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Brazil

Biofuels Annual

2011

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Report Highlights:

This report updates the Brazilian ethanol and biodiesel policies and programs described in the Biofuels Annual report from 2010 (BR10006) and provides production, supply and demand estimates and forecasts for 2011 and 2012, respectively.

Post:
Sao Paulo ATO

1. Executive Summary

The present report includes the following sections: (1) Executive Summary; (2) Policy and Programs; (3) Conventional Bioethanol; (4) Conventional Biodiesel; (5) Advanced Biofuels; and, (6) Notes on Statistical Data.

1.1. Brazil's Political Division

The map below shows the Brazilian political division in regions and states.

2. Policy and Programs

2.1. Government Support Programs for Bioethanol

2.1.1. "Regional Producer Subsidy"

North-Northeast sugarcane growers are eligible for the "Regional Producer Subsidy" in the amount of R$ 5.00 per metric ton of sugarcane up to 10,000 metric tons. The subsidy is given to balance the cost of the production differential between the Central South and the Northeast mills.

2.1.2. Ethanol use mandate

On April 28th, 2011, President Dilma Rouseff signed Provisional Measure (Medida Provisoria – MP) #532 which lowers from 20 to 18 percent the minimum volume of ethanol required to blend with gasoline. The new blend range varies from 18 and 25 percent. The current blend has been set at the cap (25 percent) since May 1, 2010. However, the Government of Brazil (GOB) has studied the possibility to reduce it to 18 percent due to the expected shortage in ethanol supply, a consequence of the drop in the size of the sugarcane crop.

2.1.3. Tax incentives for ethanol

A. Tax incentives for ethanol-flex fuel vehicles

Tax incentives play an important role in supporting ethanol consumption since the introduction of flex cars. The table below shows the value of IPI, PIS/COFINS (Contribution to the Social Integration Program/Contribution for Financing Social Security) and ICMS (State tax for services and good circulation) for different categories of vehicles as reported by the National Association of Motor Vehicle Manufacturers (ANFAVEA). Note that taxes on flex cars are lower than taxes on gasoline powered cars, especially with regard to the Tax on Industrialized Products (IPI).

ANFAVEA also reports that the tax burden on light vehicles as a share of the total price for retail (price for final consumers) are usually lower for ethanol/flex-fuel vehicles compared to gasoline vehicles. The tax burden for 1,001 to 2,000 cylinder ethanol/flex-fuel vehicles are 29.2 percent, whereas it is 30.4 percent for gasoline units. The differential for more powerful cars, e.g., over 2,001 cylinders, is even higher: 33.1 percent for ethanol/flex engines as opposed to 36.4 percent for gasoline engines.

Taxes Applied to Ethanol, Flex-Fuel and Gasoline Vehicles

Year	Taxes	1000 cc	1001-2000 cc		Over 2000 cc	
		Gas 1/ /Eth/Flex	Gas 1/	Eth/Flex	Gas 1/	Eth/Flex
2004 to 2007	IPI	7	13	11	25	18
	ICMS	12	12	12	12	12
	PIS/COFINS	11.6	11.6	11.6	11.6	11.6
	% Share	27.1	30.4	29.2	36.4	33.1
2008	IPI	0	6.5	5.5	25	18
	ICMS	12	12	12	12	12
	PIS/COFINS	11.6	11.6	11.6	11.6	11.6
	% Share	22.2	26.4	25.8	36.4	33.1
2009	IPI	5/3*	11	7.5	25	18
	ICMS	12	12	12	12	12
	PIS/COFINS	11.6	11.6	11.6	11.6	11.6
	% Share	25.7/24.4*	29.2	27.1	36.4	33.1
January thru March 2010	IPI	7/3*	13	7.8	25	18
	ICMS	12	12	12	12	12
	PIS/COFINS	11.6	11.6	11.6	11.6	11.6
	% Share	27.1/24.4*	30	27.1	36.4	33.1
As of April 2010 and 2011	IPI	7	13	11	25	18
	ICMS	12	12	12	12	12
	PIS/COFINS	11.6	11.6	11.6	11.6	11.6
	% Share	27.1	30.4	29.2	36.4	33.1

Source: National Association of Motor Vehicle Manufacturers (ANFAVEA)

1/ Gas = Gasoline. *The tax of 3% refers to flex fuel cars

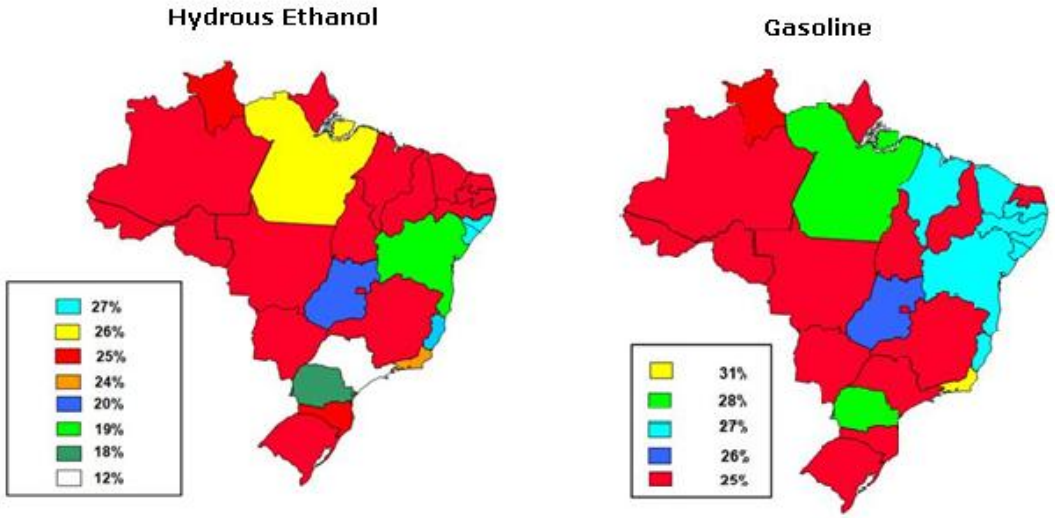
B. Tax incentives for ethanol fuel

The biggest incentives for ethanol, however, are the result of favorable tax treatment at the pump. The GoB provides preferential treatment for ethanol under both its CIDES and PIS/COFINS programs.

CIDE (Contribution for Intervention in Economic Domain) funds raised via this fuel federal tax are used to finance infrastructure works and maintenance of the transportation system, as well as finance environmental projects related to the oil and natural gas industry and; to pay subsidies, if determined by specific legislation, to ethanol, natural gas and oil derivates prices or distribution. CIDE for gasoline remains unchanged at R$ 0.23/liter since May 1, 2010. Note that for ethanol, while CIDE is an applicable tax, it has been fixed at zero since May 2004.

PIS/COFINS (Contribution to the Social Integration Program/Contribution for Financing Social Security) federal taxes are charged together. For gasoline, PIS/COFINS remains unchanged at a cumulative fixed assessment of 9.25 % charged to the manufacturer upon sale to distributors. PIS/CONFINS FOR ethanol have also remained unchanged at R$ 0.12/liter (R$ 0.048/liter on producers and R$ 0.072/liter on distributors).

At the state level, there are different tax regimes for the ICMS - tax for services and goods circulation. The maps below update the percentages applied by different states. ICMS charged on ethanol varies from 12 to 27 percent, with most states charging 25 percent. ICMS for gasoline varies from 25 to 31 percent.



2.1.4. Credit Lines

The "2011/12 Crop Plan" released in mid-June by the Ministry of Agriculture, Livestock and Supply created a credit line to finance new sugarcane fields or the renewal of existing ones. Each individual grower can borrow up to R$ 1 million at 6.75 percent per year interest rate, an 18 month grace period and 5 year payback deadline.

The National Bank for Social and Economic Development (BNDES) provides specific credit lines to fund investments on sugarcane production, expansion of industrial capacity for sugar and ethanol, cogeneration, logistics and multimodal transportation. They are expected to account for R$ 6 to 6.5 billion in 2011, a 14 to 21 percent drop compared to 2010 (R$ 7.6 billion). The interest rate applied has increased to 8.7 percent per year since April 1, 2011, as opposed to 5.5-6.5 percent before. Note that a significant part of the funds released both in 2010 and 2011 are related to old projects, some approved in 2008, given that new investments in the sector are scarce.

No official credit line to support ethanol storage has been announced yet.

2.1.5. Ethanol Import Tariff

In April 23, 2010, the GOB temporarily eliminated the ethanol import tariff. The temporarily elimination will be in effect until December 31, 2011. The tariff will return to 20 percent as of January 1, 2012, if no further action is taken by GOB.

2.1.6. ANP as the regulatory Agency

In addition to reducing from 20 to 18 percent the minimum volume of ethanol required to blend with gasoline, MP #532 of April 28th, 2011, changes the status of ethanol from that of agri-business commodity to national strategic energy resource. The measure delegates greater authority to the National Agency of Petroleum, Natural Gas and Biofuels (ANP) to regulate the ethanol supply chain. ANP will now expand beyond its traditional role of monitoring ethanol distribution once the product left the mill headed to the pump; the agency will oversee ethanol production inside mills – until recently the mandate of the Ministry of Agriculture (MAPA).

Several measures are currently under discussion and are likely to be adopted by ANP in the near future, including: (1) the introduction of 2-year contracts between ethanol suppliers and fuel distributors and, (2) a mandatory 8 percent minimum carryover stocks on March 1 to be held by producers to guarantee ethanol supply. If domestic supply is not available at the time, that will force ethanol producers to import the product to comply with the measure.

