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The Altillanura- Colombia's Next Agricultural Frontier

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Agricultural Situation

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Report Highlights:

Approximately 4.5 million hectares (HA) are available in the Colombian Altillanura for agriculture, without the need for deforestation. However, only 22,000 HA of commercial soybeans and corn are currently under cultivation and 106,000 HA of African (oil) palm. Two major soybean and corn projects, as well as a biodiesel project, have entered the scene in the past 2 years, although the projects have suffered setbacks due to poor infrastructure, inflexible land tenure laws, and the insecurity in the region.

General Information:

Summary

When high commodity prices in 2007/08 sparked a food security debate in Colombia, the Colombian government increased its focus on the Altillanura's Agricultural potential, The local private sector and foreign investors have been exploring the region's possibilities for at least a decade. Approximately 4.5 million hectares (HA) are available in the Colombian Altillanura for agriculture, without the need for deforestation.

However, only 22,000 HA of commercial soybeans and corn are currently under cultivation and 106,000 HA of oil palm. Two major soybean and corn projects, as well as a biodiesel project, have entered the scene in the past 2 years, although the projects have suffered setbacks due to poor infrastructure, inflexible land tenure laws, and the insecurity in the region due the presence of the FARC [1] and the paramilitary [2] . Relatively poor soil quality is also an impediment to the Agricultural development of the region that has begun to be overcome via local agricultural research (Corpoica) [3] and cooperation with the Brazilian Cerrado research foundation [4] , with which the Altillanura shares similar conditions. With respect to US investment in the region, little has taken place, although US biotechnology giant Monsanto has demonstrated a keen interest in the region's development.

Characteristics of the Altillanura



The Altillanura region is literally the “high plains” of Colombia. Its low elevation ranges between 150-250 meters, sloping gradually East in the direction of Venezuela. The geographical region is mostly composed of the states of Meta, Vichada, and Casanare in central eastern Colombia. Remarkably, this area holds 33 percent of Colombia's total water resources. Nevertheless, the traditional agriculture of the region

has been rice and cattle production.

The tropical savannas of the Altillanura are acid soils that require intensive soil management. The soil has a high aluminum content and lacks organic matter, calcium, magnesium, potassium, and phosphorus. However, the flat topography is perfect for grain and oilseeds production, and its warm and rainy climate, with annual rainfall of between 1800-2700 millimeters, allows for two harvests a year. These harvests are carried out in July/August and November/December. Rain falls nine months of the year in the Altillanura, the rainiest months being July and August. Farming practices have followed a rotation cycle of corn/soybeans, sometimes initiated with rice and rotated on a periodic basis with cattle. Since the Altillanura is humid and hot, with average temperatures ranging from 24°C to 27°C (75°F to 81°F), rotation is essential in order to manage pests and fungi growth. The Colombians are working with both Corpoica and with the Mato Grosso Foundation, which operates under similar climatic and soil conditions in the Brazilian Cerrado and has dealt in large degree with soybean rust and nematodes that exist in the Altillanura. With help from these research organizations, soil management has improved and water holding capacity has increased substantially.

Projects in the Altillanura

Aliar: An Integrated Model

The two major grain and oilseed projects, Aliar and Monica, base their production on the successful Brazilian Cerrado model: liming acid soils, following a soy/corn rotation, and applying no-till planting techniques. The Altillanura's largest agricultural undertaking is called La Fazenda and is operated by Aliar S.A., in cooperation with Contegral Group, a feed processing company, and other investors from Colombia's poultry-producing region of Santander.

Located in Puerto Gaitan, Aliar's project is an agro-industrial plan with investment of \$60 million. The objective is to produce grains and oilseeds, pork and chicken, covering the entire chain, from seed to feed to final meat production. This vertically-integrated model currently incorporates 750 pigs consuming 12,000 hectares of corn and soy. The pigs are slaughtered at Bogota's Guadalupe slaughterhouse under the brand name *La Fazenda*. The model calls for the grain to sustain an eventual 3.5 million broilers and 10,000 sows per month.



