Maintenance of the first position on the sugar market in PL and making use of the opportunities of development

# Strong points of KSC S.A

- The first place in PL among 5 sugar groups
- Possibility of contraction of large amounts of sugar beets – 2 regions :
  - lubelskie
  - kujawsko – pomorskie
- Production base and overcapacity of production
- Experience and qualifications of employees

# Elements of strategy

Building of bioethanol plant:

1. Small-scale pilot plant of production capacity 20 million l/yr
2. Industrial plant of a capacity 126 million l/yr (100,000 t/yr)



# Regulation and legalisation

- EU regulations for biofuels – directives, strategy
- Current legal acts in Poland:
  - Law on biofuels from 25.08.2006
  - implementing regulations of MF and MG

Long-term program of biofuels promotion for the period 2008-2014

# Sugar quotas [ thous.of tonnes]

## POLAND

• Qouta	1.672
• Additional quota purchase	+100
	total: 1.772
• Reduction UE (13,5%)	– 239
in 2007/08	total: 1.533

# KSC S.A

- Quota 659,5
- Additional quota purchase +39,4

total: 698,9

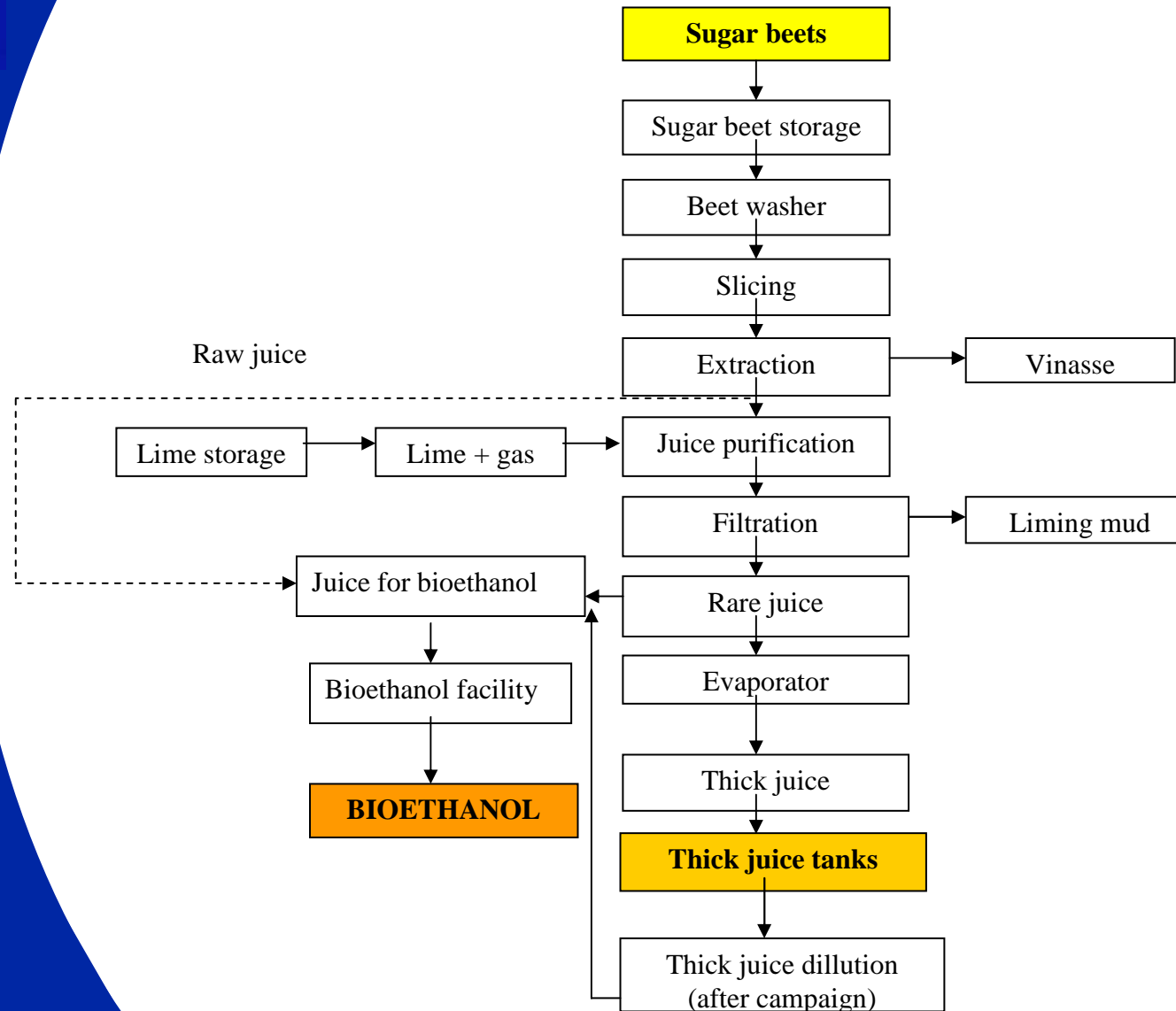
Reduction UE (13,5 %) - 94,2

in 2007/08

total: 604,7

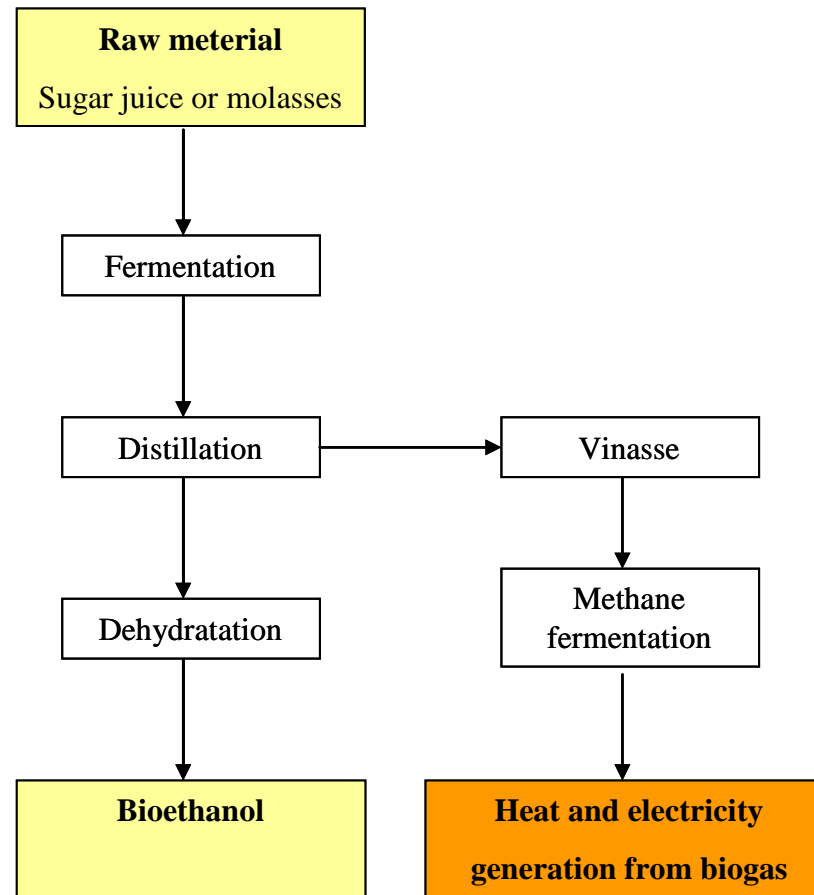


## Block scheme of sugar juice production from sugar beet





## Block scheme of bioethanol production from molasses and sugar juice.



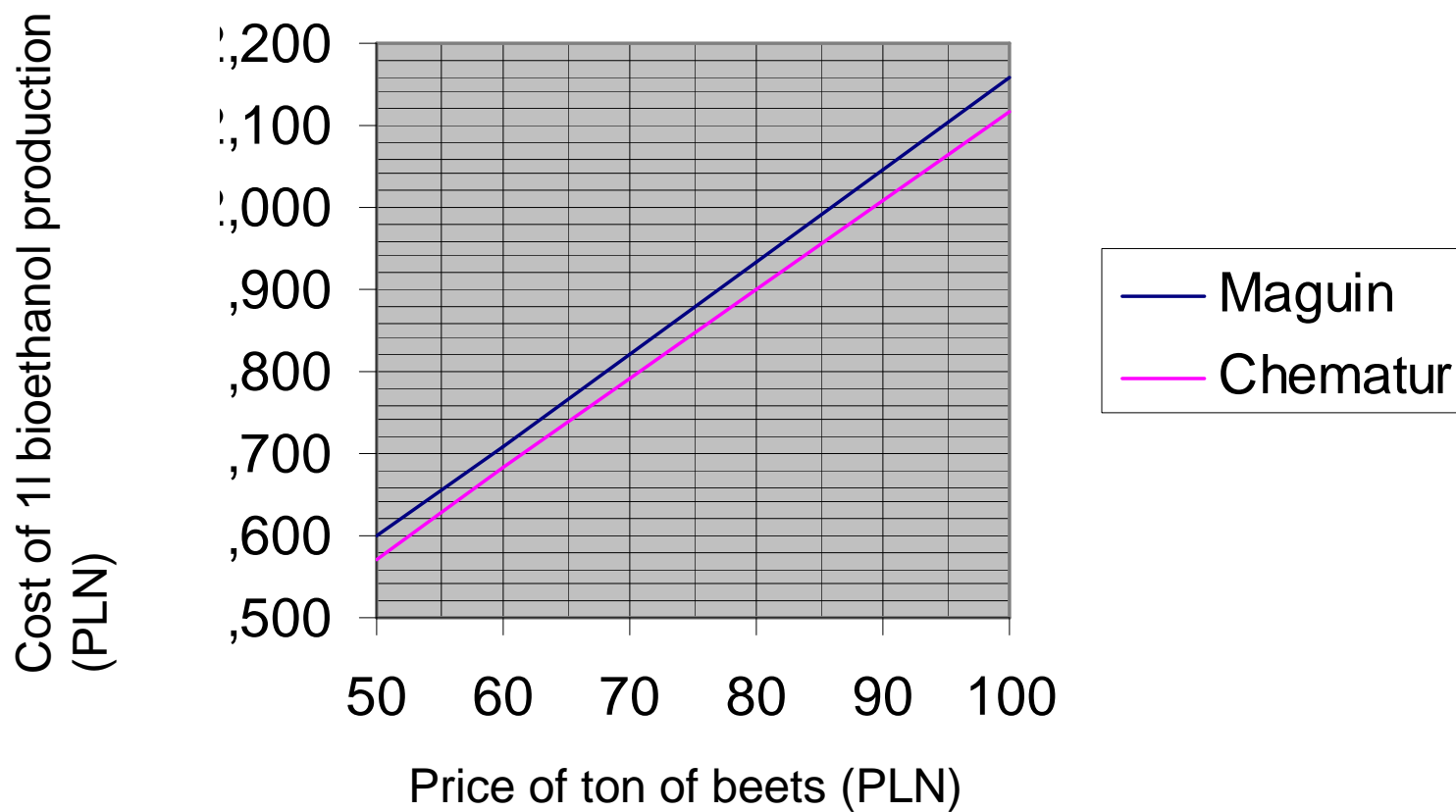


## Profitability of biofuels production for different costs of raw material

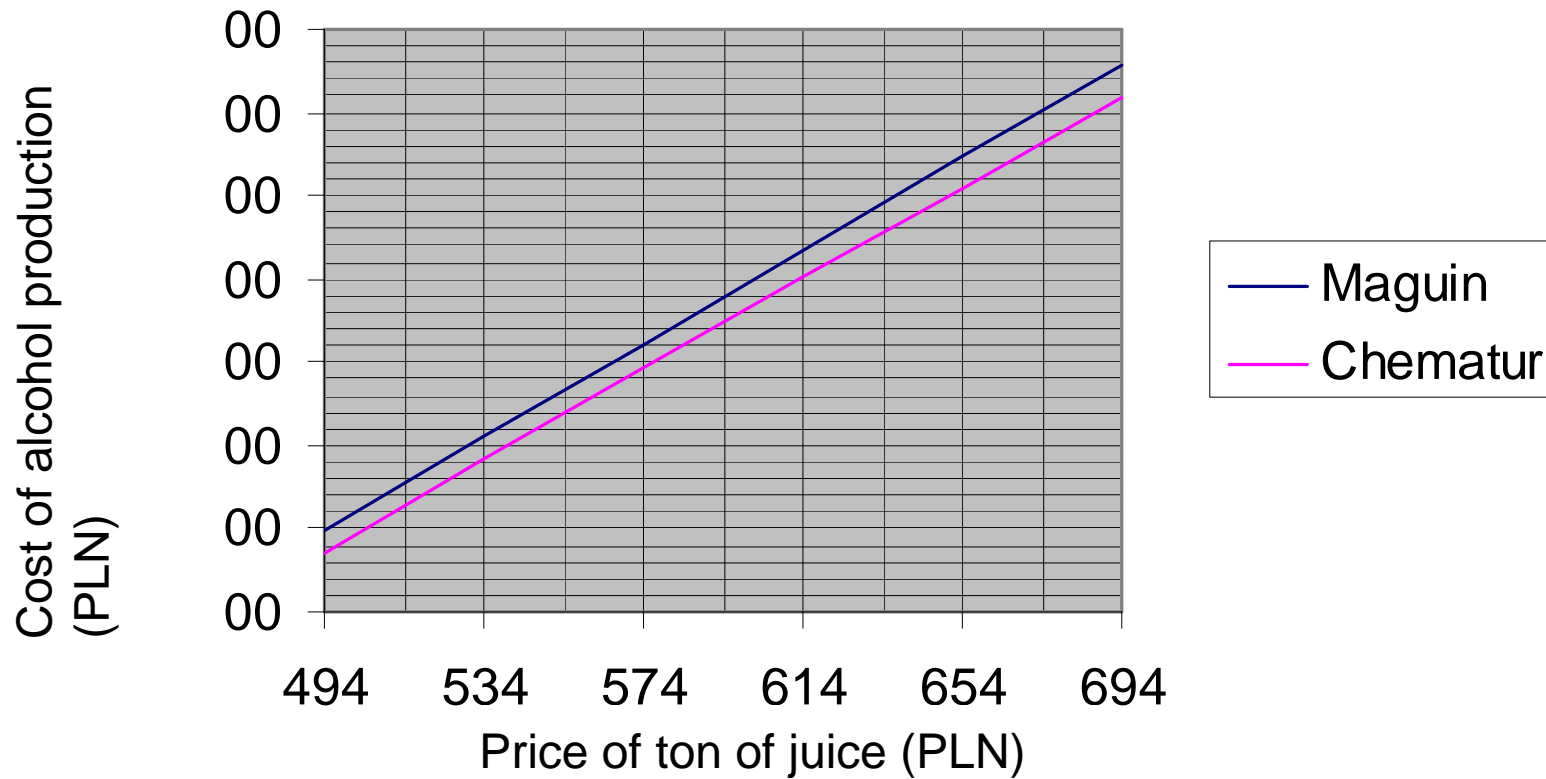
