“Bioethanol Industry Perspectives in Brazil"

RCN Conference on Pan American Biofuels & Bioenergy Sustainability

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Issues to be addressed

- Recent efforts by the Brazilian private and government sectors
- Technology advancements
- R&D investments
- Market: price and exemptions

Recent efforts on bioenegy and biofuel iniciatives

- 450 years of sugarcane production
- 40 years as an feedstock for energy – ethanol
  - The ethanol production
  - The flex fuel vehicle
  - The cogenaration

Technology advancements

- Sugarcane breeding – 1% increase yield/yr
- Agriculture mechanization
- Industry efficiency for sugar, ethanol and cogeneration
- Flex-fuel vehicles

R&D investments

- Sugarcane breeding programs – RIDESA, IAC, CTC
- Mechanization – CTBE, Univesities
- Industry efficiency for sugar, ethanol and cogeneration (fermentation) – Private industry
- Flex-fuel vehicles – Auto industry

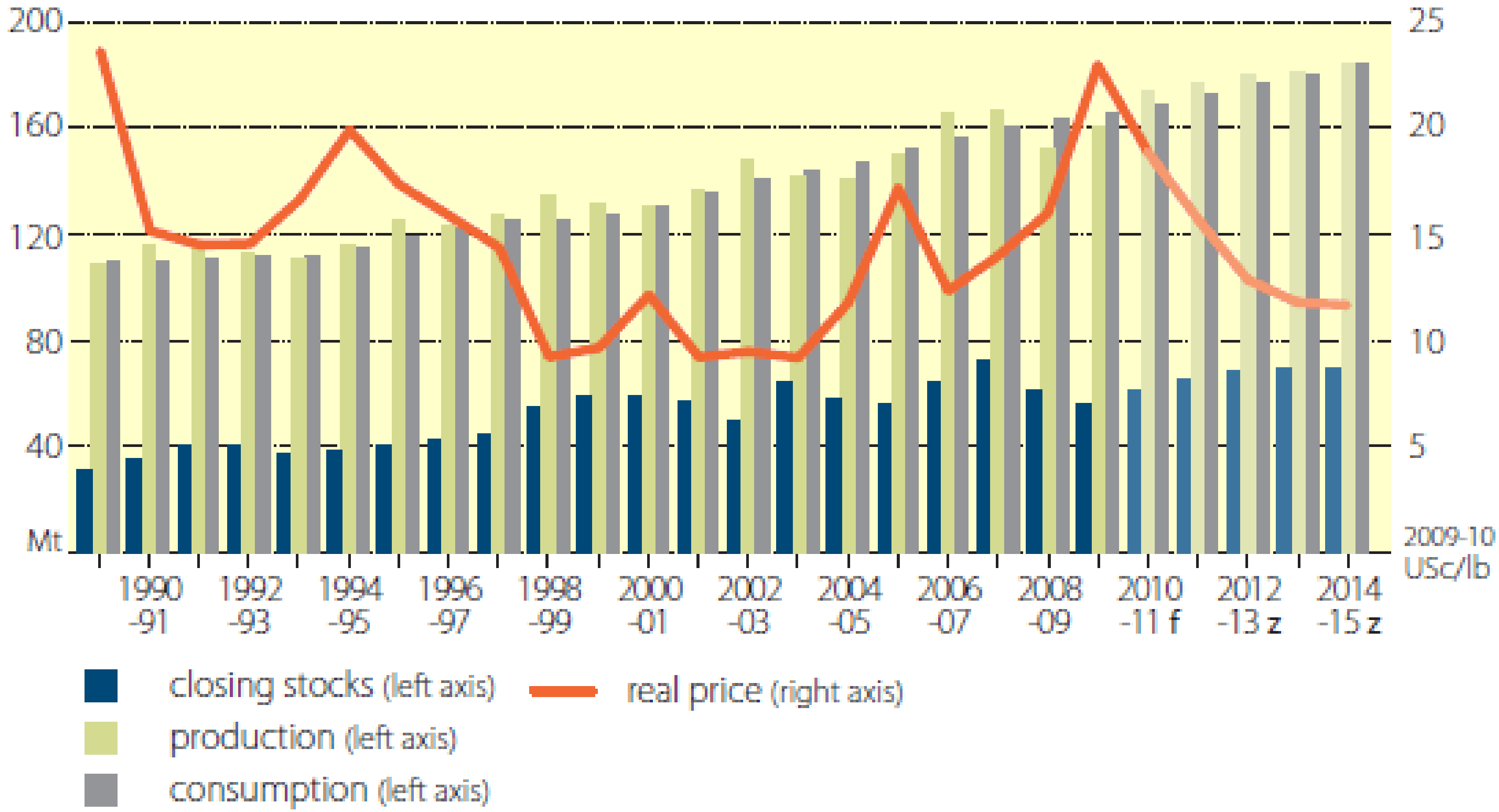
R&D demands

- 2nd and 3rd generation biofuels and bioproducts – Feedstock production and new options, conversion, environmental and social and economic issues
- Research and Innovation networks – RCN, BiofuelNet Canada
- Science without Borders – 2nd phase

Market issues

- Land price
- Ethanol cost production
- Sugar demand and price
- High demand for investments