Aliar is motivated by the idea that eliminating the need to import from the US and other sources its corn and soybean feed components will protect them from fluctuating commodity prices and exchange rates. Today, between 70-80% of the cost of producing poultry and pork in Colombia is in the feed. The company has installed adequate grain storage to keep the facility operating year-round without the need to import. Although La Fazenda has not reached yield levels of the US, Brazil and Argentina, they estimate current average soy yields at 3.2 tons per hectare and corn at 7 tons per hectare.

Monica

Monica, the second largest Altillanura project, which produces soybeans, corn, and rice, is operating with Brazilian investment capital from the Monica Group, which are farmers of the largest soybean area in Bolivia. Their total farmland in Brazil and Bolivia surpasses 160,000 hectares. Monica currently farms 3,000 hectares of soybeans and corn at their El Chaparral farm located 110 kilometers northeast of Puerto Gaitan, and also owns 2,600 hectares in Cumaribo, Vichada. Although their business plan calls for 12,000 total hectares, so far Monica has been forced to create seven companies in order to buy this land in Colombia legally. This has, in turn, multiplied the bureaucracy of operating the business and has been a source of discouragement, to the point where the group is considering selling their land and pulling out of Colombia. Their investment thus far supersedes \$10 million between land, equipment, and soil improvement costs.



After operating two years in the region, the sentiment expressed by Sergio Marchett, principal shareholder of the company, is not entirely positive. Due to extremely high production costs in Colombia, he doubts Colombia's competitiveness, in particular for grains and oilseeds, on the world market. Their opinion is that the Colombian government has not facilitated agricultural investment in Colombia, nor has it implemented an aggressive agricultural policy for the development of the region. Up until now, the company claims that it has been impossible to obtain government ICR [5] subsidies. Due to the improving but still delicate security situation of the region, movement of fuel and inputs is subject to approval by the Colombian army, and the poor infrastructure in the Altillanura causes difficulties for transporting product. The group purchases many of their inputs directly from Brazil or Argentina, and pays the hefty 16% value added tax on equipment and machinery. In the areas where the company is farming, electricity is still not available.

Due to these difficulties, large agribusinesses and multinationals such as the Maggi Group, Cargill, Los Grobos, and Tejar have visited the region but are waiting on Monica's results. If Monica fails, it is likely to discourage further foreign investment in the Altillanura for grains and oilseeds production.

Biodiesel and African Palm Projects

Manuelita

African palm is the gem of agroindustry in Meta, and has grown from 5,000 HA in 1975, to 65,000 HA in 2005, to 105,000 HA in 2009. There are 20 palm oil extraction plants concentrated in the San Carlos de Guaroa area, as well as in Acacias, Cumaral, San

Martin, and Puerto Gaitan. Thirty-three percent of Colombia's palm production is located in the Altillanura.



Post visited the Manuelita palm oil and biodiesel plant, a project that was initiated in 1986. Palm plantations in Colombia have generally been established on the outer limits of agricultural expansion. Because of the relative isolation of these areas, according to Manuelita, security problems related to the FARC have been significant, and they did not have their biodiesel plant running until this year. Manuelita uses a total of 6,000 hectares of palm fields of their own and those of neighbors to produce oil and biodiesel. They produce 4.6 tons of oil per hectare, and the biodiesel capacity of the plant is 100,000 tons a year, allowing them to produce 1.2 million liters of biodiesel annually. According to a production manager, they would achieve more, but many farmers continue the practice of allowing their cattle to graze under the palm trees, negatively impacting yields.

Another Biodiesel venture located in San Carlos de Guaroa is called Biocastilla. This Colombian project not operating since is not yet fully financed.

Agricultural Research in the Altillanura

Although Corpoica (see footnote page 1) has led the way for tropical research in the Altillanura, Colombia's grain association [6], the International Research Center for Corn and Wheat, Cimmyt, the International Center for Tropical Agriculture, and CIAT, have made strides to assist agricultural production in Colombia's agricultural frontier. These research organizations have worked on methods to develop the Colombian savannah sustainably and have developed germplasms for soy, rice, corn, sorghum, and tropical grasses suited to the region.

The Mato Grosso Foundation has also made contribution to the advancement of large-

scale grain and oilseeds production in the Altillanura. This partnership was established early on in the region's development, and the foundation is a suitable mentor to the region. Some of the Cerrado's foremost experts believe their experience from Mato Grosso can help farmers in the Altillanura. They make a convincing case for the success of the Altillanura, having already achieved successful transformation to becoming a world grain exporter themselves, under equally or even more adverse conditions.

