The biofuel investment opportunity
from production to distribution

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Introduction

- **Biofuels are a renewable energy source and as such could participate to the global effort to reduce GreenHouse Gas emissions, the main source of the global warming**
- **Biofuels can be produced from a broad variety of agricultural products (i.e corn and soybeans in the United States, sugar cane in Brazil, rapeseed in Europe and palm oil in Asia)**
- **Biofuels present the same characteristics as petroleum products and consequently their use for transportation is appropriate**
- **25% of CO2 emissions come from transportation**
- **Biofuels have to be considered as a complement of fossil fuels and not as a substitute**
- **There are significant returns to be expected for prime movers**





“Biofuels” a mixture of wrong assumptions

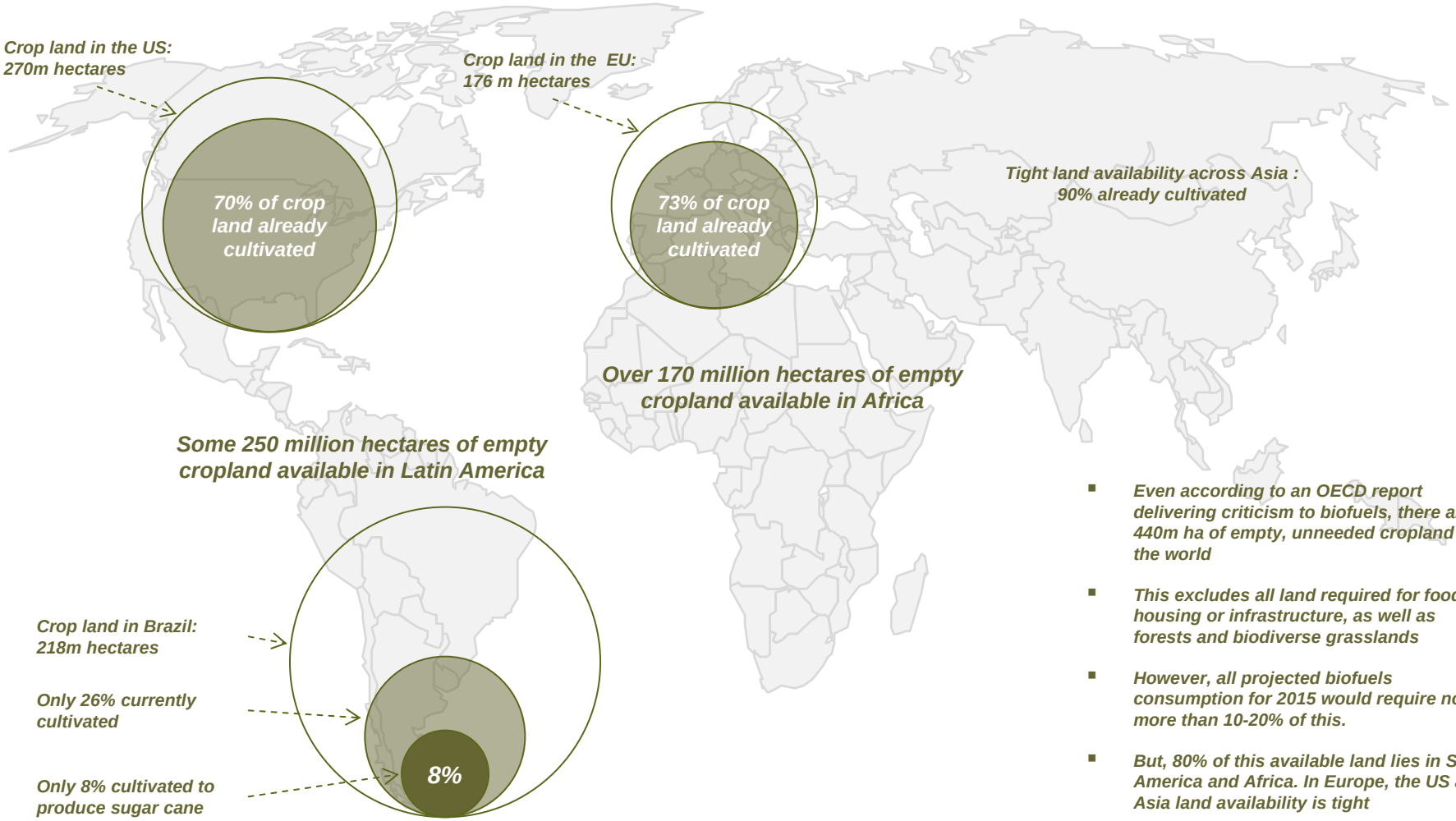
Available land	There is enough available land in the world without any deforestation. (Brazil has today 6 millions ha producing 25 million MT of sugar and16 million m3 of ethanol. Available land without going near the rain forest is 90 millions ha, i.e. 15 times more).
CO2 emission	Correlated to the choice of feedstock. (Between 0% and 92% reduction).
Irrigation	If needed, there are new techniques which reduce substantially the use of mechanical irrigation. (Over 90% of Brazilian sugar cane grows thanks to rain precipitations).
Fertilizers	Selection of the right feedstock in order to minimize depreciation of the ground and, consequently, less use of fertilizers/pesticides. (Ethanol out of sugar cane uses up to 80% less chemical fertilizers than corn ethanol).
Food chain	Existing number of feedstock which are not in competition with the food chain.
Biodiversity	Global warming will make more damage to the biodiversity than biofuels, the rule to apply is “The Less Evil Choice” .