2.2. Government Support Programs for Biodiesel

2.2.1. Biodiesel use mandate

In spite of the industry lobby to increase the biodiesel mandate to 10 percent (B10), e.g., 10 percent of biodiesel blended to mineral diesel, to accommodate the current industrial overcapacity; no changes have been made to the mandate set at 5 percent (B5) since January 2010. The GOB advocates that an increase in the percentage of biodiesel added to mineral diesel could promote an increase in prices at the pump.

2.2.2. Tax Incentives

In order to encourage the production of biodiesel and to promote social inclusion, the GoB set federal tax exemptions and incentives, according to the nature of the raw material, size of producer and region of production. The table below shows the current values compared to mineral diesel.

Federal Taxes for Biodiesel and Mineral Diesel (R$/m3)					
Fuel	Biodiesel B100				Diesel
Producer Type	Family Agriculture (PRONAF)		All Others		
Region	North, Northeast & Semi-Arid Zones	All Others	North, Northeast & Semi-Arid Zones	All Others	
Feedstock	Any	Palm Oil or Castor Oil	Palm Oil or Castor Oil		
PIS/PASEP	0.00	12.29	27.03	31.75	82.20
COFINS	0.00	54.46	124.47	146.20	379.30
Source: Brazilian Government					

2.2.3. Biodiesel Stocks

No changes have been made to the legislation. Current regulations state that strategic stocks held by Petrobras and Refap should maintain, at all times, at least one month of domestic consumption.

2.2.4. Biodiesel Import Tariff

According to the Secretariat of Foreign Trade, the import tariff applied to biodiesel (NCM 3824.90.29) is set at 14 percent.

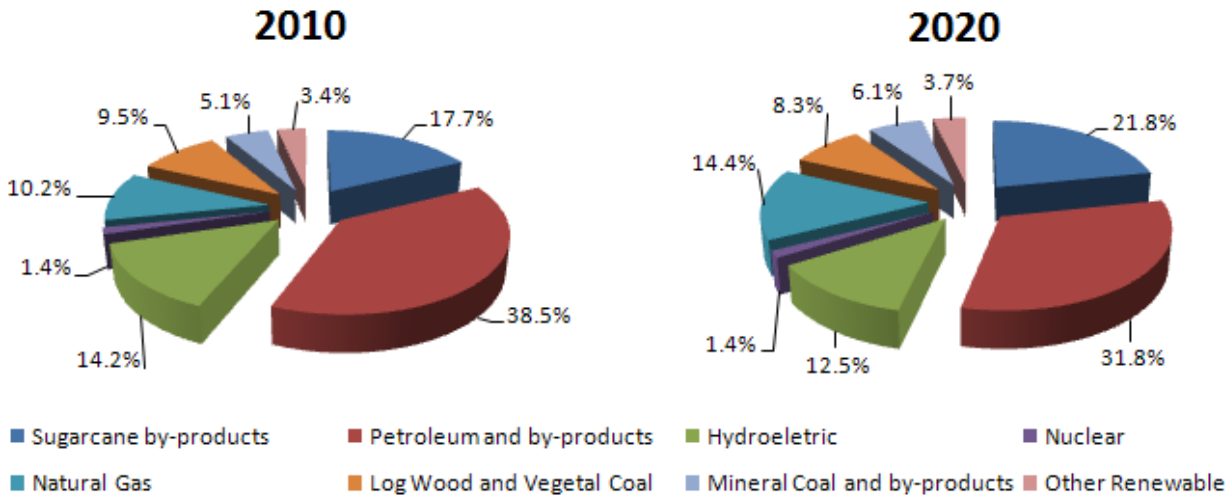
2.3. Bioethanol and Biodiesel in the Current Brazilian Energy Matrix

Brazil is a global leader in the use of renewable fuels. Indeed, the Ministry of Mines and Energy (MME) has set the increase of biofuels' share in the Brazilian energy matrix as one of the policy directives for the sector.

The results of the National Energy Balance (BEN-2011) reporting the Brazilian supply and demand of energy for 2010 are not available yet. In June 2011, the Ministry of Mines and Energy released the Energy Expansion Decennial Plan 2011/2020 (PDE-2020) for public consultation. According to the plan, the share of renewable sources (hydroelectric, ethanol, biomass, etc.) in the Brazilian energy matrix is expected to increase to 46.3 percent in 2020, up 1.5 points compared to 44.8 percent in 2010.

As shown in the graphs below, the decrease of the hydroelectric, log wood and vegetal coal shares will be offset mainly by the increase in the ethanol supply. The study also projects that ethanol demand for both the domestic market and exports should increase to 73 billion liters in 2020.

Share of Different Energy Sources in the Energy Supply Matrix



Source: Ministry of Mines and Energy, 2011

2.4. Environmental Sustainability Programs

2.4.1. The Climate Change National and State Policies

Federal Law *12,187/2009* of December, 2009 sets the National Climate Change Policy (Politica Nacional sobre Mudança do Clima – PNMC) defining broad objectives to reduce gas emissions. According to PNMC, Brazil will voluntarily take actions to reduce GHG and other pollutant emissions between 36.1 and 38.9 percent by 2020 from 2010 values.

The Ministry of Agriculture, Livestock and Supply (MAPA) established in June 2010, the Low Carbon Agriculture program (ABC). The initiative aims to combine food production and bioenergy in reducing greenhouse gases. The ABC program encourages technological processes that neutralize or minimize the effects of greenhouse gases in the field, to be adopted by farmers in the coming years.

The ABC program included in the 2011/2012 Crop Plan released by MAPA in mid-June 2011 will provide $ 3.15 billion to finance techniques that ensure efficiency in the field, with a positive balance between sequestration and emission of carbon dioxide (CO2). Resources are guaranteed to farmers and cooperatives, limited funding of $ 1 million per recipient. The credit will be financed with an interest rate of 5.5% per year and repayment term of 12 years.

One of the major proposals of the ABC program relates to the recovery of degraded pastures. The goal is to convert 15 million hectares of degraded areas into productive land, including sugarcane fields, thus reducing between 83 and 104 million tons of CO2 equivalent.

2.4.2. Land Use Policies: Sugarcane Agri-ecological Zoning ("ZAE Cana")

In September 2009, MAPA launched the Sugarcane Agroecological Zoning (ZAE Cana) to promote sustainable sugarcane growth and development, while preserving the environment. ZAE Cana is a thorough study of all Brazilian geographical regions, taking into accounts not only soil and weather patterns, but also environmental, economic and social aspects, to guide the sustainable development of the industry.

In spite of the ongoing discussion of the ZAE Cana at the Congress, the Presidential Decree of 2009 sets that public financing for the sector must respect the aforementioned zoning. The following map shows the geographical distribution of the potential land for sugarcane expansion, as well as the exclusion of the Brazilian native biomes.

In addition to the Brazilian ZAE-Sugarcane, the state of Sao Paulo, major sugarcane grower in Brazil has set also set the Sao Paulo Agri-Environmental Zoning in September 2008 for the suga-ethanol sector defining the state in four different areas suitable and not suitable for sugarcane production based on sound and restrictive land use variables.

2.4.3. Legislation on Sugarcane Burning

No changes have been made with regard to the sugarcane burning legislation. According to the federal decree 2,661 from July 1998, by 2018, sugarcane burning will be prohibited in areas where

mechanization is possible (slope lower than 12 percent). The decree does not have a say on hilly non-mechanized areas (slopes over 12 percent).

In July 2007, the Sao Paulo State Secretariats of Environment and Agriculture and Supply and the Sugar and Ethanol Millers Association (UNICA) signed a cooperation protocol called "Agri-Enviromental Protocol" committing themselves to eliminate the burning by 2014 and 2017 for mechanized and non-mechanized areas, respectively.

2.5. Social/Economic Sustainability Programs

2.5.1. Bioethanol

The project RenovAção, led by the Sugar and Alcohol Millers Association of Sao Paulo (UNICA), provides professional training to sugarcane cutters, therefore improving their skills and abilities to perform more complex functions. RenovAcao has already assisted 3,500 people in over 60 sugar-ethanol mills.

The National Commitment to improve labor conditions in the sugarcane sector was signed by the GOB and workers' organizations and entrepreneurs of the sugarcane industry in June 2009. The commitment is the result of negotiations to meet the challenge of improving the living of those working on manual cultivation and harvesting of cane sugar, including best practices on labor and promotion and reintegration of unemployed workers by occupational advancement of mechanized harvesting.

2.5.2. Biodiesel "Social Fuel Stamp"

No changes have been made to the biodiesel "Social Fuel Stamp", a mechanism created by the government to provide incentives for poorer farmers (family farmers) in disadvantaged areas. Biodiesel producers with the "Social Fuel Stamp" are eligible for tax incentives as described in **Section 2.2.2 – Tax incentives**, better credit terms, and classification as a socially friendly company.

3. Conventional Bioethanol

Conventional bioethanol is defined as first generation ethanol derived from sugars and starches used to transport fuels as a substitute for fossil fuels. Bioethanol is an alcohol made by fermenting the sugar components of plant materials such as corn and wheat starch, sugarcane, sugarbeet, sorghum, and cassava.

3.1. Brazilian Bioethanol Production, Supply and Demand (PS&D) Table

Sugarcane remains the exclusive source of feedstock for bioethanol production in Brazil. The tables below show the Brazilian bioethanol supply and demand (PS&D) spreadsheets for "**All Uses**" and "**Fuel Use Only**" for calendar years 2006 through 2012. Several remarks must be made in order to build the aforementioned tables - see ***Notes on Statistical Data – Bioethanol* (*Section 6.1.*)**.