Land Issues

The UAF [7], or Family Agricultural Unit, creates the largest barrier to development of commercial, large-scale agriculture in Colombia. This law is a result of an attempt that the Colombian government made at agrarian reform in the 1960s, specifying limits on the amount of land an individual could possess. The maximum acreage varies throughout Colombia, with an average limit of about 250 hectares. In the palm-producing area of San Carlos de Guaroa, the limit is 49 hectares, whereas Puerto Gaitan is 900 hectares.

One proposed solution to the UAF issue for the Altillanura is the Business Development Zone [8], sort of a free-trade zone for agriculture that would provide incentives to investors and be exempt from the UAF. The Colombian Farm Bureau [9], united with other agricultural groups, has presented this idea to the executive branch, and it is currently under consideration. However, the concept may spark fierce opposition from groups who represent the displaced and demobilized paramilitary in Colombia, who are accustomed to receiving land grants in these areas.

In addition to land being unavailable to investors, land speculation is also taking place in the Altillanura. Due to the recent expansion and interest in developing the region, for frontier area property in Puerto Gaitan that was recently worth \$100 a hectare and has no paved road access, the asking price is now \$500. Isolated areas where palm production has been established have even higher asking prices. According to Manuelita, this has been a deterrent to further expansion of palm in Meta.

Infrastructure

For the Colombian government, the development of the altillanura is key to the security of the region and the end of the FARC. According to Fundallanura [10], It is one of the country's top ten priorities for infrastructure development. The altillanura is one of the FARC's last hiding places, and as roads are paved, basic services are provided, and jobs become available, it will be impossible for the guerillas to operate. As agricultural expansion has taken place, in tandem with President Uribe's plan for "democratic security", the region has become much safer and hospitable for business. In 2008,

President Uribe visited the Aliar project and made a commitment to support agricultural development in the region.

Making infrastructure a reality in the Altillanura is another story. Various projects have shortened the trip from the Country's capital to Meta's largest city, Villavicencio from 5 hours to less than 2 hours. A new bridge and 5-kilometer tunnel have made this possible. However, where companies are expanding, there is much to be done. Roads are not paved as far as Puerto Gaitan, and the trip from Puerto Gaitan to Monica's El Chaparral ranch takes 2 hours under dry conditions, and 6-7 hours when it rains. The wear and tear on trucks hauling product in and out of the area is substantial, as the roads are full of potholes and washboard-like patches, stretching out transport time.

However, the proximity to a major market, Bogota, is a great advantage. While from Brazil's expansion area, Mato Grosso, trucks are travelling much as 1,200 miles to port, the distance to Bogota from the Altillanura's production areas is as little as 120 miles. [11] The Meta River is also an option for exporting product from the Altillanura. The Rio Meta flows into the Orinoco in Venezuela, which currently buys Colombia's agricultural exports; although these exports are vulnerable to changes in policy due to the fragile relations between the two countries. However, the Meta River has the potential to connect the Altillanura with Europe, the US and other markets through its Atlantic Ocean outlet. According to Fundallanura, the work of dredging and making 850 kilometers of river navigable between Puerto Gaitan and Puerto Carreno, on the Colombian-Venezuelan border, will be finished by 2010. At that point they expect the Rio Meta to move 6 million tons of Colombian products, with a percentage of this amount to come from the Altillanura.

Opportunities for Investment

Thus far, US investors have demonstrated only minor interest in the Altillanura. The US cement company Pegusa has recently purchased 13,000 hectares in Puerto Gaitan for a joint sugar/ethanol project. The group bought the land together with a Colombian corporation called National Energy S.A. In addition, Monsanto, who has worked in Colombia for 40 years, is also watching the region's development, hoping to sell its roundup ready technology there. According to Monsanto's director for the Andean region, the future of Colombia's ag sector is the Altillanura, and few places in the world today have similar potential for agricultural production. They plan to build demonstration farms in the area to showcase their technology and inputs.