There is enough land for biofuels but 80% lies in the South

*Land availability for **biofuels** production*



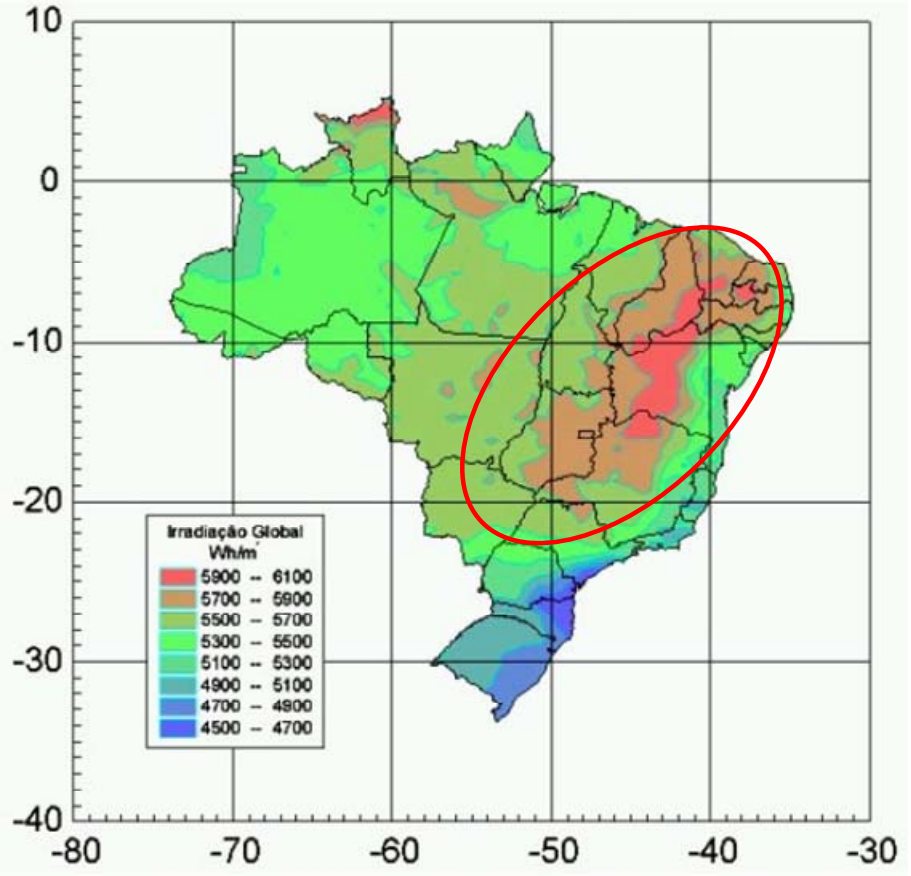
- *Even according to an OECD report delivering criticism to biofuels, there are 440m ha of empty, unneeded cropland in the world*
- *This excludes all land required for food, housing or infrastructure, as well as forests and biodiverse grasslands*
- *However, all projected biofuels consumption for 2015 would require no more than 10-20% of this.*
- *But, 80% of this available land lies in South America and Africa. In Europe, the US and Asia land availability is tight*

Source: FAPRI, ACTI, FO Licht, UNICA, ABOVE, TOEPFER e ICONE

The main potential farming areas in Brazil lie where greatest solar radiation has been mapped limiting exposure to deforestation issues