ATO/Sao Paulo has historically reported all figures related to the sugar-ethanol industry in marketing years (MY) and, therefore, made all necessary adjustments to convert from marketing to calendar years. The Brazilian official marketing year for sugarcane, sugar and ethanol production, as determined by the Brazilian government, remains May-April for the center-southern producing states, although sugarcane crushing has started as early as late March in the past couple of years. The official marketing year for the North-Northeast is September-August.

Note: ***no Brazilian authority official or trade source maintains production figures on use "for fuel" or "other uses".*** All bioethanol production figures are solely reported as hydrous and anhydrous volumes. According to post contacts, ethanol plants produce different specifications of hydrous and/or anhydrous, but make no distinction between fuel/other uses. The use for fuels/other uses (industrial, refined or neutral) are determined at the consumer level.

Total Conventional Bioethanol Production, Supply and Demand All Uses (million liters)							
CY	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Begin Stocks	2,743	3,373	4,829	5,783	4,048	5,916	7,489
Production	17,782	22,557	27,140	26,105	27,965	24,198	25,500
Advanced Only	0	0	0	0	0	0	0
Imports	0	4	0	4	76	1,020	770
Fuel	0	0	0	0	74	1,000	750
Other Uses	0	4	0	4	1	20	20
Total Supply	20,525	25,934	31,969	31,893	32,089	31,134	33,759
Exports	3,429	3,533	5,124	3,296	1,906	1,450	1,850
Fuel	2,445	1,932	3,044	1,118	562	400	500
Other Uses	984	1,600	2,080	2,179	1,344	1,050	1,350
Consumption	13,723	17,573	21,062	24,548	24,267	22,195	25,050
Fuel	12,698	16,203	19,584	22,823	22,162	19,845	22,500
Other Uses	1,025	1,370	1,478	1,725	2,105	2,350	2,550
Ending Stocks	3,373	4,829	5,783	4,048	5,916	7,489	6,859
Production Capacity (Conventional)							
No. of Biorefineries	352	377	407	426	436	440	443
Capacity	27,500	32,540	38,300	35,600	41,360	42,800	43,250
Capacity Use (%)	64.7%	69.3%	70.9%	73.3%	67.6%	56.5%	59.0%
Production Capacity (Advanced)							
No. of Biorefineries	0	0	0	0	0	0	0
Capacity	0	0	0	0	0	0	0
Capacity Use (%)	0	0	0	0	0	0	0
Co-Product Production - Conventional (1,000 MT)							
Product X	0	0	0	0	0	0	0
Feedstock Use - Conventional (1,000 MT)							
Sugarcane	215,196	269,645	335,188	346,070	342,566	296,419	312,375
Fuel	190,882	234,138	291,242	294,316	300,321	254,769	264,600
Other Uses	24,314	35,507	43,946	51,754	42,245	41,650	47,775
Feedstock Use - Advanced (1,000 MT)							
Feedstock A	0	0	0	0	0	0	0
Source: Prepared by ATO/Sao Paulo based on MAPA, SECEX, Datagro, ANP, UNICA and industry sources. Numbers for 2011 and 2012 are projections.							

Ethanol - Conventional and Advanced Fuels (million liters)

CY	2006	2007	2008	2009	2010	2011	2012
Beginning Stocks	2,386	3,016	4,468	5,422	3,683	5,549	7,101
Production	15,773	19,587	23,582	22,201	24,516	20,798	21,600
Advanced Only	0	0	0	0	0	0	0
Imports	0	0	0	0	74	1,000	750
Exports	2,445	1,932	3,044	1,118	562	400	500
Consumption	12,698	16,203	19,584	22,823	22,162	19,845	22,500
Ending Stocks	3,016	4,468	5,422	3,683	5,549	7,101	6,451
Production Capacity (Conventional Fuel)							
No. of Biorefineries	352	377	407	426	436	440	443
Capacity	24,393	28,255	33,279	30,276	36,260	36,786	36,635
Capacity Use (%)	64.7%	69.3%	70.9%	73.3%	67.6%	56.5%	59.0%
Production Capacity (Advanced)							
No. of Biorefineries	0	0	0	0	0	0	0
Capacity	0	0	0	0	0	0	0
Capacity Use (%)	0	0	0	0	0	0	0
Co-Product Production - Conventional (1,000 MT)							
Product X	--	--	--	--	--	--	--
Feedstock Use - Conventional (1,000 MT)							
Sugarcane	190,882	234,138	291,242	294,316	300,321	254,769	264,600
Feedstock Use - Advanced (1,000 MT)							
Feedstock A	--	--	--	--	--	--	--
Source: Prepared by ATO/Sao Paulo based on the "Bioethanol Production, Supply and Demand - All Uses" table. Numbers for 2011 and 2012 are projections.							

3.2. Production

A. Production Estimates

Post projections are based on industry sources. To be in accordance with the actual feedstock production cycle, the following narrative describes sugarcane and ethanol production in marketing years (MY). Note that all necessary adjustments were made to covert production figures from MY to calendar years.

ATO/Sao Paulo estimates the MY 2011/12 (May-April) sugarcane crop at 595 million metric tons, down 36 million tons from previous estimate. Sugarcane production in the center-south (CS) has been adjusted to 530 mmt, down 7 percent from the previous estimate, according to updated industry information. In addition to the higher than average age of the fields and the lower volume of cane not harvested from the previous year ("cana bisada"), the dry weather during April-August 2010 and more recently in May 2011 has negatively affected stock development. In late June frost in most southern states like Parana, Sao Paulo and Mato Grosso do Sul has also promoted damages in the fields. Moreover, the blossoming of the sugarcane induced by specific weather patterns in Sao Paulo, Minas Gerais and Goias has also supported losses given that it diverts the plant energy towards vegetative development as opposed to sugar concentration. Sugarcane production in the NNE should contribute 65 mmt, up 3 mmt compared to previous figure.

Total sucrose (total reducing sugar, TRS) content destined for sugar and ethanol production for MY 2011/12 is forecast at 47 and 53 percent, respectively, as opposed to 45.95 and 54.05 percent, respectively for MY 2010/11. Sugar-ethanol mills are expected to increase sugar production relative to the previous crop due to continued steady demand and strong sugar prices in the international markets. In spite of the steady increase in the flex-fuel vehicle (FFV) fleet, hydrous ethanol production is likely to be limited by the size of the crop, high prices at the pump, and the trend towards sugar production to meet strong international demand.

It is still too early to project MY 2012/13 production figures. More precise numbers should be available in the first quarter of 2011 with the development of feedstock from new sugarcane plantings and recovery from current harvested areas; e.g., sugarcane from second, third, fourth, fifth and older cuts; as well as projections for sugar and ethanol demand both the domestic and international markets. The current production forecast is based on the assumption that regular weather conditions will prevail throughout the sugarcane production cycle.

Post projects sugarcane production for MY 2012/13 at 620 mmt, a four percent increase vis-à-vis the current crop, assuming that the CS will recover from lower agricultural yields projected for the current crop. Sugar prices in the international markets are expected to remain attractive and the domestic demand for ethanol should continue limited by the price relationship between ethanol and gasoline at the pump (see section 3.3 Consumption below).

The Agricultural Trade Office (ATO)/Sao Paulo projects the 2012 total bioethanol production at 25.5 billion liters, up 5 percent from the 2011 estimate (24.2 billion liters). Ethanol for fuels production is forecast at 21.6 billion liters for 2012, a 1.05 billion liters increase vis-à-vis 2011 (20.55 billion liters).

UNICA has made a long-term projection for sugarcane and ethanol production in Brazil. According to the association, sugarcane production projections are 778 and 974 million metric tons for MY 2015/16 and 2020/21, respectively.

B. Industrial Capacity

Total industrial capacity for sugarcane crushing in the center-southern sugar-ethanol plants is approximately 3.2 mmt of sugarcane/day. Crushing capacity in the northeastern plants is estimated at 400,000 mmt/day. Thus, Brazilian installed crushing capacity is approximately 3.6 mmt/day.

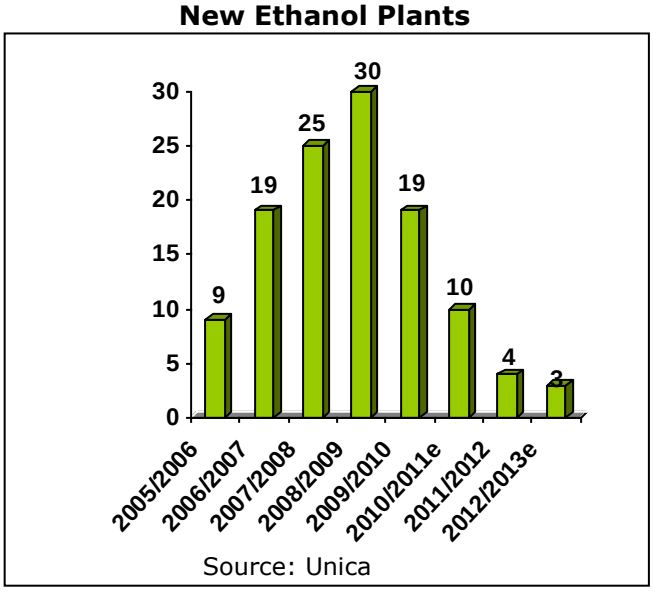
Ethanol installed industrial capacity depends on yearly decisions made by individual plants to produce sugar and/or ethanol. Post contacts report that the industry responds to the theoretical ratio of 40:60 to change from sugar to ethanol production or vice versa from harvest to harvest. Once producing units, adjust their plants to produce a set ratio of sugar/ethanol in a given year, there is much less flexibility to change it during the crushing season.