The Future of the Altillanura

The future development of the Altillanura depends on several factors. First, it depends on greater commitment and involvement from the central government. Agricultural policy that facilitates investment and provides assistance and incentives to producers is crucial. Government and private sector initiatives for improving infrastructure in the region are also needed in order to bring down production costs. International credit and investment are considered necessary for the particularly capital-intensive biodiesel plants and vertically integrated grain and meat production facilities. For grain and oilseeds production, crushing plants and adequate storage will be fundamental for achieving success on a large-scale and will also require major investment.

Developers of the region, led by Fundallanura, believe that the region's potential goes beyond simply replacing imports and supplying the regional market. It recently published the goal of Colombia's Cattle Federation [12] to not only raise the per capita consumption of meat and milk products, but to export 50,000 tons of value-added beef products by 2019. These exports are expected to come from the Altillanura region, via the Meta River. Other products with potential for export from the Altillanura are rubber, sugarcane, and ethanol, according to local industry experts. It will require a coordinated effort between the Colombian government, investors, and agricultural pioneers to make the region a viable option for these projects.

Soybean Statistics

Soy Area in Colombia by State 1997-2007											
State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Caldas	120	10	0	0	0	50	0	0	33	36	18
Cauca	589	357	901	689	1014	1123	1090	869	102	154	36
Casanare	1257	596	300	500	934	855	486	350	300	200	480
Huila	168	35	31	122	217	83	55	45	36	19	0
Meta	11650	9460	5083	9750	12200	14184	18480	26135	33330	22360	23049
Quindio	938	704	142	212	55	40	75	45	80	0	20
Risaralda	122	378	239	133	87	26	85	40	80	80	0
Tolima	10.422	780	940	170	60	0	0	0	0	0	0
Valle	18068	21436	11729	6791	9091	10546	7044	6844	5472	5957	5274
Total	43454	33952	19365	18367	23658	26527	27316	34328	39433	28806	28876

Soybean Area and Production in Colombia 1987 - 2007

Anos	Area (HA)	Production (tons)
1987	64750	128210
1988	61220	115400
1989	92600	177400
1990	116150	232140
1991	100600	193597
1992	49357	96002
1993	52995	113213
1994	56610	109391
1995	45074	94993
1996	27175	58108
1997	43454	90297
1998	33952	71966
1999	19365	39429
2000	18367	37829
2001	23658	55656
2002	26907	61660
2003	27315	57714
2004	33776	68615
2005	39433	59865
2006	28806	47700
2007	28876	55271

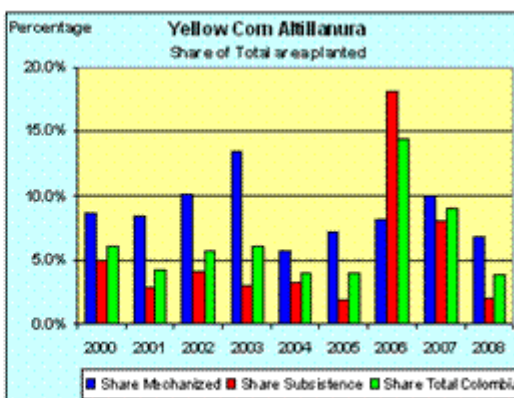
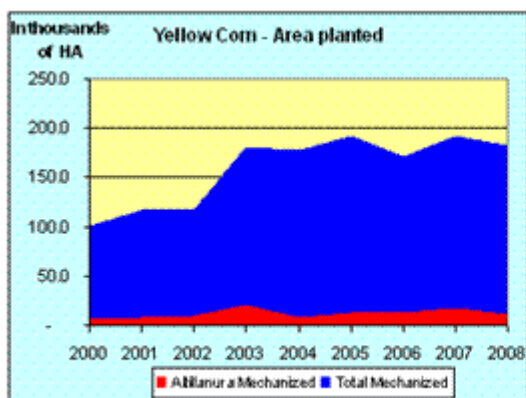
Average National Soybean Yield 1990-2007

Year	Yield (kg/ha)
1990	1.999
1991	1.924
1992	1.945
1993	2.136
1994	1.932
1995	2.107
1996	2.14
1997	2.078
1998	2.12
1999	2.036
2000	2.06

2001	2.353
2002	2.292
2002	2.113
2004	2.032
2005	1.5
2006	1.7
2007	1.9

Source: Soya: Alternativa para los sistemas de produccion de la Orinoquia Colombiana. Corpoica, 2006