Brazil sugar cane area

Sunshine in Brazil

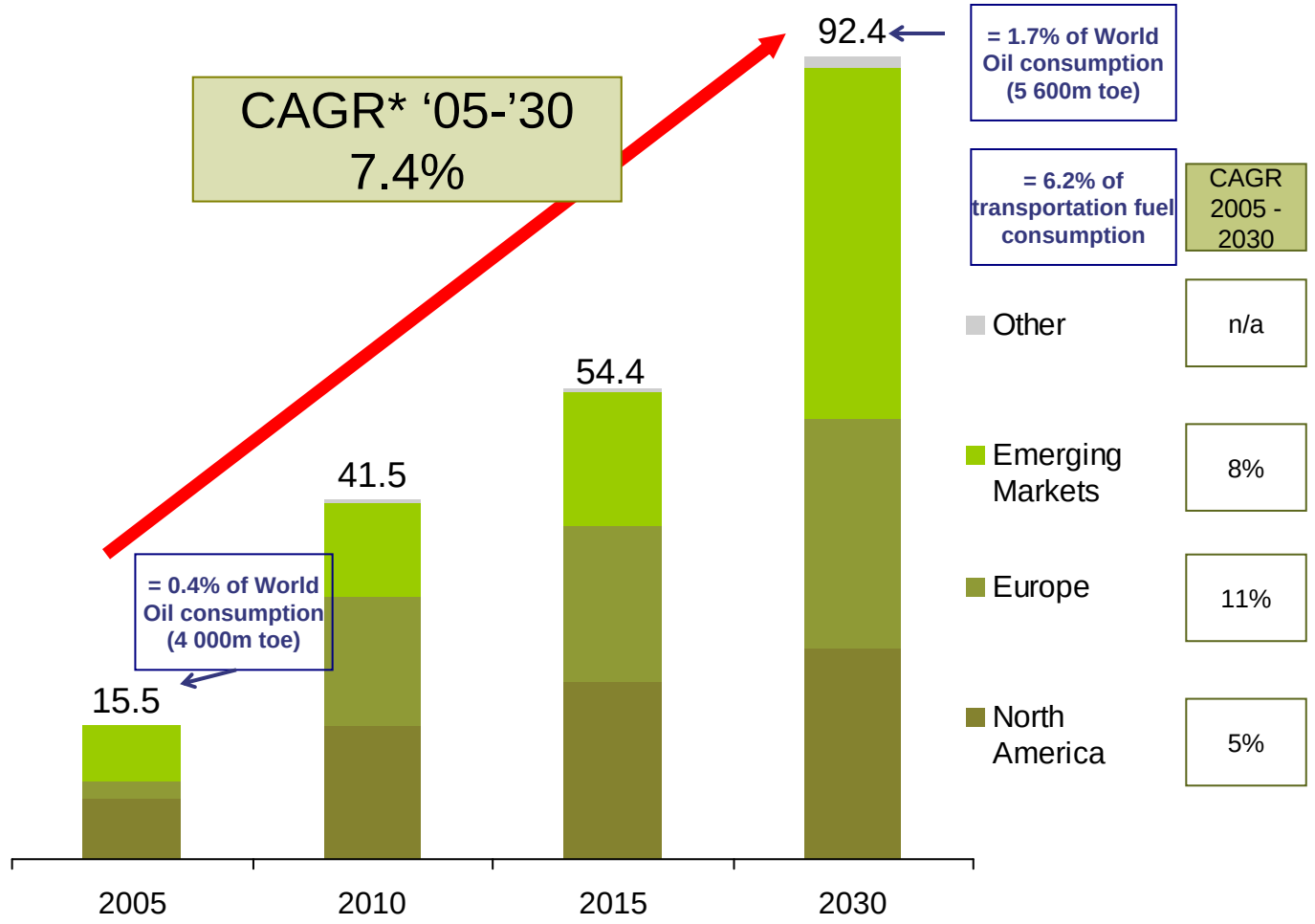






"Biofuels" are experiencing strong growth worldwide

World Biofuels consumption (Mtoe)



Source: OECD/IEA, World Energy Outlook 2006 based on the reference scenario
Note: *CAGR = Compound Annual Growth Rate

Key drivers

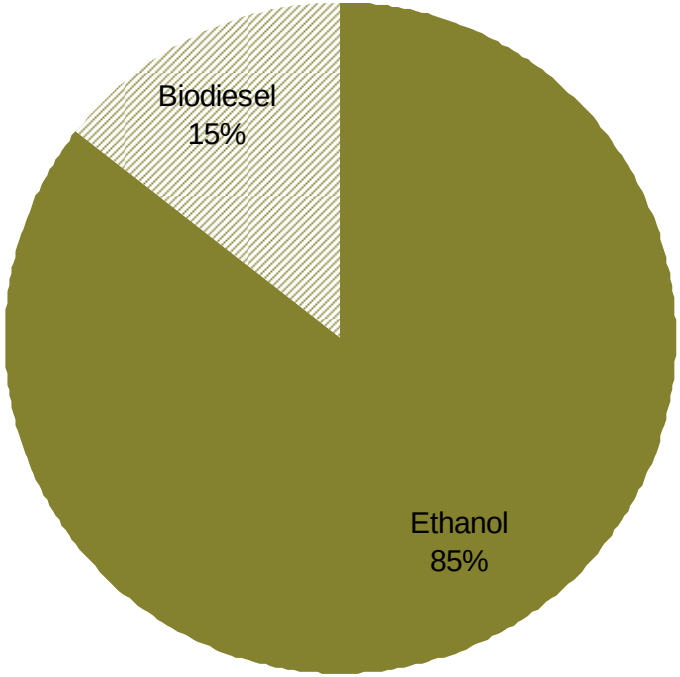
- Emission targets
- Mandatory programs
- Source of domestic growth
- High oil prices
- Full commodity
- Competitive product
- MTBE bans





"Biofuels" are fuels derived from biological sources

Global production of Biofuels by type



- **Ethanol can be made from any sugar based feedstock. Corn is the most common feedstock in the United States, whereas sugar cane is the preferred feedstock in tropical countries.**

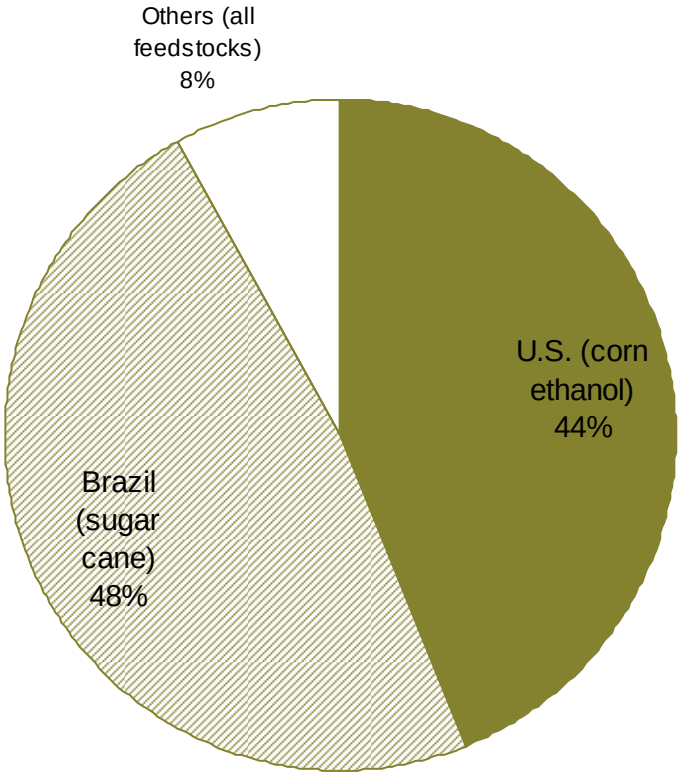
- **Biodiesel is produced from a broad variety of diesel fuel alternatives based on methyl esters of vegetable oils or fats (The main feedstock are the following: rapeseed, palm or soybean).**



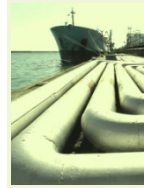


"Biofuels" are produced from a broad variety of feedstock

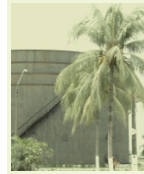
Global production of Biofuels by country