Ethanol production capacity estimated in this report was based on production figures reported by UNICA. Post took the highest ethanol production figure in a given 15-day period, and extrapolated to the entire Center-south crushing season. A similar procedure was followed for Northeast production based on MAPA reports. Sugarcane crushed for ethanol production was calculated based on the actual production breakdown for sugar/ethanol as described in previous Gain reports. On average, one metric ton of sugarcane produces 80.5 liters of ethanol.

C. New Investments and Credit

The graph below shows the evolution of new ethanol (and sugar) plants as of MY 2005/06 as reported by UNICA. UNICA estimates only 4 new plants for 2011/12 and three new plants for 2012/13, due to low investments in greenfield projects. The world financial crisis in October 2008 led investors to opt for acquiring existing mills instead of investing in new projects. Total number of sugar-ethanol mills in 2011 is estimated at 440 units, whereas total operating units for 2011 are projected at 443.

According to industry information, the current investment level to build a new plant ranges from US$ 120 to US$ 150 per metric ton of sugarcane for crushing, whereas the investment to expand industrial capacity in existing mills varies from US$ 55 to 75 per metric ton of sugarcane.



D. Sugarcane and Ethanol Prices received by Producers.

Sugarcane prices received by third party suppliers for major producing states are based on a formula that takes into account prices for sugar and ethanol prices both in the domestic and international markets. The State of Sao Paulo Sugarcane, Sugar and Ethanol Growers Council (CONSECANA) was the first to develop this formula for the state of Sao Paulo, major producing state comprising roughly 60 percent of the Brazilian production.

The average CONSECANA price for the current crop (MY 2011/12) for the April-June 2011 period is R$ 0.4952 kg of TRS, or R$ 60.66 per ton of sugarcane. CONSECANA reports that the average sugarcane price (April 2010-February 2011) for the state of Sao Paulo for the 2010/11 crop is Reais (R$) 0.3912 per kg of TRS, or R$ 55.24 per ton of sugarcane

According to industry sources, sugarcane represents between 60 to 70 percent of the cost of producing ethanol. Current production cost is estimated at R$ 1.05/liter for hydrous ethanol and R$ 1.12/liter for anhydrous ethanol (ROE = US$ 1.00/R$ 1.57). The aforementioned numbers vary according to the efficiency of the plant.

The Crystal Sugar and Ethanol Indexes released by the University of Sao Paulo's College of Agriculture "Luiz de Queiroz" (ESALQ) follow. The Indexes track anhydrous and hydrous ethanol for fuel prices received by producers in the domestic spot market. Note that sharp increase in

prices for the 2011/12 crop, even during the harvest season, as a consequence of lower availability of the product.

Fuel Anhydrous Ethanol Prices: State of São Paulo (R$/000 liters).					
Month	**2007**	**2008**	**2009**	**2010**	**2011**
January	870.69	786.22	873.30	1285.40	1233.20
February	837.39	808.08	860.30	1297.60	1293.10
March	912.93	831.50	744.50	974.60	1596.60
April	1072.57	789.40	697.00	908.40	2375.00
May	883.78	821.50	676.40	839.20	1380.70
June	675.07	787.00	692.80	827.30	1244.60
July 1/	668.53	873.20	803.78	924.20	1296.30
August	665.58	858.50	820.70	961.90	--
September	660.73	891.20	912.90	1040.20	--
October	664.44	902.20	1086.40	1173.20	--
November	792.90	897.00	1093.80	1185.20	--
December	851.07	880.60	1131.60	1201.80	--
Source: USP/ESALQ/CEPEA. 1/ July 2011 refers to July 04-08.					

Fuel Hydrous Ethanol Prices: State of São Paulo (R$/000 liters).					
Month	**2007**	**2008**	**2009**	**2010**	**2010**
January	845.36	697.18	781.40	1171.2	1109.40
February	802.87	714.70	777.60	1095.8	1176.10
March	855.05	754.56	656.80	825.2	1421.90
April	940.51	715.60	621.30	799.70	1387.50
May	690.84	697.10	585.22	724.30	1005.90
June	587.86	665.30	606.60	720.30	1113.70
July 1/	583.99	718.10	710.20	797.90	1134.60
August	581.02	719.30	726.50	835.70	--
September	580.96	749.60	791.40	896.20	--
October	585.48	715.70	935.10	977.70	--
November	716.09	726.40	941.90	1001.00	--
December	751.28	737.70	1000.40	1075.10	--
Source: USP/ESALQ/CEPEA. 1/ July 2011 refers to July 04-08.					

3.3. Consumption

Brazil remains an important user of ethanol for fuel consumption. Total domestic demand for ethanol for calendar year 2012 is forecast at 25.05 billion liters, up 2.85 billion liters from 2011 consumption (22.195 billion liters), based on likely more attractive ethanol prices at the pump compared to 2011 and the steady sales of flex-fuel vehicles in the market. Total ethanol consumption for use as fuel is estimated at 22.5 billion liters for 2012. Ethanol consumption for other uses is projected at 2.55 billion liters, up 200 million from 2011 due to steady demand from the chemical industries.

The size of the Brazilian light vehicle fleet is roughly estimated at 28 million units and pure hydrous ethanol and flex fuel powered vehicles represent together approximately 50 percent of the total fleet. Industry projections report that the share of flex fuel vehicles is likely to reach 86 percent by 2020.

The table below shows the sales of FFV and hydrous ethanol powered cars, as reported by the Brazilian Association of Vehicle Manufacturers (ANFAVEA). Sales of FFV currently represent over 85 percent of total monthly vehicle sales.

Domestic Sales of Alcohol Powered Vehicles (pure alcohol & flex fuel units)						
2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011 1/**
897,308	1,425,177	2,032,361	2,356,942	2,711,267	2,876,173	1,035,033
Source: National Association of Vehicle Manufacturers (ANFAVEA) 1/ January-May						
Note: flex fuel vehicles were introduced in March 2003.						

The table below illustrates apparent consumption of liquid fuels in Brazil. According to Datagro, fuel ethanol represented approximately 41.51 percent in gasoline equivalent of total Otto cycle fuels consumption in 2010, a sharp decrease relative to 2009 (47.72 percent) due to unattractive ethanol prices at the pump in several Brazilian states during several months of 2010. January-April 2011 figures show that the ethanol share in the total Otto cycle fuels further dropped to 38.27 percent. Indeed, escalated ethanol prices at the pump during 2011 led many consumers to change from ethanol to gasoline.

Brazilian Apparent Consumption of Liquid Fuels (000 m3, Natural Gas in trillion Nm3)					
	2007	**2008**	**2009**	**2010**	**2011 3/**
Ethanol	16,204	19,962	22,523	21,951	6,249
Anhydrous	6,137	6,233	6,276	7,234	2,804
Hydrous	10,067	13,729	16,247	14,716	3,445
Gasoline "A" 1/	18,189	18,942	19,133	22,711	8,411
Natural Gas - light vehicles	3	2	2	2	1
Total Consump Otto Cycle 2/	35,006	38,678	40,621	42,243	13,627
Diesel	41,558	44,764	44,299	49,614	15,714
Total Consump Otto + Diesel	76,564	83,442	84,920	91,857	29,341
Source: Datagro. 1/ Pure gasoline with no ethanol blended. 2/ Consumption estimated in gasoline equivalent. 3/Jan-April.					

The steady sales of flex-fuel vehicles do not solely guarantee a higher demand for ethanol given that consumers' decisions are driven by the ratio between ethanol and gasoline prices. The 70 percent ratio between ethanol and gasoline prices is the rule of thumb in determining whether flex car owners will choose to fill up with ethanol (price ratio below 70 percent) or gasoline (price ratio above 70 percent).

Due to lower availability of ethanol during the the off-season (January-April 2011), gasoline consumption was favored in several Brazilian states, as reported in the tables below, thus reducing ethanol demand. Note that even in June 2011, close to the peak of the crushing season in the center-south, the price ratio in several locations do not encourage consumers to choose ethanol over gasoline.

Gasoline and Ethanol Prices in Selected States (average price, R$/liter)									
		Gasoline				Ethanol			
		2008	2009	2010	2011	2008	2009	2010	2011
Sao Paulo State	Jan	2.380	2.393	2.477	2.487	1.290	1.312	1.807	1.733
	Feb	2.376	2.398	2.509	2.490	1.257	1.331	1.831	1.765
	Jun	2.385	2.349	2.399	2.675	1.259	1.168	1.274	1.711
	Aug	2.394	2.351	2.412		1.264	1.231	1.387	
Sao Paulo City	Jan	2.376	2.391	2.475	2.482	1.291	1.312	1.810	1.733
	Feb	2.372	2.396	2.508	2.486	1.264	1.327	1.835	1.766
	Jun	2.383	2.346	2.395	2.680	1.264	1.180	1.274	1.716
	Aug	2.393	2.348	2.408		1.270	1.230	1.382	
Minas Gerais	Jan	2.405	2.381	2.489	2.537	1.606	1.611	1.965	1.902
	Feb	2.389	2.374	2.509	2.584	1.577	1.623	2.077	1.956
	Jun	2.368	2.326	2.412	2.789	1.568	1.501	1.678	2.069
	Aug	2.356	2.361	2.621		1.575	1.564	1.710	
Belo Horizonte (MG Capital)	Jan	2.369	2.331	2.431	2.499	1.589	1.597	1.926	1.886
	Feb	2.346	2.329	2.458	2.547	1.554	1.612	2.064	1.938
	Jun	2.322	2.282	2.379	2.778	1.547	1.487	1.661	2.087
	Aug	2.315	2.313	2.381		1.571	1.547	1.683	
Rio Janeiro State	Jan	2.505	2.537	2.641	2.654	1.624	1.685	2.044	2.022
	Feb	2.501	2.535	2.663	2.663	1.614	1.695	2.104	2.053
	Jun	2.513	2.524	2.613	2.869	1.635	1.588	1.703	2.170
	Aug	2.576	2.526	2.598		1.658	1.604	1.718	
Rio Janeiro Capital	Jan	2.500	2.534	2.640	2.651	1.614	1.680	2.050	2.025
	Feb	2.496	2.531	2.660	2.661	1.603	1.692	2.106	2.057
	Jun	2.509	2.521	2.611	2.865	1.627	1.579	1.695	2.165
	Aug	2.513	2.523	2.595		1.653	1.598	1.713	
Porto Alegre (RS Capital)	Jan	2.463	2.538	2.568	2.534	1.792	1.746	2.257	2.103
	Feb	2.326	2.538	2.592	2.552	1.693	1.765	2.335	2.157
	Jun	2.514	2.419	2.488	2.722	1.731	1.550	1.765	2.180
	Aug	2.566	2.577	2.560		1.744	1.765	1.836	
Goiania (GO Capital)	Jan	2.539	2.565	2.654	2.667	1.569	1.581	1.838	1.822
	Feb	2.502	2.564	2.655	2.697	1.508	1.581	1.897	1.891
	Jun	2.330	2.562	2.304	2.830	1.368	1.483	1.227	1.782
	Aug	2.452	2.556	2.384		1.472	1.411	1.347	
Fortaleza (CE Capital)	Jan	2.667	2.388	2.530	2.644	1.829	1.615	1.909	1.871
	Feb	2.655	2.533	2.530	2.647	1.814	1.747	2.013	1.944
	Jun	2.439	2.363	2.663	2.688	1.726	1.671	1.807	2.029
	Aug	2.589	2.575	2.645		1.885	1.768	1.772	
Source: Petroleum, Natural Gas and Biofuels National Agency (ANP).									