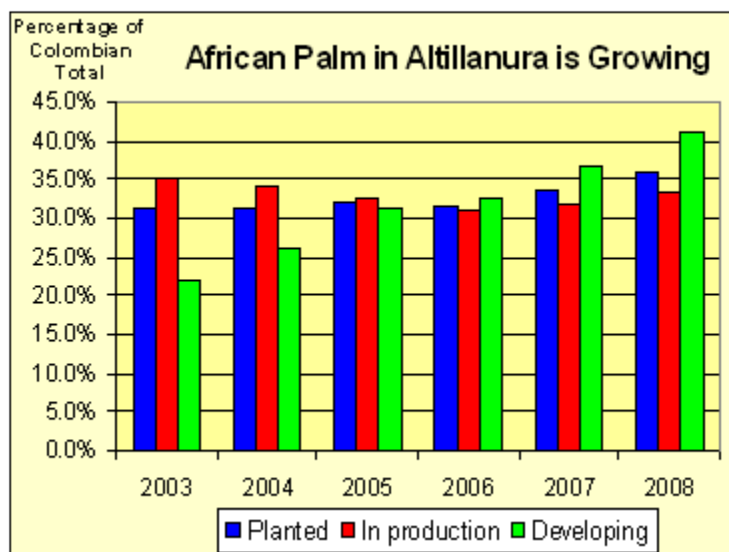
Corn Statistics



<i>Yellow Corn in Colombia – Planted Area (Thousands of hectares)</i>									
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Altillanura Mechanized	8.0	9.1	10.9	21.4	9.5	13.0	13.1	17.6	11.8
Altillanura Traditional	9.9	9.7	13.1	11.4	10.1	5.5	47.7	16.7	5.8
Total Altillanura	17.9	18.8	24.0	32.8	19.6	18.5	60.8	34.3	17.6
Total Mechanized	92.2	107.7	106.6	159.8	168.6	180.5	159.2	174.6	172.3
Total Traditional	200.4	330.8	313.8	372.6	309.6	291.0	263.1	206.0	283.7
Total Colombia	292.60	438.50	420.40	532.40	478.20	471.50	422.30	380.60	456.00
Share Mechanized	8.7%	8.4%	10.2%	13.4%	5.6%	7.2%	8.2%	10.1%	6.8%
Share Subsistence	4.9%	2.9%	4.2%	3.1%	3.3%	1.9%	18.1%	8.1%	2.0%
Share Total Colombia	6.1%	4.3%	5.7%	6.2%	4.1%	3.9%	14.4%	9.0%	3.9%

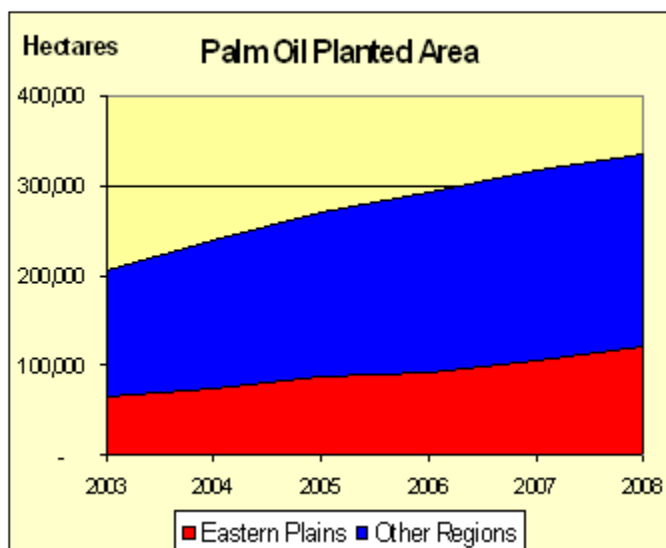
Source for three charts: Fenalce and Colombian Agriculture Ministry