	US (corn)	Brazil (sugar cane)
CO2 emission reduction	28%	92%
Energy content output	1:1,2	1:8,3
Crop yields (liters / ha)	3,100	6,500
Food chain	High impact	No material impact

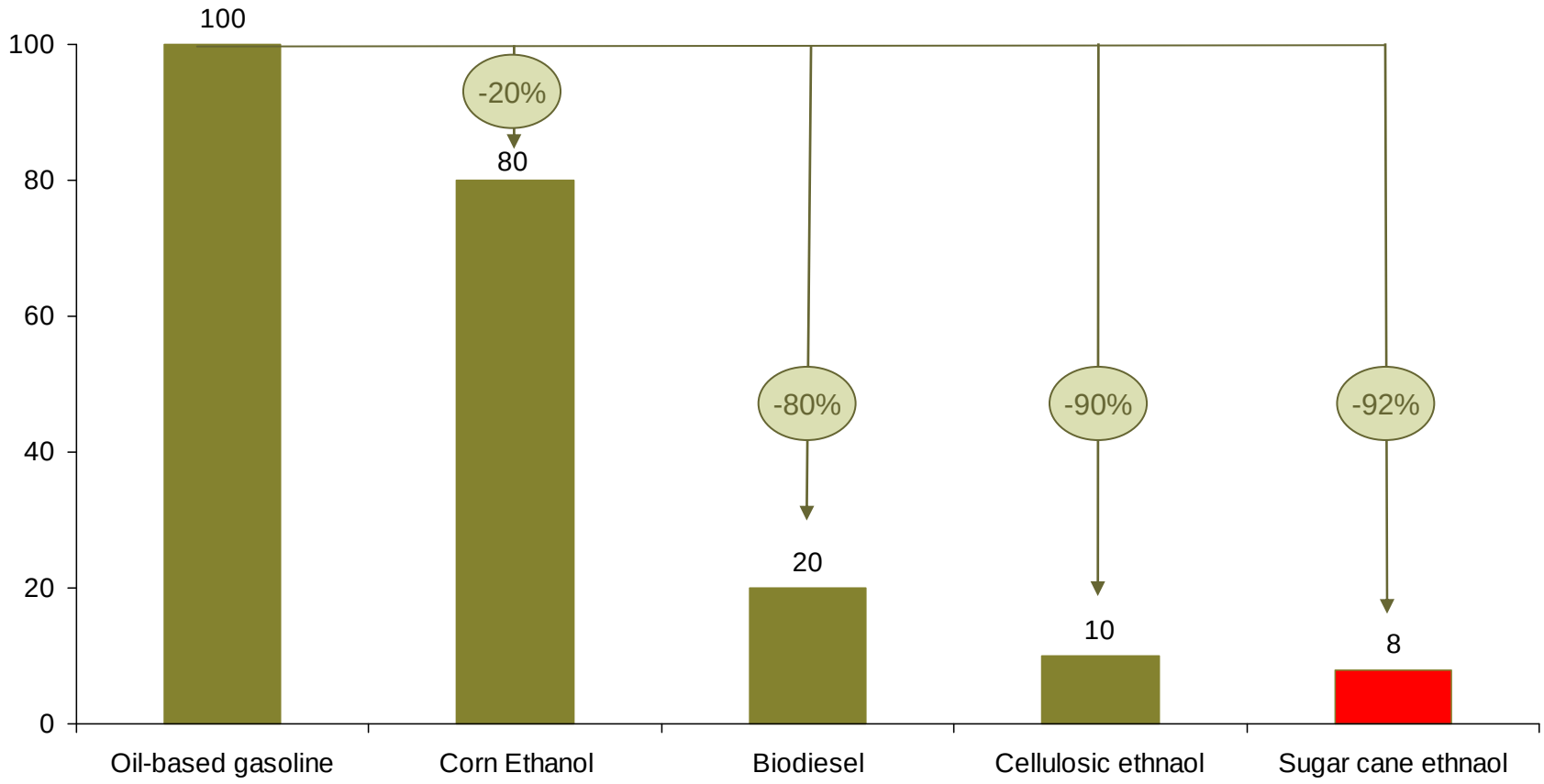






"Biofuels" are mainly here to reduce GHG emissions but they are not born equal

Sugar cane ethanol reduces Green House Gas emission by 92%*



* Well to wheel

Source McKinsey / Macedo et Al / Farrell et al."Ethanol can contribute to energy and environmental goals", Science, January 27, 2006

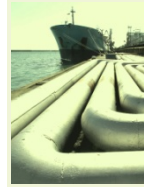
Due to many disparities, there is no benchmark in the biofuels industry

	Brazil	United States	Malaysia / Indonesia	China	Europe
Initial growth drivers	Energy independency and source of internal growth	Hidden subsidiaries to farmers following the WTO negotiation	Source of internal growth (palm)	Secure energy in order to support growth of the economy	Reduce GHG emissions
Results on current situation	Most efficient industry in the world	High production costs, limited impact on the environment and competition with the food chain	Disaster on the environment (deforestation)	Disaster on the environment (coal burn for power supply) and competition with the food chain	Inefficient industry (small production unit) and limited success of producers on stock exchange markets

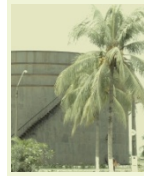
"Biofuels" have a long term future worldwide as fundamental growth drivers are there.