Ratio Ethanol/Gasoline Prices					
		2008	2009	2010	2011
Sao Paulo	Jan	54%	55%	73%	70%
	Feb	53%	56%	73%	71%
	Jun	53%	50%	53%	64%

	Aug	53%	52%	58%	
Sao Paulo	**Jan**	54%	55%	73%	70%
	Feb	53%	55%	73%	71%
	Jun	53%	50%	53%	64%
	Aug	53%	52%	57%	
Minas Gerais	**Jan**	67%	68%	79%	75%
	Feb	66%	68%	83%	76%
	Jun	66%	65%	70%	74%
	Aug	67%	66%	65%	
Belo Horizonte	**Jan**	67%	69%	79%	75%
	Feb	66%	69%	84%	76%
	Jun	67%	65%	70%	75%
	Aug	68%	67%	71%	
Rio Janeiro	**Jan**	65%	66%	77%	76%
	Feb	65%	67%	79%	77%
	Jun	65%	63%	65%	76%
	Aug	64%	63%	66%	
Rio de Janeiro	**Jan**	65%	66%	78%	76%
	Feb	64%	67%	79%	77%
	Jun	65%	63%	65%	76%
	Aug	66%	63%	66%	
Porto Alegre	**Jan**	73%	69%	88%	83%
	Feb	73%	70%	90%	85%
	Jun	69%	64%	71%	80%
	Aug	68%	68%	72%	
Goiania	**Jan**	62%	62%	69%	68%
	Feb	60%	62%	71%	70%
	Jun	59%	58%	53%	63%
	Aug	60%	55%	57%	
Fortaleza	**Jan**	69%	68%	75%	71%
	Feb	68%	69%	80%	73%
	Jun	71%	71%	68%	75%
	Aug	73%	69%	67%	
Source: Petroleum, Natural Gas and Biofuels National Agency (ANP).					
Gray Area means gasoline prices more attractive than ethanol					

Fuel consumption in Brazil, as reported by the Petroleum, Natural Gas and Biofuels National Agency (ANP), follows. The figures take into account the product sales by distributors and do not include illegal sales, which were common in the past for hydrous ethanol due to tax differentiation between both types of ethanol. As a result of some measures taken by ANP to avoid tax evasion, figures as of 2008 better reflect total hydrous ethanol consumption.

Brazilian Fuel Consumption Matrix (000 m3)					
	2007	**2008**	**2009**	**2010**	**2011 1/**
Diesel	41,558	44,764	44,298	49,239	20,144
Gasoline C**	24,325	25,175	25,409	29,844	13,974
Hydrous Ethanol	9,367	13,290	16,471	15,074	4,277

Source: ANP ** Gasoline C includes 20-25 % of anhydrous ethanol. 1/ 2011 refers to January-May.

3.4. Trade

A. Exports

Brazilian total ethanol exports for 2011 are forecast at 1.45 billion liters, a 455 million liters drop compared to 2010, mostly due to expected lower product availability and the industry commitment to supply the domestic market. Total fuel ethanol exports are estimated at 400 million liters, down 162 million liters from the previous year. Ethanol exports in 2012 are forecast at 1.85 billion liters based on the likely recovery of the sugarcane fields for the next crop.

The tables below show ethanol exports (NCM 2207.10.00 and 2207.20.10) for 2010 and 2011 (January-June), as reported by the Brazilian Secretariat of Foreign Trade (SECEX).

Brazilian Ethanol Exports by Country of Destination (NCM 2207.10.00, 000 liters, MT, US$ 000 FOB)

	CY 2010			CY 2011 1/		
Country	**Volume**	**Quantity**	**Value**	**Volume**	**Quantity**	**Value**
South Korea	375,309	303,225	188,051	121,006	97,776	75,821
U.S.A.	313,394	247,948	185,992	183,509	145,087	143,997
Japan	261,672	211,016	131,178	98,508	79,246	65,258
Netherlands	238,943	191,902	121,891	33,018	26,685	21,647
United Kingdom	160,336	126,477	94,431	0	0	0
Jamaica	138,622	112,068	65,793	11,833	9,564	7,280
Nigeria	80,123	64,775	39,548	24,299	19,648	16,168
India	58,603	47,375	27,717	0	0	0
Switzerland	52,158	42,029	29,722	9,341	7,520	5,309
Mexico	35,100	28,213	19,960	0	0	0
Others	184,284	148,003	108,931	63,957	51,685	41,072
Total	1,898,544	1,523,032	1,013,213	545,471	437,211	376,552

Source : Brazilian Secretariat of Foreign Trade (SECEX) 1/Jan-Jun.

Brazilian Ethanol Exports by Country of Destination (NCM 2207.20.10, liters, kg, US$ FOB)

	CY 2010			CY 2011 1/			
Country	**Volume**	**Quantity**	**Value**	**Volume**	**Quantity**	**Value**	**Value**
Argentina	1,334,20	1,072,25	788,071	0	0	0	0

	8	1					
Cameroon	100,000	80,510	98,852	0	0	0	0
Uruguay	75,000	61,050	75,000	0	0	0	0
Ivory Coast	40,000	32,204	37,866	0	0	0	0
Netherlands	44,413	34,130	31,410	0	0	0	0
China	23,716	19,170	11,905	0	0	0	0
Paraguay	3,365	3,915	4,778	6	2	2	23
Japan	0	1	1	0	0	0	0
Angola	0	0	0	420	446	552	1,206
Italy	0	0	0	50	37	46	246
Total	1,620,702	1,303,231	1,047,883	476	485	600	1,475
Source : Brazilian Secretariat of Foreign Trade (SECEX) 1/ Jan-Jun.							

B. Imports

Brazilian total ethanol imports for 2011 are forecast at 1.02 billion liters, almost exclusively for fuel use, due to the shortage in the domestic supply of ethanol. Ethanol imports for 2012 are projected at 770 million liters. The tables below show ethanol imports (NCM 2207.10.00 and 2207.20.10) for 2010 and 2011 (January-June), as reported by the Brazilian Secretariat of Foreign Trade (SECEX).

Brazilian Ethanol Imports by Country of Origin (NCM 2207.10.00, liters, kg, US$ FOB)

	CY 2010			**CY 2011 1/**		
Country	**Volume**	**Quantity**	**Value**	**Volume**	**Quantity**	**Value**
U.S.A.	20,763,395	16,386,848	12,126,396	27,762,738	22,440,621	24,027,259
Spain	994,643	784,972	152,563	8,297,305	6,706,712	4,451,808
Jamaica	213,524	210,780	714,988	47,965	38,770	112,244
Argentina	149,971	120,682	140,972	0	0	0
Germany	14,749	24,441	342,988	17,013	13,752	288,120
Guyana	19,680	19,422	37,773	0	0	0
Barbados	21,899	18,817	30,452	45,020	36,390	59,030
Poland	18,660	18,660	33,448	0	0	0
Mexico	8,657	7,523	46,966	469	379	2,600
Italy	7,387	5,726	32,799	4,876	3,941	25,770
Others	30,542	632	10,557	31,939,541	25,816,731	27,848,324
Total	22,243,107	17,598,503	13,669,902	68,114,928	55,057,296	56,815,155
Source : Brazilian Secretariat of Foreign Trade (SECEX) 1/ Jan-Jun						

Brazilian Ethanol Imports by Country of Origin (NCM 2207.20.10, liters, kg, US$ FOB)

	CY 2010	**CY 2011 1/**

Country	Quantity	Weight	Value	Quantity	Weight	Value
U.S.A.	53,320,877	42,070,555	25,401,631	365,539,686	289,493,044	258,733,082
Mexico	4,134	3,592	18,134	5,318	3,634	21,610
Switzerland	284	220	8,884	0	0	0
United Kingdom	636	1,200	4,523	0	0	0
Germany	58	46	469	12,413	15,692	29,830
Canada	9	7	371	8	6	299
France	14	3	96	0	0	0
South Africa	0	0	0	1	1	8
Total	53,326,012	42,075,623	25,434,108	365,557,426	289,512,377	258,784,829
Source : Brazilian Secretariat of Foreign Trade SECEX - 1/ Jan-Jun						

3.5. Ending Stocks

Beginning stocks for the bioethanol for "All Uses" table is based on information from MAPA and reflect all stocks at ethanol plants on January 1, 2006. Beginning stocks for the bioethanol "For Fuel Only" table is estimated based on historical average use of bioethanol for fuel/other uses.

