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The Emerging South American Biodiesel Industry

South America is beginning to emerge as a major biodiesel producer utilizing various raw material sources. Whereas South America is blessed with an abundance of agricultural products, many of its countries have lagged behind the European Union and the United States regarding laws aimed at promoting and developing their biodiesel industries. However, these laws are now being developed or have been developed within the last couple of years. This has allowed for the commercial production of biofuels, and the industry is expanding quickly. In fact, the region as a whole is rivaling North America's biodiesel industry in total production. Following is a brief overview of the major biodiesel producers in South America.

Projected South American Biodiesel Production, 2008

	Gallons	Metric Tons	Raw Material Used
Argentina	264,172,052	880,724	100% soybean oil
Brazil	290,589,258	968,797	80% soy oil; 15% animal fat
Paraguay	3,599,384	12,000	67% animal fat; 33% vegetable oil
Uruguay	1,188,774	3,963	60% animal fat; 40% soy oil
Columbia	38,569,120	128,586	100% palm oil
Total	598,118,588	1,994,070	

Source: Derived from U.S. Department of Agriculture/Foreign Agricultural Service (FAS) attaché reports, and FAS/Global Agriculture Information Network reports.

Paraguay

As with many developing nations, Paraguay views biofuel production as a way to help develop its struggling rural areas and become more self-reliant for its energy needs. Paraguay is 100 percent reliant on imported oil, and 75 percent of its fuel consumption is diesel. The first biofuel legislation was passed in 2005 that, among other things, established minimum blend requirements of one percent biodiesel in diesel fuel by 2007, three percent by 2008, and five percent by 2009. The maximum blending rate at fuel stations is established at 20 percent. In May 2008, the government reduced the value added tax (VAT) on biodiesel to two percent and eliminated the import duties on both new and used flex fuel vehicles in an effort to help spur the use of biodiesel.

Currently there are seven biodiesel plants operating in Paraguay, with two of the plants being owned by two major slaughterhouses. Approximately 67 percent of biodiesel is produced from animal fats, and two jatropha plantations are being developed for future feedstocks. It is estimated that the total production capacity is 11.9 million gallons (39,600 metric tons), but production in 2007 was 3.6 million gallons (12,000 metric tons) and projected to be 10.5 million gallons (35,000 metric tons) in 2009.

Uruguay

Uruguay is developing its biodiesel sector to add value to its agriculture products, to become more self-sufficient, and to promote a cleaner environment. Uruguay's biofuel law was passed in October 2007 and mandates a minimum blend of two percent biodiesel in diesel fuel from 2009 to 2011 and a five percent blend after 2011. Nearly 60 percent of the biodiesel production currently comes from tallow, with the remaining amount from soybean oil. There are five major biodiesel plants and a multitude of smaller plants that produce biodiesel for their own consumption. In 2008, Uruguay's biodiesel production was estimated at 1.2 million gallons (3,963 metric tons). Of the five major biodiesel plants, two utilize tallow, two use soybean oil, and the final plant has ceased production due to high feedstock prices in 2008.

Brazil

Brazil has been a leader in biofuel production for many years starting with its production of ethanol after the fuel crises in the 1970s. Brazil's biodiesel law developed in 2004 created the National Biodiesel Production and Use Program, which established a mandate of a minimum blend of two percent biodiesel in diesel fuel from January to June 2008. Production capacity is estimated at five times that needed to meet the demand established by the blending mandate. Hence, in July 2008 the mandatory blend was increased to three percent in an effort to offset the excess production capacity.

Brazil has 56 biodiesel plants authorized by the government to produce biodiesel, with new projects awaiting approval. Eighty percent of the feedstock used for biodiesel is soybean oil and 15 percent is animal fats. Current capacity is approximately 1.1 billion gallons (3.8 million metric tons). Production in 2007 was estimated at 106.2 million gallons (354,051 metric tons) while 2008 production is estimated at 290.6 million gallons (968,797 metric tons). Unlike other countries in the region, it appears that Brazil will meet their minimum blending requirements for 2008.

Colombia

Colombia's first biodiesel plant started producing in November 2007, with an estimated production capacity of 15 million gallons (50,000 metric tons) per year. A second plant with a capacity of 10.8 million gallons (36,000 metric tons) per year began production in April 2008. Two more plants were expected to come online in the second half of 2008.

Colombia is the largest palm oil producer in South America, producing approximately 800,000 metric tons of palm oil in 2008, of which 46 percent was exported. Hence, palm oil is the only feedstock being utilized for biodiesel production. Initially there were plans

to expand the palm-based biodiesel industry in order to begin exporting biodiesel. However, production has not even reached the level to meet local demand yet. Total biodiesel production in 2007 was estimated at 38.6 million gallons (128,586 metric tons), which fell short of meeting the five percent minimum blending mandate. Currently, production only provides 20 percent of the total needed to comply with the mandate.

Argentina

Argentina has been heralded as an emerging leader in biodiesel production and trade. The country's biofuel law was passed in 2007 and mandates a minimum blend of five percent biodiesel by 2010. Even though the domestic mandate is important to create domestic demand, Argentina exports the vast majority of its biodiesel production, with 90 percent exported in 2007.

It was expected that by the end of 2008, more than 15 medium to large biodiesel plants would be online with an estimated capacity of 528.3 million gallons (1.8 million metric tons) and projected production of 264.2 million gallons (880,724 metric tons). The principle feedstock in Argentina is soybean oil with very minute quantities of used cooking oil being utilized. With the abundance of soybean oil in Argentina, the biodiesel industry is projected to continue its growth in the near future and is expected to have a production capacity of 1.1 billion gallons (3.5 million metric tons) by 2010.

Conclusion

South America has become a major producer of biodiesel. Argentina and Brazil account for nearly 93 percent of the production in South America and are projected to continue growing. Argentina exports over 90 percent of its biodiesel whereas Brazil utilizes the vast majority of its production domestically. So what does this mean for animal fats?

In total, a new market of close to two million metric tons for fats and oils has been created. Looking at animal fats specifically, it is estimated that close to 145,000 metric tons of animal fats were used in the production of biodiesel in South America in 2008. For example, in 2005 Brazil exported nearly 45,000 metric tons of tallow, whereas in 2008, it is estimated that Brazil's tallow exports will be approximately 600 metric tons. In addition, Brazil imported over 7,000 metric tons of tallow from Uruguay and 4,000 metric tons from Paraguay in 2008. Overnight Brazil went from a net exporter of tallow to a net importer of tallow to meet its domestic demand.

There are many very aggressive predictions as to the future production of biodiesel in South America that won't be mentioned here. However, one item to note is that Argentina's production will continue to rely on export markets for biodiesel such as the European Union and the United States as long as 90 percent of its production is exported. Hence, events in these export markets can very quickly affect Argentina's biodiesel industry. Brazil's production will continue to rely on its apparent successful biodiesel laws and promotion by its government. Other countries in the region have not been as successful at meeting their minimum blend mandates and further support from their governments will be needed to insure the sustainability of their biodiesel industries. **R**