Today, the *"biofuels"* industry is highly fragmented. No players are integrated along the value chain yet

	Selection of seeds	Feedstock production	Supply of feedstock	Conversion Processing	Blending / Distribution
Biotech companies	MONSANTO, DUPONT, syngenta				
Agri companies		*FARMERS across Europe, US, South America and Brazil*		BUNGE	
Processors				Cargill, ADM, ABENGOA, SÜDZUCKER, COSAN, BRITISH SUGAR	
Oil majors					bp, Shell, Chevron, TOTAL

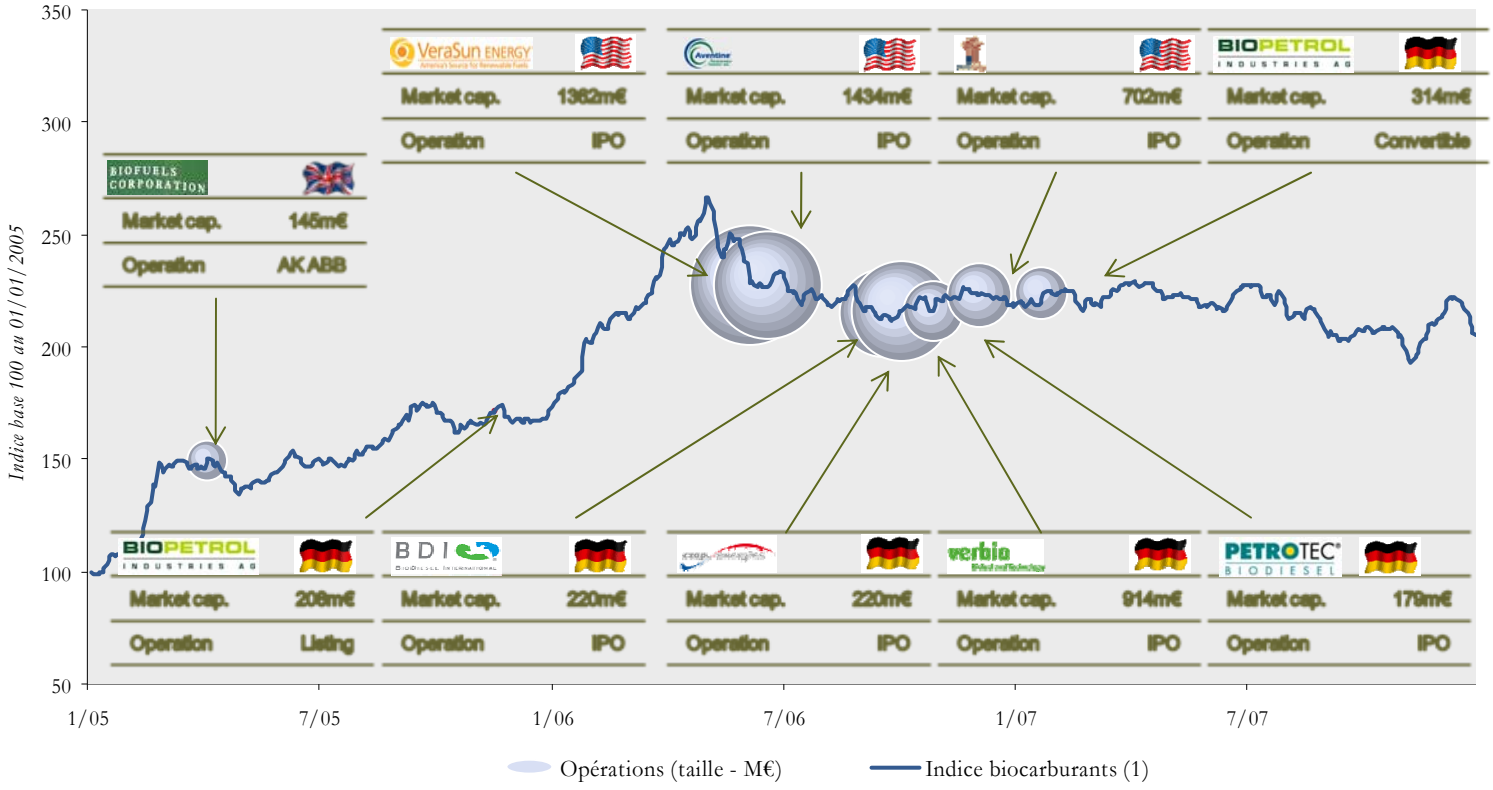






Heavy investment in Western production capacity has followed

Biofuels stock index



Industry Overview	
Market cap. (m€)	23,614
Floating (m€)	21,661
Nb of listed corporate	12
Perf 2005	+68.1%
Perf 2006	+31.7%
Perf 2007	-0.5%

The market capitalisation of listed Western biofuels producers amounted to more than $35bn at the end of 2007. Their stocks performed well above the average - the biofuel stock index grew by 30% pa over 2005-2007. Still, the going has been tough since July 2007 as many investors have lost faith in the industry's sustainability

(1) Index includes biofuels spefcific companies and exclude Brazilian companies such as Cosan and Sao Martinho. It calculated on the basis of market capitalisation (30% max of the index) : Abengoa, D1 Oils, Biopetrol Inds., EOP Biodiesel, BDI-Biodiesel,Verbio, Cropenergies, Archer-Daniels, Verasun, Aventine, Pacific Ethanol, US Bioenergy

"Biofuels" will increasingly become the combination of both the agricultural and the oil industries