- Tax and exemptions
- Debt ceiling for the bioethanol sector
- Public perception

World sugar market indicators



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Commodity Price Index
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Commodity Food and Beverage Price Index
Commodity Food Price Index
Commodity Industrial Inputs Price Index
Commodity Metals Price Index
Commodity Non-Fuel Price Index
Crude Oil (petroleum), Price index
Energy
CBOT Denatured Fuel Ethanol
Central Appalachian Coal
Coal, Australian thermal coal
Coal, South African export price
Coal, Colombia
Crude Oil (petroleum)
Crude Oil (petroleum); Dated Brent
Crude Oil (petroleum); Dubai Fateh
Crude Oil (petroleum); West Texas Intermediate
Diesel
Gasoline
Sugar, U.S. import price Monthly Price - US cents per Pound
Range 6m 1y 5y 10y 15y 20y 25y 30y
Dec 2013 - Jun 2014: 5.200 (25.06 %)
27.25
26.49
25.74
24.99
24.23
23.48
22.73
21.97
21.22
20.47
19.71
US cents per Pound
Dec-2013
Jan-2014
Feb-2014
Mar-2014
Apr-2014
May-2014
Jun-2014
Description: Sugar, U.S. import price, contract no.14 nearest futures position, US cents per Pound
Unit: US cents per Pound
Currency: US Dollar
Compare to: Nothing
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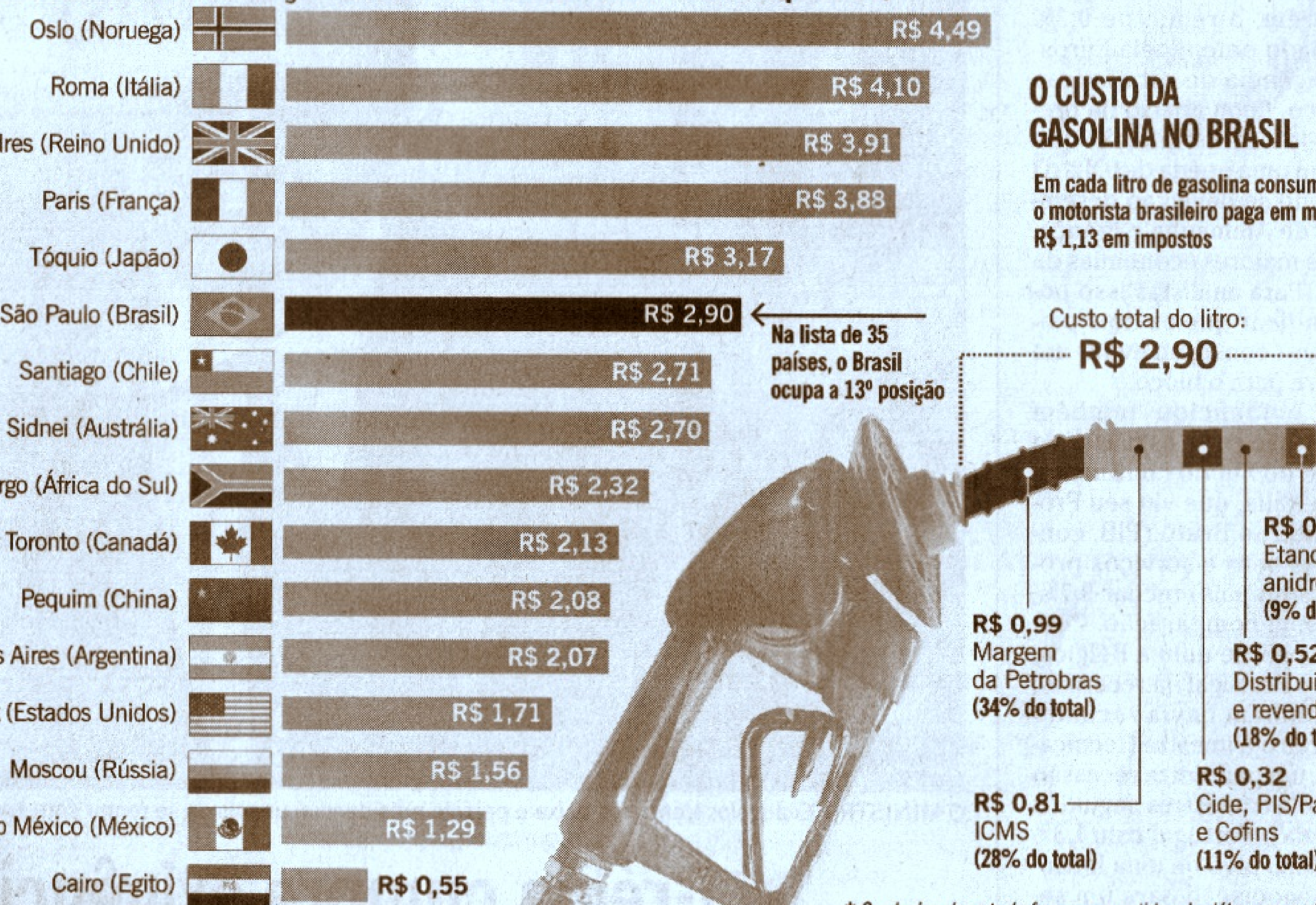
UNS EXEMPLOS DE PREÇO DA GASOLINA COMUM NOS POSTOS (por litro)