Raw material	Yield (t/ha)	Price of agricultural raw material			Earnings from production PLN/ha	Raw material efficiency Ton of raw material/1000 dm <sup>3</sup> biofuels	Raw material demand 100 000 yr Thousand of t	Cultivation area Thousand of ha	Cost of raw material PLN/ dm <sup>3</sup> biofuels
		Year	Euro	PLN					
<i>BIOETANOL</i>									
Sugar beets	42,8	2006	32,90	115,15	6414	10,0			1,15
	48,3	2007	29,80	104,30	5810	10,0			1,04
	55,7	2008	27,83	96,84	5459	10,0	1 260	22,62	0,97
		2009	26,30	92,05	5127	10,0	1 260	22,62	0,92
				17,14	60	3342	10,0	1 260	29,62
Rye	2,8			700	1960	3,0	378	135,00	1,75
Maize	6,0			800	4800	2,7	340	56,67	1,81
Wheat	4,2			870	3654	2,4	300	71,43	2,09
Melas				300-375		3,4	428		1,02-1,27

Prices for April 2008

## Cost of bioethanol production depending on beet price



## Cost of Bioethanol production depending on juice price with 65% sugar content





# UTYLISATION OF BY-PRODUCT

- Winasse – for biogas production
- Pulp – for fodder or biogas production

# EUROPE

1. Leading bioethanol producers:
  - Spain
  - France
  - Germany
  - Sweden
2. Planning: Greece, Belgium, Czech Republic, UK and other countys

# Summary

1. Europe: conversion of sugar factories
2. Future: polygeneration
3. Bioethanol efficiency – the highest for sugar beet per land unit
4. Cost of raw material – crucial factor
5. Bioethanol plant of 126 mln l/yr by KSC gives 1st place among bioethanol producer in Poland
6. Future: bioethanol from biomass (second generation biofuels)