On average, ethanol for fuel has represented 87 percent of total ethanol disappearance (use), therefore Post assumed this percentage to calculate the theoretical beginning stocks for fuel in January 1, 2006. All other stock figures were calculated based on the difference between total supply and disappearance (consumption and exports).

ATO/Sao Paulo forecasts ending stocks for fuel ethanol at 6.45 billion liters for 2012, a 9 percent decrease from 2011 stock level (7.1 billion liters). Ending stocks measured on December 31 of each year do not actually reflect the supply and demand balance. In general, ethanol plants in the center-south are nearing the end of the crushing, whereas ethanol plants in the northeast are fully operating. As a consequence, stock levels are expected to be high.

Stock figures measured on April 1, after subtracting the disappearance (consumption and exports) during the first quarter of the year, will likely show a more realistic picture about product availability in the beginning of the new crop season (April).

3.6. Market for Ethanol Used as Other Industrial Chemicals

The table below shows the Brazilian bioethanol supply and demand (PS&D) spreadsheet for "**Other Uses**" for calendar years 2006 through 2012. ***No Brazilian authority official or trade source maintains production figures on use "for fuel" or "other uses".*** All bioethanol production figures are solely reported as hydrous and anhydrous volumes. According to post contacts, ethanol plants produce hydrous and/or anhydrous ethanol and make no distinction between fuel/other uses. The use for fuels/other uses (industrial, refined or neutral) are determined at the consumer level.

Ethanol for "other uses" is used by companies such as chemicals, cosmetics, etc. It is common that "ethanol refineries" purchase hydrous/anhydrous ethanol to reprocess and resell it the smaller businesses. During the reprocessing, these plants change the original specifications of the product to meet the requested demand.

Ethanol Used as Other Industrial Chemicals (million liters)							
CY	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Beginning Stocks	357	357	361	361	366	367	387
Production	2,009	2,970	3,558	3,904	3,449	3,400	3,900
Imports	0	4	0	4	1	20	20
Exports	984	1,600	2,080	2,179	1,344	1,050	1,350
Consumption	1,025	1,370	1,478	1,725	2,105	2,350	2,550
Ending Stocks	357	361	361	366	367	387	407
Production Capacity (Conventional Fuel)							
No. of Biorefineries	352	377	407	426	436	440	443
Capacity	3,107	4,285	5,021	5,324	5,100	6,014	6,615
Capacity Use (%)	64.7%	69.3%	70.9%	73.3%	67.6%	56.5%	59.0%
Source: Prepared by ATO/Sao Paulo based on the "Bioethanol Production, Supply and Demand - All Uses" table. Numbers for 2011 and 2012 are projections.							

The Crystal Sugar and Ethanol Indexes released by the University of Sao Paulo's College of Agriculture "Luiz de Queiroz" (ESALQ) follow. The Indexes track anhydrous and hydrous ethanol for "other uses" prices received by producers in the domestic spot market.

Price for Anhydrous Ethanol - Other Uses: State of São Paulo (R$/000 liters).						
Month	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
January	1,154.00	1,000.50	940.00	906.40	1,297.20	1,234.70
February	1,174.80	957.60	913.10	893.70	1,348.20	1,267.40
March	1,346.50	991.60	972.60	784.00	1,044.30	1,587.80
April	1,279.20	1,215.30	921.70	721.60	926.20	2,253.70
May	1,056.40	1,055.30	920.10	733.80	880.10	1,463.90
June	1,071.80	791.20	896.60	701.60	830.60	1,238.70
July	1,152.70	777.70	955.20	810.80	925.20	--
August	1,084.10	762.90	963.10	846.00	983.80	--
September	981.60	756.50	986.90	916.80	1,047.60	--
October	1,000.40	754.80	923.20	1,043.90	1,175.40	--
November	980.70	885.40	913.60	1,100.50	1,222.40	--
December	973.30	974.30	939.80	1,098.70	1,221.60	--
Source: USP/ESALQ/CEPEA.						

Price for Hydrous Ethanol - Other Uses: State of São Paulo (R$/000 liters).						
Month	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
January	1,107.20	955.50	798.80	792.30	1,196.20	1,122.50

February	1,170.20	928.40	798.40	799.40	1,139.60	1,182.10
March	1,331.70	954.60	854.80	689.40	891.50	1,443.10
April	1,161.90	1,085.40	817.90	646.20	803.70	1,424.80
May	956.00	836.50	786.30	611.40	743.40	1,054.70
June	937.40	671.90	743.90	622.50	727.80	1,078.80
July	1,008.20	674.60	799.80	717.30	810.70	--
August	977.30	670.40	803.00	745.70	856.10	--
September	838.10	669.80	827.60	807.70	897.80	--
October	864.90	687.80	778.00	942.30	1,000.60	--
November	863.10	805.20	769.90	983.60	1,007.80	--
December	865.40	843.30	769.70	997.10	1,074.50	--
Source: USP/ESALQ/CEPEA.						

4. Conventional Biodiesel

Conventional biodiesel is defined as first generation biodiesel derived from animal fats and vegetable oils used to transport fuels as a substitute for fossil fuels. Biodiesel is a trans-esterified vegetable oil also known as fatty acid methyl ester produced from soy oil, rapeseed, oil, other vegetable oils, animal fats, and recycled cooking oils.

4.1. Brazilian Biodiesel Production, Supply and Demand (PS&D) Table

The table below shows the Brazil's Biodiesel supply and demand (PS&D) table for calendar years (CY) 2006 through 2012.

Biodiesel- Conventional & Advanced Fuels Production, Supply and Demand (Million liters)							
CY	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**

Beginning Stocks	0	0	45	90	135	71	91
Production	69	404	1,167	1,608	2,397	2,720	2,850
Advanced Only	--	--	--	--	--	--	--
Imports	4	4	5	4	9	12	10
Total Supply	73	408	1,217	1,702	2,541	2,803	2,951
Exports	4	3	1	3	8	4	6
Consumption	69	361	1,125	1,565	2,462	2,708	2,830
Ending Stocks	0	45	90	135	71	91	115
Production Capacity (Conventional)							
No. of Biorefineries	7	36	62	63	66	70	75
Capacity (Mil Liters)	300	1,800	3,600	4,350	5,837	6,500	6,750
Capacity Use (%)	23%	22%	32%	37%	41%	42%	42%
Production Capacity (Advanced)							
No. of Biorefineries	--	--	--	--	--	--	--
Capacity (Mil Liters)	--	--	--	--	--	--	--
Capacity Use (%)	--	--	--	--	--	--	--
Feedstock Use - Conventional (1,000 MT)							
Soybean for Crush	251	1,475	4,254	5,866	8,739	10,417	10,914
Cottonseed for Crush	15	15	86	248	343	128	134
Animal Fat	9,730	57,012	164,570	226,742	338,025	383,531	401,861
FeedStock Use - Advanced (1,000 MT)							
FeedStock A	--	--	--	--	--	--	--
Source: Prepared by ATO/SP based on ANP, SECEX and industry sources.							

4.2. Production

A. Feedstock

Biodiesel can be produced from several raw materials such as soybeans, castor seed (*Ricinus communis*), African palm oil ("dendê"), "pinhao manso" (*Jatropha curcas*), sunflower, peanut, animal fat, fried oil or others.

Despite the variety of feedstock which can potentially be used to produce biodiesel, updated information from ANP, shows that production breakdown by source remains relatively unchanged: soybeans represent on average, 84 percent of the total biodiesel feedstock, followed by animal tallow (15 percent) and cottonseed oil (1 percent). The tables below show official USDA data for soy and cotton oil production for MY 2007/08 through 2010/11, as well as a projection for MY 2011/12.

Brazilian Soybeans and Products Production (000 hectares, 000 metric tons)					
	2007/08	**2008/09**	**2009/10**	**2010/11**	**2011/12**
Area harvested	21,300	21,700	23,500	24,200	25000

Soybeans	61,000	57,800	69,000	74,500	72500
Soybeans for crushing	31,895	30,778	35,700	36,300	37150
Meal, Soybean	24,720	23,850	27,670	28,130	28790
Oil, Soybean	6,120	5,910	6,850	6,970	7,130
Source: USDA/FAS					

Brazilian Cotton and Products Production (000 hectares, 000 metric tons)					
	2007/08	**2008/09**	**2009/10**	**2010/11**	**2011/12**
Area Harvested	1,077	843	836	1,390	1400
Seed Cotton 1/	4,078	3,114	3,123	4,942	5329
Lint Cotton	1,602	1,193	1,187	1,878	2024.82
CottonSeed	2,300	1,930	1,977	2,800	2800
Meal, Cottonseed	1,130	948	972	1,375	1,375
Oil, Cottonseed					
Source: USDA/FAS 1/ Seed cotton calculated based on average lint yields.					

B. Production Estimates

Biodiesel production remains regulated by the government. Post projects total biodiesel production for 2012 at 2.85 billion liters, up 5 percent from the 2011 projection (2.72 billion liters), assuming that the mandatory biodiesel mixture remains unchanged at 5 percent. The production estimate for 2010 is 2.4 billion liters, as reported by ANP. Cumulative January-April 2011 production is approximately 770 million liters, or 61 percent of the auctioned volume for January-June 2011. Biodiesel production is reported below.