MAIN INVESTMENT OPPORTUNITIES

Biofuels value chain

Growing crop

Harvesting / sourcing of feedstock

Crushing / distillery

Logistic

Storage/Distribution

Retail

Oil value chain

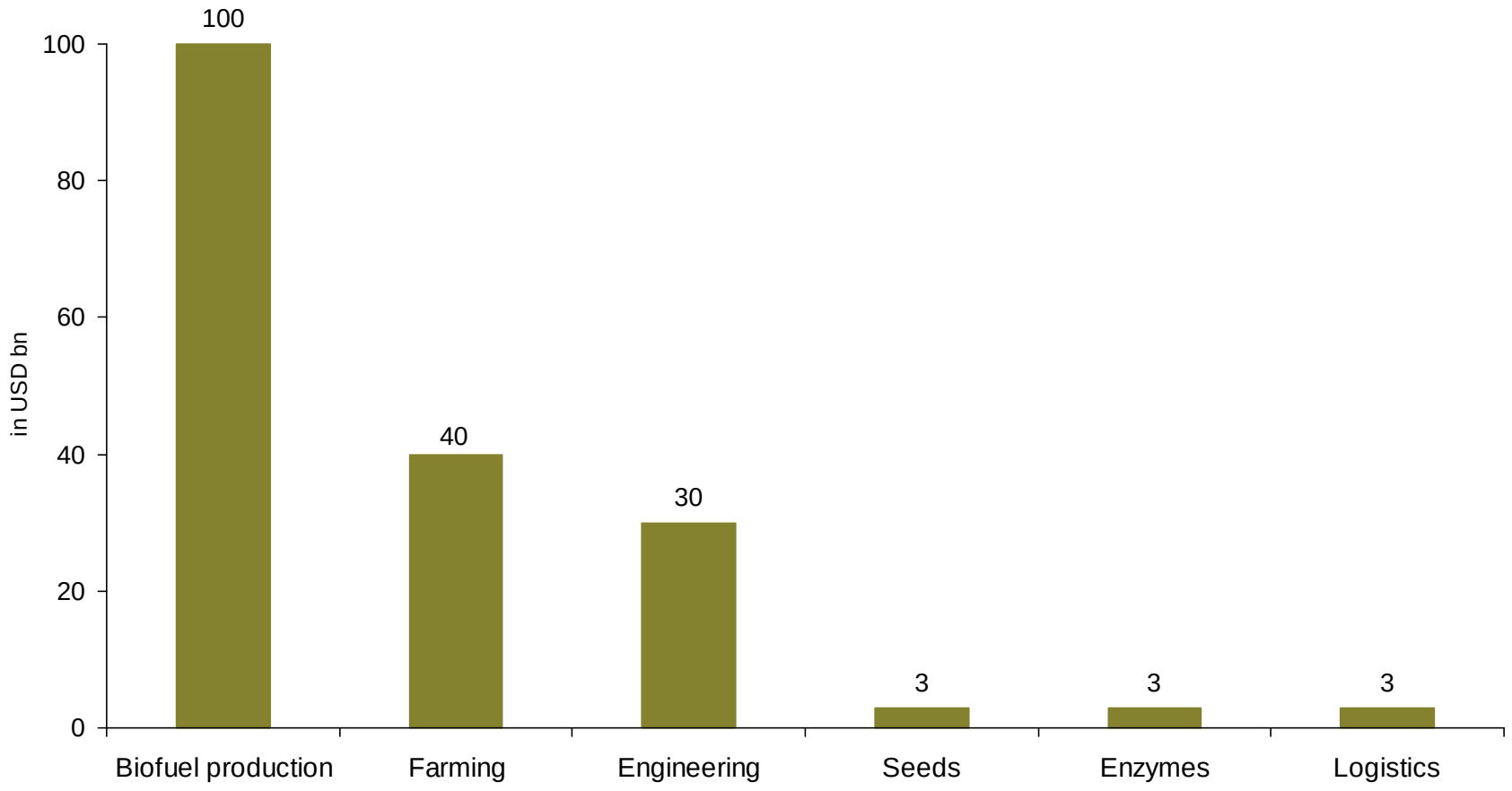
Exploration / Production

Crude oil logistic

Refining

Changes in the industry will provide sizeable business opportunities at each stage of the value chain

Market size of each segment of the biofuels value chain (Forecast 2020)



Source: McKinsey

Changes offer significant investment opportunities but investors should watch out different criteria

Economical

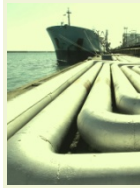
- Complexity to optimize the cost of feedstock, the cost of production and the cost of distribution
- Complexity of risk management
- Disparities in tax incentives

Ecological

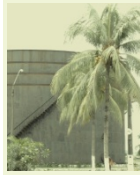
- Deforestation, irrigation, degradation of the ground and use of fertilizers
- Disparities in energy ratios (corn= 1 for 1.2 vs cane= 1 for 8)
- Difficulty to select the appropriate feedstock

