



*Is Latin America prepared
for biofuels?*

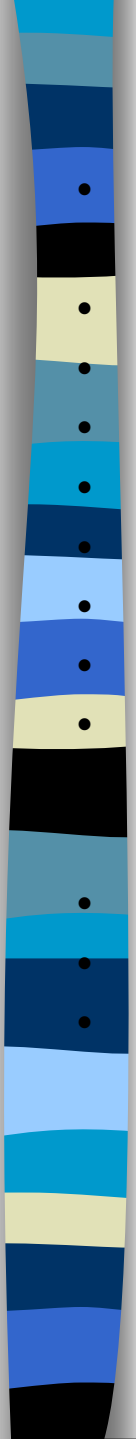
2009 BIGMAP Symposium

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INSE – Argentina



IICA
525.000.000 hab
128.000.000 hab



CROP	lts BIODIÉSEL/ha	lts ETANOL/ha
• AFRICAN PALM <i>Elaeis sp</i>	4000 - 5000	
• RAPE SEED <i>Brassica sp</i>	900 - 1300	
• SOYBEAN <i>Glycine sp</i>	300 - 600	
• SUNFLOWER <i>Helianthus sp</i>	600 - 1000	
• CASTOR OIL <i>Ricinus sp</i>	1000 - 1200	
• JATROPHA CURCAS	800 - 2000	
• SUGAR CANE <i>Saccharum sp</i>		4500 - 6000
• CORN <i>Zea mays</i>		2500 - 3500
• SWEET SORGHUM <i>Sorghum sp</i>		2500 - 6000
• Second generation of biofuels		
• ALGAE	20000	
• SWITSHGRASS <i>Panicum virgatum</i>		3000 - 7000

Rendimientos de etanol y biodiésel de diferentes cultivos

CULTIVO	Its BIODIÉSEL/ha	Its ETANOL/ha
PALMA AFRICANA	4000-5000	
COLZA	900-1300	
SOYA	300-600	
GIRASOL	600-1000	
RICINO	1000-1200	
JATROPHA CURCAS	800-2000	
ALGAS (biocombustible de segunda generación)	20000	
CAÑA DE AZÚCAR		4500-6000
MAÍZ		2500-3500
SORGO DULCE		2500-6000
SWITCHGRASS (biocombustible de segunda generación)		3000-7000



Argentina

Maize used for bioethanol

Soybean used for biodiesel

New crops for marginal areas *Jatropha* and *Brassica carinata* and *juncea*

In 2010 5% of biodiesel



Brazil:

Long history about the use of biofuels

1925 the first car using bioethanol

1979 first commercial car using bioethanol

2003 Flex fuel technology

Ethanol obtained from sugar cane coming a 15% from the north east of the country, and 85% from the mid south.

In 1985 it was decided that 22% of ethanol must be mixed with gasoline.

Sugar cane efficiency: 82 liters of ethanol per ton of cane

7000 liters per hectare

160.000 hectares for 1 billion liters

18 billions of liters total production

Contini



Chile.

39% of the energetic matrix comes from petroleum,
and a
97% of this is imported

Private project to produce biodiesel from rape,
sowing per year 40,000 to 60,000 hectares



Colombia:

From 2005 all the gasoline must be oxygenated with alcohol that mostly is provided by the sugar cane industry.

Palm oil is used for biodiesel that must be mixed 10% with fueloil.

To achieve this rate 100,000 ha of African palm must be planted



Cuba:

Produces 150 million liters of ethanol from sugar cane that are mainly focused to foreign markets as Venezuela .



Costa Rica

In 2009 is going to put in force a decree that regulates the production and distribution of biofuels.

Up to now it could be produced but not sold



Ecuador:

Starting to produce ethanol from sugar cane in order to reach a mix of 5% of ethanol with gasoline.

There is a plan to increase the areas sown with sugar cane and palm, using 100,000 hectares for the production of biofuels

Questions posed by opponents to this plan: which other crops are going to be put aside to found this area for the production of biofuels?

To produce 25 gallons of ethanol from maize is needed the same quantity of maize to feed a man during one year



Guatemala:

Starting a development of biofuels with Jatropha, and 45,000 ha of palm oil plants.

31,000 of them in production.

Capable to satisfy the domestic demand of E10



Honduras:

15,000 gallons of B100 biodiesel coming from palm oil is used by five companies.

Decisions depend on the final price of palm oil



Paraguay:

Scope: in 2010, 5% of biodiesel in a mix, and 5% of ethanol mixed with gasoline



Peru:

From January 1 , 2009 is going to be mandatory to mix a 2% of biodiesel, and in 2011 this percentage must be increased to 5%.

With this scope 80,000 hectares of palm must be planted in Peru, but up to now just 20,000 ha are under production.

It is estimated that by the year 2011 Peru will satisfy the domestic needs of biofuels



Nicaragua

Clearly against biofuels



Uruguay:

Some studies arrived to the conclusion that the production of biodiesel would be acceptable in Uruguay under a situation similar to 2001 e.g.: low prices for oil crops and high price for petroleum.