Brazilian Biodiesel Monthly Production/Deliveries (000 liters						
Month	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
January	1,075	17,109	76,784	90,352	147,435	183,237
February	1,043	16,933	77,085	80,224	178,049	173,701
March	1,725	22,637	63,680	131,991	214,150	228,054
April	1,786	18,773	64,350	105,458	184,897	185,060
May	2,578	26,005	75,999	103,663	202,729	-
June	6,490	27,158	102,767	141,139	204,940	-
July	3,331	26,718	107,786	154,557	207,434	-
August	5,102	43,959	109,534	167,086	230,613	-
September	6,735	46,013	132,258	160,538	219,865	-
October	8,581	53,609	126,817	156,811	210,537	-
November	16,025	56,401	118,014	166,192	208,972	-
December	14,531	49,016	112,053	150,042	187,653	-
Total	69,002	404,329	1,167,128	1,608,053	2,397,272	770,052

ANP reports that as of May 2011, Brazil has 67 plants authorized to produce biodiesel, 9 projects already authorized to build the plant and 18 new projects in the process of receiving the authorization from the agency. Current authorized industrial capacity is estimated at 17.316 million liters/day or 6.2 billion liters/year, based on a 360 day operation cycle. This represents approximately 2.3 times the mandatory biodiesel production to be blended in mineral diesel (B5) in

2011; and a 25 percent increase compared to the authorized industrial capacity for the same period in 2010 (13.90 million liters/day).

ATO/Sao Paulo projects industrial capacity for 2011 and 2012, at 70 and 75 plants or 6.5 and 6.75 billion liters per year, respectively, based on a 360 day operation cycle. Projections are based on information for authorized plants and requests for authorization provided by ANP and industry sources.

C. Cost of Production and Market Prices

The biodiesel market remains regulated by the government through a public auction system which sets the volume of biodiesel that should be produced and delivered to fuel distributors in a particular period of the year as well as the average sales price. The auction system gives preference to producers with the Social Fuel Stamp (see Section 2.5.2 – Biodiesel Social Fuel Stamp), given that only those with the aforementioned stamp are eligible for production of 80 percent of the total auctioned volume.

The tables below summarize the results of all auctions during 2010 and 2011. ANP has already coordinated six auctions (20th to 22nd auctions split into two sessions, and benefitting only producers with the Social Fuel Stamp in the first session) to guarantee biodiesel supply in 2011. During November 2010 - May 2011, 1.96 billion liters of biodiesel were sold for delivery during January-September 2011. Additional auctions should take place in the upcoming months to guarantee supply for the last quarter of the year.

Biodiesel Auctions				
Auction	17th Auct 1	17th Auct 1	18th Auct 1	18th Auct 2
Date	3/1/2010	3/2/2010	05/27-28/10	5/31/2010
Number of Suppliers	29	20	27	27
Offered Quantity (m3)	565,000		600,000	
Purchased Quantity (m3)	452,000	113,000	480,000	120,000
Opening/Reference Price (R$/m3)	2,300.00	2,300.00	2,320.00	2,320.00
Average Price (R$/m3) 1/	2,241.69	2,218.49	2,193.32	1,754.60
Price Discount (%)	(2.54)	(3.54)	(5.46)	(24.37)
Delivery Date	Apr-Jun/10	Apr-Jun/10	Jul-Sep/10	Jul-Sep/10
Source: ANP 1/ Price FOB, including PIS/PASEP and COFINS, excluding ICMS				

Biodiesel Auctions				
Auction	19th Auct 1	19th Auct 1	20th Auct 1	20th Auct 2
Date	08/30-31 & 09/1-3/10	08/30-31 & 09/1-3/10	11/17-19/10	11/17-19/10
Number of Suppliers	25	24	31	29
Offered Quantity (m3)	615,000		600,000	

Purchased Quantity (m3)	492,000	123,000	480,000	120,000
Opening/Reference Price (R$/m3)	2,320.00	2,320.00	2,320.00	2,320.00
Average Price (R$/m3) 1/	1,750.00	1,720.00	2,310.17	2,243.11
Price Discount (%)	(24.65)	(25.72)	(0.42)	(3.31)
Delivery Date	Oct-Dez/10	Oct-Dez/10	Jan-Mar/11	Jan-Mar/11
Source: ANP 1/ Price FOB, including PIS/PASEP and COFINS, excluding ICMS				

Biodiesel Auctions				
Auction	21st Auct 1	21st Auct 1	22nd Auct 1	22nd Auct 2
Date	02/16-8/11	02/16-18/11	05/24-26/11	05/24-26/11
Number of Suppliers	27	27	31	22
Offered Quantity (m3)	660,000		700,000	
Purchased Quantity (m3)	528,000	132,000	560,000	140,000
Opening/Reference Price (R$/m3)	2,378.96	2,413.33	2,316.25	2,354.50
Average Price (R$/m3) 1/	2,046.00	2,047.02	2,252.58	2,027.70
Price Discount (%)	(14.00)	(15.18)	(2.75)	(13.88)
Delivery Date	Apr-Jun/11	Apr-Jun/11	Jul-Sep/11	Jul-Sep/11
Source: ANP 1/ Price FOB, including PIS/PASEP and COFINS, excluding ICMS				

Biodiesel prices received by producers are determined by the public auction system (see Average Price in the tables above). Producers are not allowed to change the sales price set at the auctions and consequently must search for low cost raw material or hedge their activities to offset risk. Note that the higher opening/reference prices in the last auctions reflect the higher market soy prices, major raw material used to produce biodiesel.

According to the Brazilian Association of Vegetable Oil Industries (ABIOVE), raw materials make up approximately 75 percent of the biodiesel production cost. Given that almost 85 percent of biodiesel production still results from the use of soybean oil, the profitability of the sector is highly dependent on oilseed prices.

Industry sources report that biodiesel production costs are estimated at R$ 2.40/liter, including taxes, depending on the producing region, considering soybean oil prices at R$ 1,750.00/ton (without taxes) and the exchange rate of R$ 1.60/US$.

The tables below show the price for soybean oil in 2010 and 2011 (January-June). The average crude price in the state of Sao Paulo for the first semester of 2011 is R 2,456/ton, as opposed to R$ R$ 1,749/ton for January-June 2010 and R$ 2,124/ton for July-December 2010. The sharp increase in prices has negatively affected producers' profitability.

Soybean Oil, Crude - Prices (2010)						
Location	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
Chicago (US$/ton)	876.00	844.80	869.99	865.16	844.07	818.04
Prêmio (US$/ton)	-3.58	-8.38	-47.40	-43.65	-12.49	-0.07
Port of Paranaguá - Fob (US$/ton)	872.42	836.43	822.59	821.51	831.58	817.96

São Paulo - (R$/ton com ICMS 12%)	1,795	1,840	1,732	1,674	1,733	1,723
Elaborated by ABIOVE based on several sources.						

Soybean Oil, Crude - Prices (2010)						
Location	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Chicago (US$/ton)	838	899	912	1,013	1,128	1,205
Prêmio (US$/ton)	28.22	19.84	18.74	5.51	14.99	0.22
Port of Paranaguá - Fob (US$/ton)	866	919	930	1,018	1,143	1,205
São Paulo - (R$/ton com ICMS 12%)	1,760	1,986	2,002	2,195	2,332	2,472
Elaborated by ABIOVE based on several sources.						

Soybean Oil, Crude - Prices (2011)						
Location	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
Chicago (US$/ton)	1,267	1,270	1,229	1,276	1,260	1,253
Prêmio (US$/ton)	9.92	8.82	-1.10	-4.08	-4.57	-1.76
Port of Paranaguá - Fob (US$/ton)	1,277	1,279	1,228	1,272	1,256	1,252
São Paulo - (R$/ton com ICMS 12%)	2,525	2,607	2,515	2,375	2,360	2,354
Elaborated by ABIOVE based on several sources.						

4.3. Consumption

Biodiesel domestic consumption remains regulated by GOB, thus the sector must comply with the biodiesel mandate which requires all mineral diesel to have a five percent biodiesel blend (B5) as of 2010. Based on industry projections for mineral diesel domestic demand, ATO/Sao Paulo forecasts total biodiesel domestic consumption for 2011 and 2012 at 2.71 and 2.83 billion liters, respectively.

Biodiesel consumption for 2010 is estimated at 2.46 billion liters based on mineral diesel consumption of 49.23 billion liters and the mandatory mixture of five percent (B5) during 2010.

The table below shows the vehicle fuels consumption matrix from 2007-2011, according to ANP.

Brazilian Fuel Consumption Matrix (000 m3)					
	2007	**2008**	**2009**	**2010**	**2011 1/**
Diesel	41,558	44,764	44,298	49,239	20,144
Gasoline C**	24,325	25,175	25,409	29,844	13,974
Hydrous Ethanol	9,367	13,290	16,471	15,074	4,277
Source: ANP ** Gasoline C includes 20-25 % of anhydrous ethanol. 1/ 2011 refers to January-May.					

4.4. Trade

The following tables show biodiesel imports and exports from 2006 - 2011 (January-June) in metric tons as reported by the Brazilian Secretariat of Foreign Trade (SECEX) and converted to liters. To date, no significant exports have occurred. Nonetheless, Brazil can potentially become a net exporter due to the excess industrial capacity.