Ethical

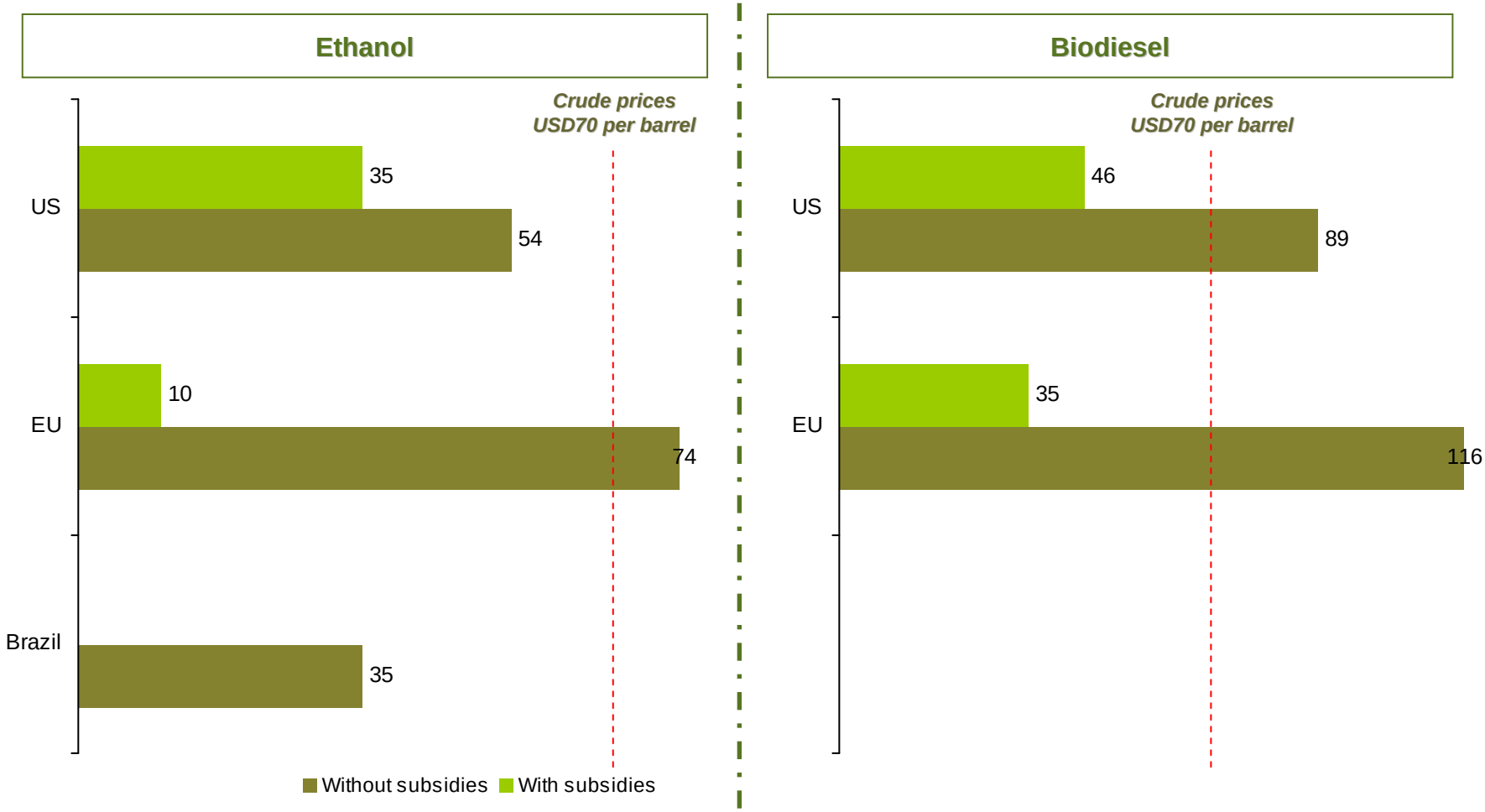
- Debate between food and non-food feedstock





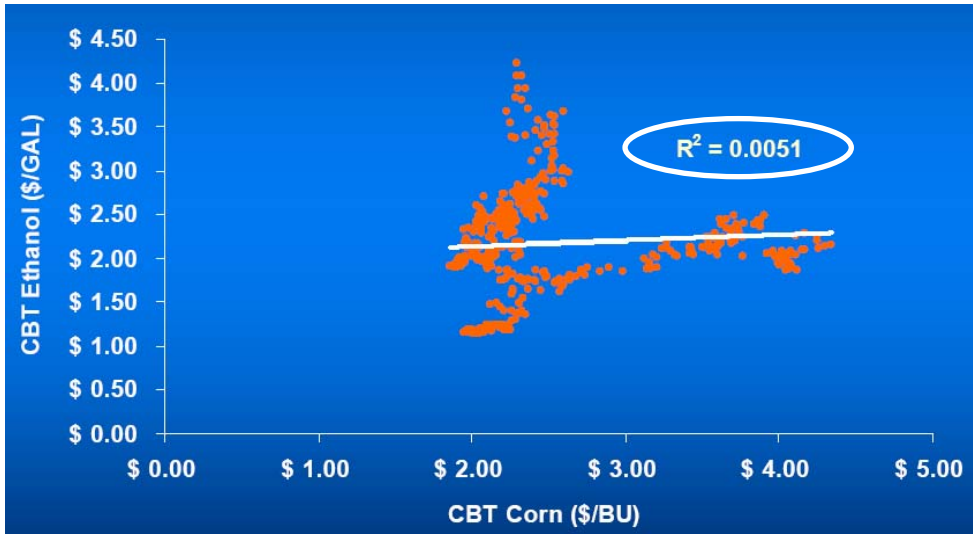


The sustainability of *"biofuels"* may vary according to their break even point versus crude oil prices



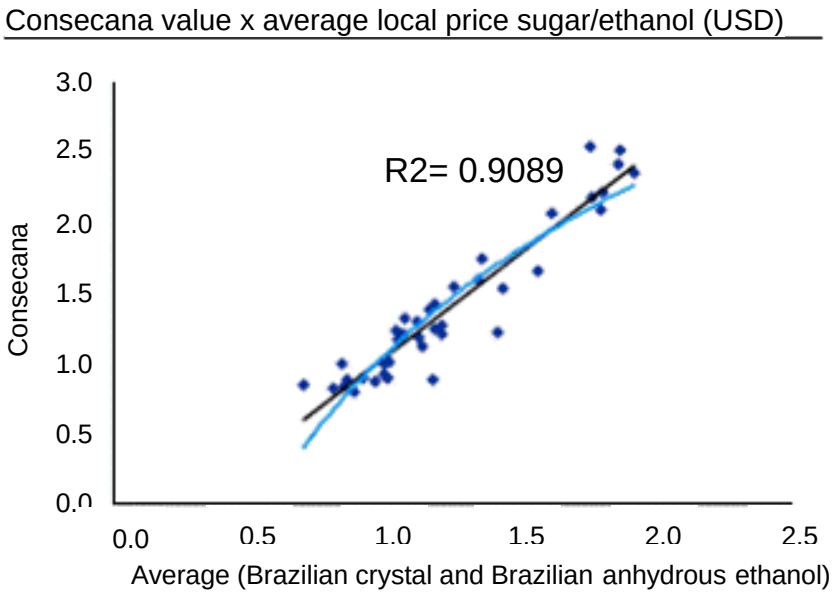
The choice of the right feedstock provide investors with natural hedges against price risks