* Os dados do estudo foram convertidos de dólares ameri

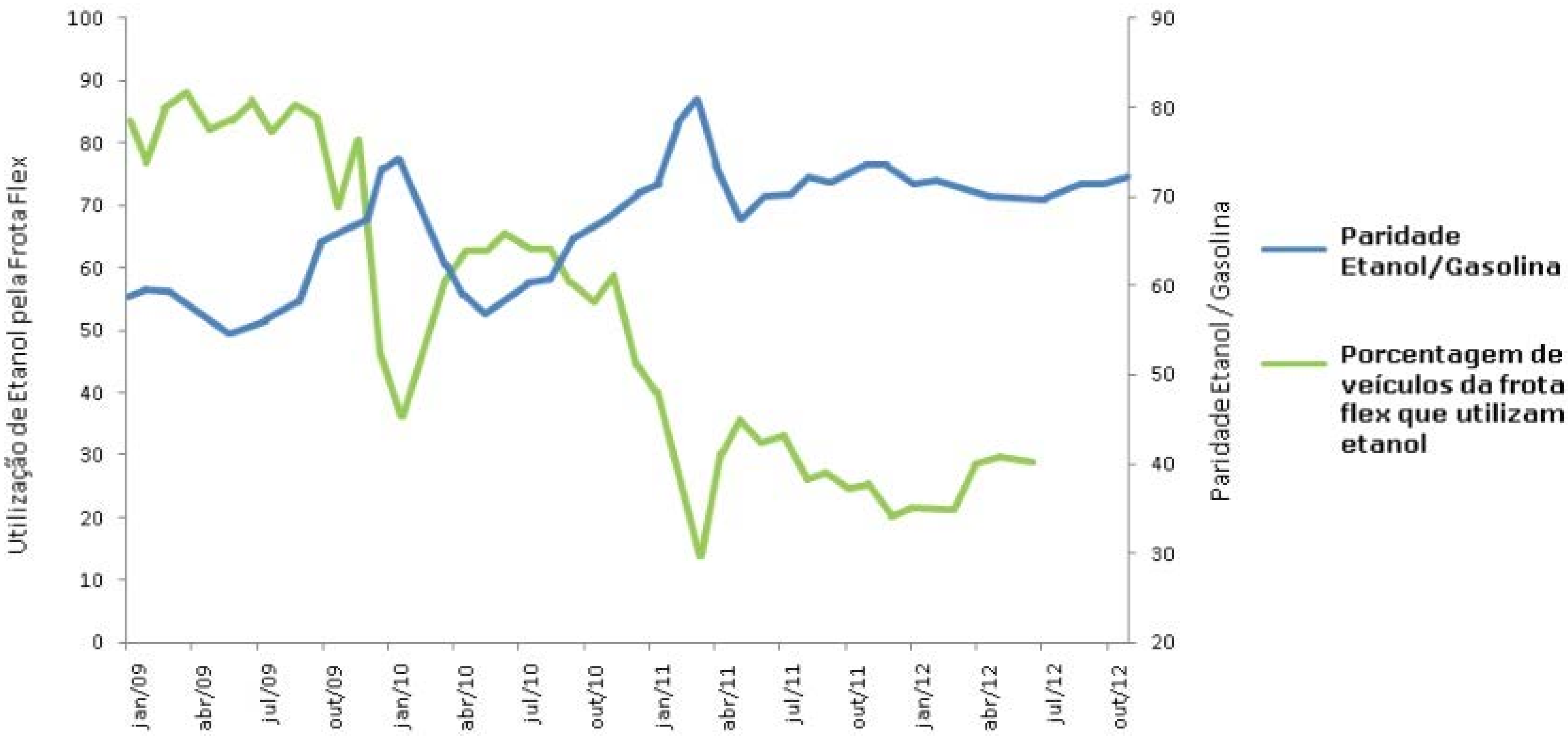
Gasoline and diesel retail prices in the USA and Brasil

USA – gasoline and diesel - retail (AAA), 5/15/14 ($/gallon)			
Regular gasoline	U.S. average	3.65	100
Diesel	U.S. average	3.94	100

Brasil – gasoline and diesel - retail (AAA), 5/15/14 ($/gallon)			
Regular gasoline	Recife	5.13	140
Premium gasoline	Recife	5.35	
Diesel	Recife	4.66	118