Brazilian Biodiesel Trade (NCM 3824.90.29, metric tons)						
	2006	**2007**	**2008**	**2009**	**2010**	**2011 1/**
Imports	3,385	3,194	4,409	3,803	7,904	5,837
Exports	3,095	2,222	1,289	2,432	7,302	1,673
Source: SECEX. 1/ Jan-Jun						

Brazilian Biodiesel Trade (NCM 3824.90.29, 000 Liters)						
	2006	**2007**	**2008**	**2009**	**2010**	**2011 1/**
Imports	3,868	3,651	5,039	4,346	9,033	6,671
Exports	3,537	2,539	1,473	2,779	8,345	1,912
Source: ATO/Sao Paulo, based on SECEX figures and biodiesel density = 0.875 g/cm3						

Export figures by country of destination and imports by origin for the years 2009 - 2011 (January-June) are shown below, according to SECEX.

Brazilian Biodiesel Exports by Country of Destination (Metric tons, US$ 000 FOB)						
	CY 2009		**CY 2010**		**CY 2011 1/**	
Country	**Quantity**	**Value**	**Quantity**	**Value**	**Quantity**	**Value**
Argentina	1,525	3,559	5,780	11,352	817	2,208
Singapore	81	154	337	781	265	790
China	202	388	231	532	44	133
Chile	156	648	184	837	93	463
Uruguay	37	164	139	425	31	186
Indonesia	64	83	112	145	80	104
South Africa	0	0	96	234	84	231
Peru	84	402	87	447	50	261
Colombia	62	326	79	395	3	13
Paraguay	8	42	69	299	53	282
Others	212	440	187	480	153	623
Total	2,432	6,206	7,302	15,929	1,673	5,293
Source : Brazilian Secretariat of Foreign Trade SECEX - NCM 3824.90.29 - 1/ Jan - Jun						

Brazilian Biodiesel Imports by Country of Origin (Metric Tons, US$ 000 FOB)						
	CY 2009		**CY 2010**		**CY 2011 1/**	
Country	**Quantity**	**Value**	**Quantity**	**Value**	**Quantity**	**Value**
U.S.A.	1,287	4,798	2,059	7,730	1,942	5,345
Germany	538	1,772	1,974	6,178	1,531	5,854
Mexico	955	2,914	1,708	5,300	694	2,152

Spain	3	19	1,188	3,451	405	1,681
Netherlands	311	1,157	367	1,477	27	134
Denmark	358	931	189	385	112	231
Singapore	81	207	108	283	366	1,232
United Kingdom	130	597	102	437	20	112
Italy	31	87	43	124	3	20
China	12	67	43	226	42	201
Others	99	348	123	848	695	2,193
Total	3,803	12,898	7,904	26,440	5,837	19,156
Source : Brazilian Secretariat of Foreign Trade SECEX - NCM 3824.90.29 - 1/ Jan - Jun						

4.5. Stocks

ATO/Sao Paulo forecasts biodiesel ending stocks for 2012 at 115 million liters, up 24 million liters from 2011 (71 million liters), based on the difference between total supply and disappearance (consumption and exports).

5. Advanced Biofuels

For reporting purposes, advanced biofuels include all next generation technologies and feedstocks beyond the conventional sugar, starch, oilseed and animal fat-based biofuels now produced commercially. Advanced biofuels are generally derived from non-food crops, energy crops (switchgrass, miscanthus or jatropha) or agricultural, forestry and municipal waste. Advanced biofuels include second generation fuels (like cellulosic ethanol, methanol, dimethil ether – DME, and Fischer-Tropsch diesel), and third generation biofuel made from algae (or seaweed). Finally, advanced biofuels also include the "drop in" fuels, which are biomass-derived fuels chemically equivalent to gasoline, diesel and jet fossil fuels.

No commercial use of advanced biofuels has begun yet. The Sugarcane Technological Center (CTC) located in Sao Paulo state remains the leading research and development center for sugarcane, sugar and ethanol in Brazil, responsible for over 70 percent of all research and development related to the sugar-ethanol-energy sector in the country. According to CTC, the center is ready to develop second-generation ethanol since feedstock and logistic infrastructure are already available. However, the costs for technology transfers to industrial scale are still an obstacle and that is causing a delay in second-generation ethanol developments.

Another key institution working in the development of a commercial technology for the production of cellulosic ethanol is the the Bioethanol Science and Technology Center (CTBE) operated by the Brazilian Association of Synchrotron Light Technology (ABTLuS), by a management contract with the Minstry of Science and Techonology (MCT). CTBE continues its basic research in the action of enzymes on the lignocellulosic material, the molecular structure of the components of sugarcane, etc. CTBE has also built an ethanol pilot plant to conduct experiments with advanced biofuels.

Novozynes, a company that produces biofuels enzymes which can be used for cellulosic ethanol production, reports that currently holds 47 percent of the world market share in research and development in the sugarcane sector. The company emphasizes that Brazil needs to lead industrial developments, because operational and logistics costs can be shared with first-generation ethanol production and 20 percent of the land cost can be saved if the production unit is installed in the sugar-ethanol mill.

6. Notes on Statistical Data

6.1. Bioethanol

Beginning stocks for the bioethanol for "All Uses" table is based on information from the Ministry of Agriculture, Livestock and Supply (MAPA) and reflect all stocks at the ethanol plants as of January 1, 2006. Beginning Stocks for the bioethanol "For Fuel Only" table is estimated based on historical average use of bioethanol for fuel/other uses. On average, ethanol for fuel has represented 87 percent of the total ethanol disappearance (use), therefore Post assumed this percentage to calculate the theoretical beginning stocks for fuel in January 1, 2006. All other stock figures were calculated based on the difference between total supply and disappearance (consumption and exports).

Bioethanol production estimates for "All Uses" were provided by MAPA and are consistent with previous ATO/Sao Paulo GAIN reports submitted by MY. Production estimates "For Fuel Only" are taken as the difference between "production for All Uses" minus estimates for "disappearance for other uses" (domestic consumption and exports) given that all Brazilian official publications and industry sources report production in hydrous/anhydrous ethanol only.

Trade figures were based on the Brazilian Secretariat of Foreign Trade (SECEX). SECEX breaks down trade numbers in only two categories as described below:

- NCM 2207.10.00 – undenatured ethylic alcohol with ethanol content equal or over 80 percent. Undenatured alcohol is defined as pure ethanol with no additives and suitable for consumption.
- NCM 2207.20.10 - denatured ethylic alcohol with any ethanol content. Denatured alcohol is defined as ethanol with additives which make it poisonous and/or unpalatable, thus, no suitable for human consumption. Denatured alcohol is used as a solvent and as fuel for spirit burners and camping stoves. Different additives like methanol are used to make it difficult to use distillation or other simple processes to reverse the denaturation.

ATO/Sao Paulo made the assumption that all ethanol imports are for "other uses". There are no figures for ethanol exports "for fuel" and/or other uses. Post estimated ethanol "for fuel" based on the type of ethanol that is usually imported by the final destination, as reported by UNICA. Thus, the United States, the Caribbean countries and Sweden usually import ethanol "for fuel"; whereas Japan, Korea and several other importing countries, including the European Union import ethanol for industrial and other uses.

Domestic consumption figures were taken from information provided by Datagro and the Petroleum, Natural Gas and Biofuels National Agency (ANP).

The number of biorefineries were taken from MAPA and UNICA. Ethanol production capacity was based on production figures as reported by UNICA. Post took the highest ethanol production figure in a given 15-day period, as reported by the institution, and extrapolated to the entire Center-south crushing season. A similar procedure was performed for the Northeast production based on MAPA reports.

Sugarcane crushed for ethanol production was calculated based on the actual production breakdown for sugar/ethanol as described in previous GAIN reports. Note that on average, one metric ton of sugarcane produces 80.5 liters of ethanol.

6.2. Biodiesel

Production numbers are based on figures reported by ANP and forecasts are based on projections for diesel consumption and the results from the public auctions. Biodiesel market remains regulated by the government through a public auction system which sets the volume of biodiesel that should be produced and delivered to fuel distributors in a particular period.

Consumption figures are based on mineral diesel consumption and the mandatory mixture of biodiesel (B2, B3, B4, B5) in mineral diesel set by Brazilian legislation.

Trade figures were based on the Brazilian Secretariat of Foreign Trade (SECEX), as reported below:

- NCM 3824.90.29 – Other industrial fatty acid derivatives, mixtures and preparations containing fatty alcohols or carboxylic acids or their derivatives.

The number of biorefineries and production capacity are based on ANP reports. Feedstock use for biodiesel consumption is based on the following conversion rates:

- 0.875 metric ton of biodiesel = 1,000 liters of biodiesel
- 1 metric ton of biodiesel = 1.03 metric ton of soybean oil
- 1 metric ton of biodiesel = 1.00 metric ton of cottonseed oil
- Extraction rate for soybean oil = 0.1919
- Extraction rate for cottonseed oil = 0.1649
- 1 kg of animal fat = 1.064 liters of biodiesel

6.3. Exchange Rate

Exchange Rate (R$/US$1.00 - official rate, last day of period)							
Month	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
January	2.62	2.22	2.12	1.76	2.32	1.87	1.67
February	2.60	2.14	2.12	1.68	2.38	1.81	1.66
March	2.67	2.17	2.05	1.75	2.25	1.78	1.62
April	2.53	2.09	2.03	1.69	2.18	1.77	1.57
May	2.40	2.30	1.93	1.63	1.97	1.81	1.57
June	2.35	2.16	1.93	1.64	1.95	1.80	1.56
July	2.39	2.18	1.88	1.57	1.87	1.75	1.57
August	2.36	2.14	1.96	1.63	1.88	1.75	--
September	2.22	2.17	1.84	1.92	1.78	1.69	--
October	2.25	2.14	1.74	2.12	1.74	1.70	--

November 1/	2.21	2.17	1.78	2.33	1.75	1.71	--
December	2.26	2.14	1.77	2.34	1.74	1.66	--
Source : Gazeta Mercantil and BACEN (as of October 2006) 1/ July 2011 refers to July 12.							