There is no correlation between the price of corn and the price of ethanol



Source: Goldman Sachs

The correlation between the price of sugar and the price of ethanol is much greater



Source: Bloomberg andtau Corretora

Six criteria to take into consideration for a successful investment in Biofuels

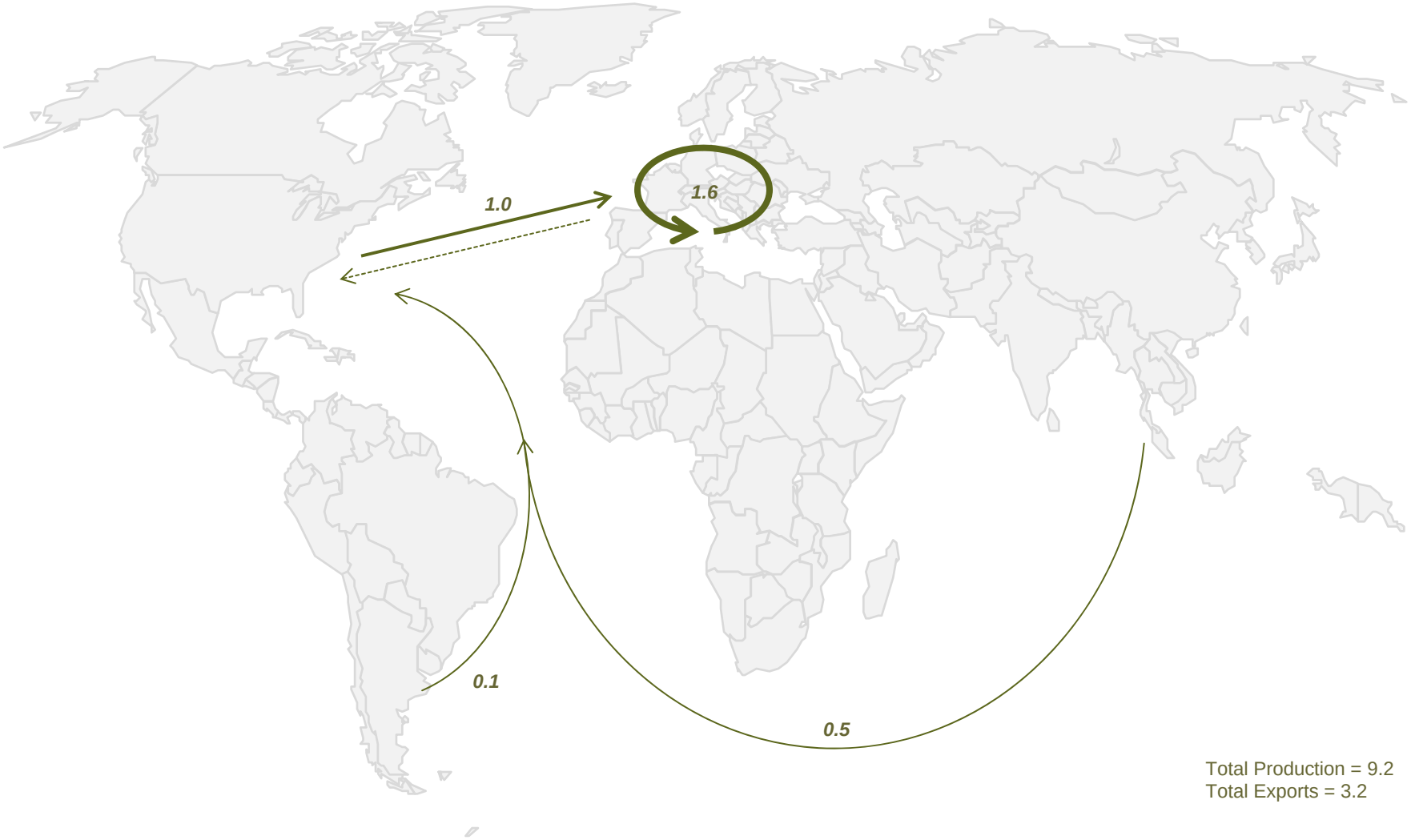
1. Anticipate the incoming changes in the market structure
2. Invest in technologies and feedstock with the greater impact on the GreenHouse Gas emissions
3. Take into consideration all parameters, which will become important in the near future (irrigation, deforestation etc.)
4. Invest in low cost productions in order to minimize the impact of potential drop of oil prices and always be competitive at the main centers of consumption
5. To be able to offer sustainability of the supply in the right quality and quantities
6. To be able to play with the different tax regimes and incentives





US subsidies are a source of market distortion

Biodiesel trade flows 2006 – million metric ton



Total Production = 9.2
Total Exports = 3.2

*Note: * EU trade partners in Africa, the Caribbean and the Pacific*

Source: Kingsman

Ethanol exports are 5% of global production and almost all Brazilian

Ethanol trade flows 2006 – million cubic metre

*Note: * EU trade partners in Africa, the Caribbean and the Pacific*

Source: Kingsman

For more information, please fell free to contact us

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