Diferencial de preços dos combustíveis no Brasil

Utilização de etanol pela frota flex



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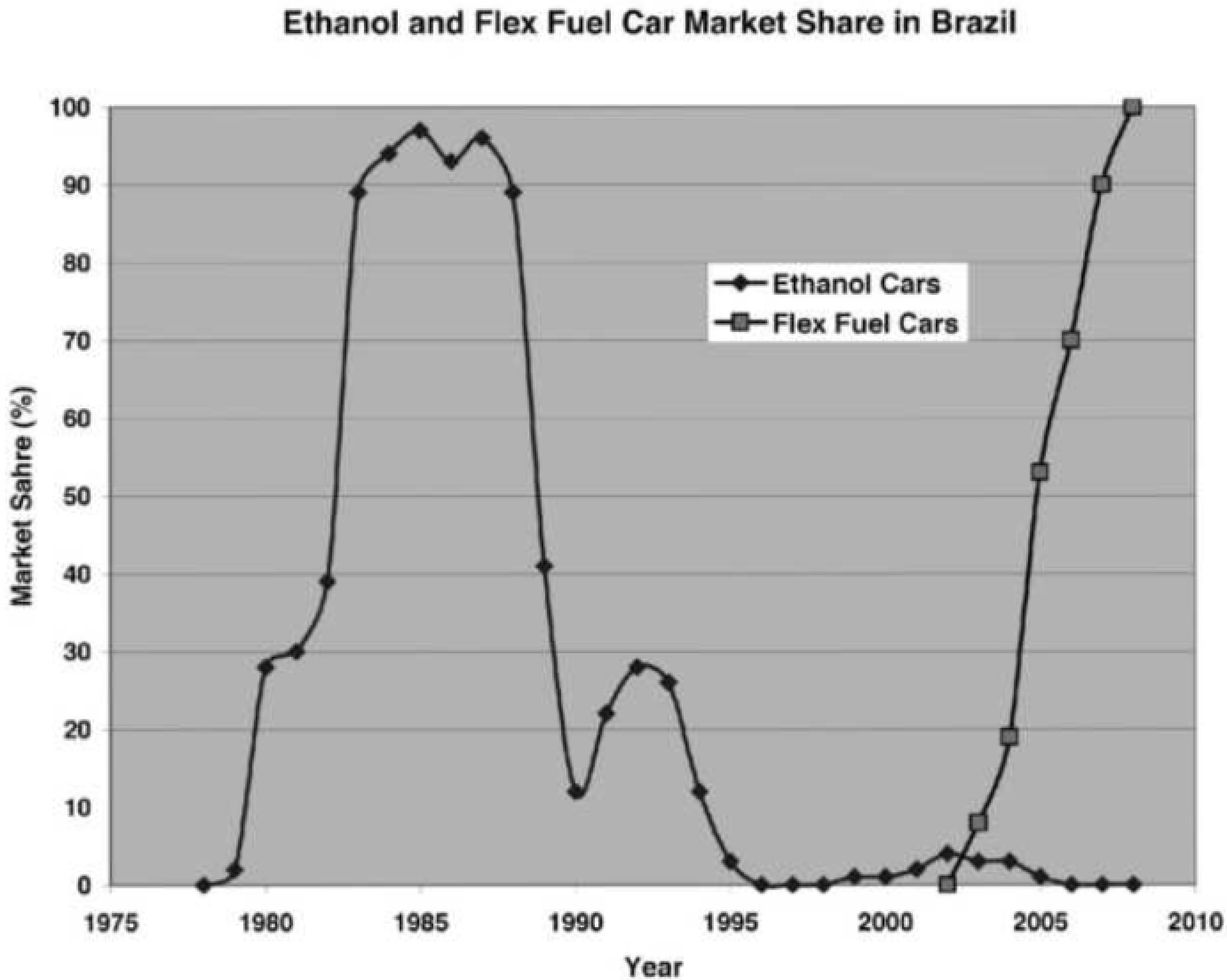
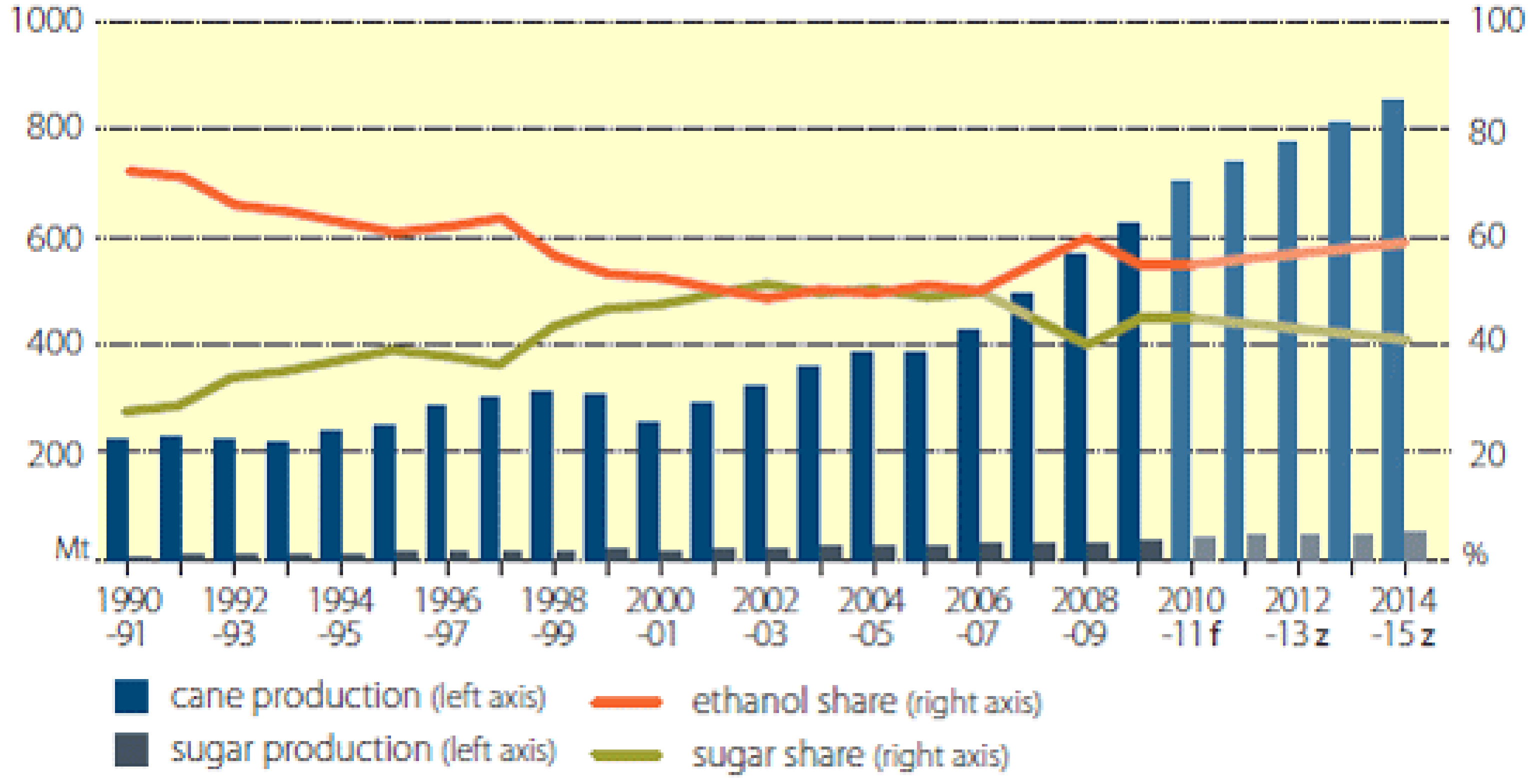
Origem	Motor	IPI Anterior	IPI Reduzido
Nacional	Até 1.000 cilindradas	7%	0%
	Até 2.000 cilindradas flex	11%	5,5%
	Até 2.000 cilindradas gasolina	13%	6,5%
	Até 2.000 cilindradas utilitários	4%	1%
Importado	Até 1.000 cilindradas	37%	30%
	Até 2.000 cilindradas flex	41%	35,5%
	Até 2.000 cilindradas gasolina	43%	36,5%
	Até 2.000 cilindradas utilitários	34%	31%