Oil Palm Statistics



<i>African (Oil) Palm Planted Area (in hectares)</i>						
	2003	2004	2005	2006	2007	2008
Altillanura						
Total Area	64,694	74,823	86,411	92,324	106,317	121,135
In production	51,375	52,350	53,116	54,957	63,718	73,558
Expansion (new areas)	13,319	22,473	33,295	37,367	42,599	47,577
Total Country						
Total Area	206,801	238,926	270,026	292,569	316,402	335,456
In production	146,790	153,216	163,770	177,852	201,040	220,241
Expansion	60,011	85,710	106,256	114,717	115,362	115,215
Altillanura						
Total Area	31.3%	31.3%	32.0%	31.6%	33.6%	36.1%
In production	35.0%	34.2%	32.4%	30.9%	31.7%	33.4%
Expansion	22.2%	26.2%	31.3%	32.6%	36.9%	41.3%

Source for three charts: Fedepalma and Colombian Agriculture Ministry



Colombian Soybean and Corn Imports

Colombian Soybean Imports 2004-08						
		Millions of US Dollars				
Country		2004	2005	2006	2007	2008
--World--	-	129.0	101.0	96.5	115.9	116.5
United States		40.6	48.0	70.3	96.8	106.0
Bolivia		13.1	33.0	17.3	10.0	7.0
Brazil		2.5	4.8	0.0	0.0	1.7
Argentina		16.3	14.2	8.9	5.5	1.1
Others		56.5	1.0	0.0	3.6	0.7

Colombian Soybean Meal Imports 2004-08						
		Millions of US Dollars				
Country		2004	2005	2006	2007	2008
--World--	-	152.3	150.7	163.5	234.9	364.0
Argentina		21.7	11.1	54.1	101.6	164.9
United		47.9	57.9	86.8	94.2	143.6

States					
Bolivia					
	64.2	67.6	13.8	22.3	41.9
Brazil					
	5.9	9.9	4.8	12.9	13.5
Others	12.6	4.2	4.0	3.9	-

Colombian Soybean Oil Imports 2004-08						
		<i>Millions of US Dollars</i>				
Country		2004	2005	2006	2007	2008
--World--	-	93.4	89.2	97.8	128.5	226.3
United States		0.0	2.4	2.0	5.3	76.6
Bolivia		56.9	54.9	46.3	48.5	71.8
Argentina		33.3	29.7	49.4	72.6	51.6
Brazil		0.4	0.3	-	1.9	25.7
Others		2.8	1.9	0.1	0.3	0.6

Colombian Corn Imports 2004-08						
		<i>Millions of US Dollars</i>				
Country		2004	2005	2006	2007	2008
--World--	-	326.7	323.4	452.9	665.8	917.8
United States		285.7	276.0	396.1	626.1	732.5
Argentina		30.8	36.2	36.0	26.2	103.3
Brazil		0.9	2.3	5.2	1.6	71.2
Ecuador		7.1	6.9	6.2	2.7	6.4
Others		2.2	2.0	9.3	9.2	4.4

Source: DANE, Colombian Statistics Service

[1] The FARC, the Revolutionary Armed Forces of Colombia, is a self-proclaimed Marxist-Leninist organization that operates in the far-reaching and/or jungle areas of the country (Wikipedia 2009).

[2] Verbal Interview with Aceites Manuelita, San Carlos de Guaroa.

[3] Corpoica, *Corporacion Colombiana de Investigacion Agropecuaria*, is the Colombian Institute for Agricultural Research, under the umbrella of the Colombian Agricultural Institute (ICA). The research station for the Altillanura, called La Libertad, is located in Villavicencio, Meta.

[4] Fundação Mato Grosso.

[5] The Colombian Government's Rural Marketing Incentive program, or *Incentivo a la Capitalizacion Rural (ICR)*, provides debt pardoning for loans taken by farmers for inputs or machinery. Amounts pardoned are up to 40% of small farmers' debts and 10% for large farmers.

[6] *Federacion Nacional de Cerealistas (FENALCE)*.

[7] *Unidad Agricola Familiar*.

[8] *Zona Agricola Empresarial*.

[9] *Sociedad de Agricultura Colombiana (SAC)*.

[10] Foundation for Agro-industrial Development in the Altillanura, or *Fundacion para el Desarrollo Agroindustrial de la Altillanura*.

[11] Distance from Aliar's *La Fazenda* to Bogota.

[12] *Federacion Colombiana de Ganaderos (Fedegan)*