Nowadays 100,000 hectares of oil crops are sown, specially with sunflower, but with an increase of the participation of soybean.

With 300,000 hectares of oily crops 120 million liters of biodiesel could be obtained representing the 15% of the needs of diesel of Uruguay.

An acceptable perspective would be mix of 20% biodiesel with diesel fuel.

OPYPA



Venezuela:

Imports ethanol from Brasil and Cuba, using a mix of 8% with gasoline.

Plans to sow 276,000 hectares with sugar cane to produce 25,000 barrels of alcohol to be used as carburant

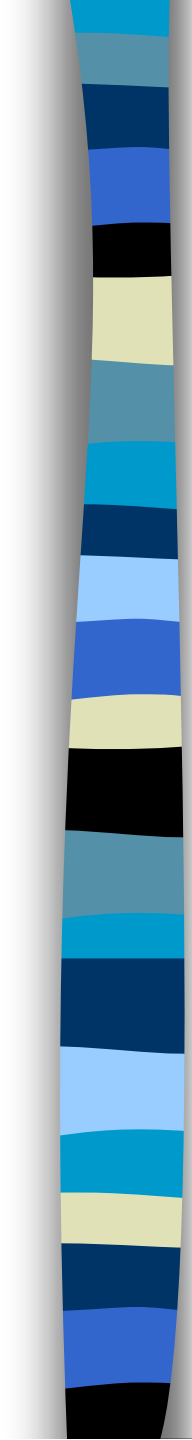
País	Consumo de gasolina		Área cultivada de caña de azúcar		Área agrícola	Demanda de etanol para E10	Producción actual de etanol	Superficie de caña de azúcar para atender la demanda de E10	
	Mil m ³	%	Miles ha	%	Miles ha	Mil m ³	Mil m ³	Miles ha	% Actual en el área de caña
Guatemala	1.160,1	0,18	197,0	2,4	4.652,0	116,0	144,0	17,9	10,0
Guyana	130,0	0,02	49,0	0,6	1.740,0	13,0	23,6	2,2	4,0
Haití	268,0	0,05	18,0	0,2	1.590,0	28,8	2,0	4,8	27,0
Honduras	457,2	0,07	88,1	1,1	2.936,0	45,7	26,3	7,6	10,0
Jamaica	699,8	0,11	40,0	0,5	513,0	70,0	12,0	11,7	29,0
México	39.455,3	6,21	680,0	8,4	107.300,0	3.945,5	50,0	657,6	96,7
Nicaragua	248,9	0,04	45,0	0,6	6.976,0	24,9	36,0	4,1	9,0
Panamá	576,7	0,09	37,0	0,5	2.230,0	57,7	12,4	9,6	26,0
Paraguay	233,5	0,04	80,0	1,0	24.836,0	23,3	45,3	3,5	4,37
Perú	1.203,0	0,22	66,1	0,8	21.210,0	120,4	78,4	20,1	30,0
República Dominicana	1423,3	0,0	350	0,0	3696	142,3	0,0	23,71	6,7
Surinam	106,5	0,02	3,0	0,0	89,0	10,6	0,4	1,8	59,0
Trinidad y Tobago	493,1	0,08	13,0	0,2	133,0	49,3	5,3	8,2	63,0
Uruguay	281,1	0,04	3,0	0,0	14.955,0	28,1	0,7	4,8	147,0
Venezuela	12.700,6	2,00	130,0	1,6	21.640,0	1.270,1	0	234,5	180,3
Totales	637.552,7	100,01	8.414,40	100	589.515,00	63.755,10	33.623,70	10.487,3	

Fuente: IICA (2007) y CEPAL 2006 Energías renovables en América Latina y el Caribe.

Fuente: Consumo de gasolina, EE UU y Brasil: Grain Feed Division Foreign Agricultural Service, USDA.

Marco regulador para el uso y manejo del etanol

	Leyes que establecen mezclas de gasolina más etanol	Leyes que establecen incentivos para la producción de etanol	Leyes, reglamentos que definen la calidad del etanol	Iniciativas de ley
Argentina	✓	✓	✓	no
Belice	no	no	no	no
Bolivia	no	no	no	no
Brasil	✓	✓	✓	✓
Chile	no	no	no	✓
Colombia	✓	✓	✓	no
Costa Rica	✓	no	✓	✓
Ecuador	no	no	no	✓
EE UU	✓	✓	✓	no
El Salvador	no	no	no	✓
Guatemala	✓	✓	✓	✓
Honduras	no	no	no	✓
Jamaica	no	no	✓	no
México	no	no	no	✓
Nicaragua	no	no	no	✓
Panamá	no	✓	no	no
Paraguay	✓	✓	✓	✓
Perú	✓	no	no	no
Rep. Dominicana	no	no	no	✓
Uruguay	no	no	no	✓
Venezuela	no	no	no	✓



Biofuels obtained from plants not used
as food or feed, and Second Generation
Biofuels could be an interesting
alternative