Ethanol and Flex Fuel Car Market Share in Brazil
Ethanol Cars
Flex Fuel Cars
Market Sahre (%)
Year
100
90
80
70
60
50
40
30
20
10
0
1975
1980
1985
1990
1995
2000
2005
2010

Brazilian sugar cane production and allocation [a]



a April to March years.

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Sugarcane, sugar and ethanol production UNICA sugar mills

Produtos		Safras 2012/2013	Safras 2013/2014	Variação (%)
Cana-de-açúcar [1]		349.583,3	406.262,8	↑ 16,21%
Açúcar [1]		21.798,6	22.921,0	↑ 5,15%
Etanol anidro [2]		5.357,3	7.364,5	↑ 37,47%
Etanol hidratado [2]		8.333,9	9.876,2	↑ 18,51%
Etanol total [2]		13.691,2	17.240,8	↑ 25,93%
ATR [1]		46.217,0	53.491,1	↑ 15,74%
ATR/ tonelada de cana [3]		132,21	131,67	↓ -0,41%
Mix (%)	açúcar	49,50%	44,97%	↓
	etanol	50,50%	55,03%	↑
Litros etanol/ tonelada de cana		39,16	42,44	↑ 8,36%
Kg açúcar/ tonelada de cana		62,36	56,42	↓ -9,52%

Fonte: UNICA. Nota: [1] - mil toneladas; [2] - milhões de litros; [3] - kg de ATR/ tonelada de cana; dados sujeitos a pequenos ajustes.

Perspectives

- Bioethanol will continue to be an strategic fuel option for Brasil
- There will be a balance between the local and the international ethanol markets as well as the sugar demand and prices
- There will be a high demand for the bagass – Energy vs 2nd generation ethanol
- Industry reliability and public confidance
- Land use, deforestation and water efficient use are issues to be tackled in the next few years