Brazil's Soybean Production and Processing Outlook

DTN/The Progressive Farmer 2010 Ag Summit





BRAZIL GEOGRAPHIC POSITION













BRAZIL x USA





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| | BRAZIL | USA |
|----------------------------------|--------------------------|-------------------------------|
| AREA (km ² - million) | 8.51 (5 th) | 9.82(3 rd) |
| POP (million people) | 201.1 (5 th) | 310.2 (3 rd) |
| Demographic <i>(hab/km²)</i> | 23.6 | 31.6 |
| GDP (US\$ trillions) | 2.0 | 14.3 |
| GDP Per Capita <i>(US\$)</i> | 10,100 | 46,000 |
| Pop below poverty line | 26% (2008) | 12% (2004) |
| Unemployment rate | 8.1% | 9.3% |

Source: CIA Factsheet, 2010

BRAZIL x USA





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| GDP by sector | BRAZIL | USA |
|--|-----------|-------------|
| Agriculture | 6.1% | 1.2% |
| Industries | 25.4% | 21.9% |
| Services | 68.5% | 76.9% |
| GDP Growth Rate | - 0,2% | - 2.6% |
| Labor Force Occupation in Agric | 20% | 0.7% |
| Arable Land Annual Crops Use (millions of ha) | 58.7 (7%) | 176.8 (18%) |

Source: CIA Factsheet, 2010

Soybean Production

Soybean Production in Brazil



Soybean Production in Brazil

Millions of Hectares and Millions of Tons



CAGR 7,61%

Large Scale Farming in Mato Grosso



- Scale, mechanization, technology
- Two crops in the same year soybeans/corn, soybeans/cotton
- No irrigation

Average Yields and Production Risk in Brazil

Mato Grosso state has the highest soybean yields per hectare



...and the lowest production

risks...

Avarege Yield: Source: Kleffmann Group / Standard Deviation: Source: Burgo, Marcelo Nery , ESALQ/USP Piracicaba, 2005



Soybean Production Projections (Million Tons and Million Hectares) - Brazil



Soybean Yield (1.000 kg/ha) – Main Players

Soybean Yield Projections (1,000 kg/hectare) – Brazil, Argentina and USA

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Source: Agroconsult

Soybean Production Projections – Main Players

Soybean Production Projections (Million Tons)



Biotechnology

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GMOs Approved in Brazil

| Company | Commercial Name | Date of Aproval | Number of Registered Cultivars |
|--------------|---|--|--|
| Monsanto | Roundup Ready | 1998/Mar 2005* | 262 |
| BASF/Embrapa | Cultivance | Dec 2009 | 0 |
| Bayer | Liberty Link | Feb 2010 | 0 |
| Bayer | Liberty Link | Feb 2010 | 0 |
| Monsanto | Bt RR2 | Aug 2010 | 0 |
| | Company Monsanto BASF/Embrapa Bayer Bayer Monsanto | CompanyCommercial NameMonsantoRoundup ReadyBASF/EmbrapaCultivanceBayerLiberty LinkBayerLiberty LinkMonsantoBt RR2 | CompanyCommercial NameDate of AprovalMonsantoRoundup Ready1998/Mar 2005*BASF/EmbrapaCultivanceDec 2009BayerLiberty LinkFeb 2010BayerLiberty LinkFeb 2010BayerBt RR2Aug 2010 |

(*) By Law n° 11.105/2005 (biosafety Law)

Adoption of Biotech-enhanced Soybean Seedstock



GMO soybeans planted before 2005 were brought into Brazil illegally from Argentina.

Corn Production in Brazil



Corn Area and Production - Brazil



Area (million ha) Production (million tons)

Summer Crop Yield (1000kg/ha)

CAGR 2.0%



Corn Area Mix (Summer and 2nd Crop)



Corn 2nd Crop Yield (1000kg/ha)

CAGR 2.9%



Source: Agrocosult

Biotechnology

APROSOJA

GMOs Approved in Brazil

| | Company | Commercial Name | Date of Aproval | Number of Registered Cultivars |
|---|-----------------|--------------------|-----------------|--------------------------------------|
| | Bayer | Liberty Link | May 2007 | 0 |
| | Monsanto | Guardian | Aug 2007 | 101 |
| | Syngenta | BT11 | Jan. 2008 | 25 |
| | Monsanto | Roundup Ready 2 | Sep 2008 | 74 |
| _ | Syngenta | GA21 | Sep 2008 | 0 |
| Ş | Du Pont and Dow | Herculex | Dec 2008 | 102 |
| כ | Monsanto | MON 810 × NK603 | Sep 2008 | 28 |
| | Syngenta | BT11 × GA21 | Sep 2008 | 5 |
| | Syngenta | Agrisure Viptera | Sep 2009 | 8 |
| | Monsanto | YieldGard VT Pro | Oct 2009 | 19 |
| | Du Pont and Dow | TC 1507 × NK603 | Dec 2009 | 31 |

Adoption of Biotech-enhanced Corn Seedstock





Points to Watch in the 10/11 Season

| Weather Risk | La Niña. Planting in Mato Grosso delayed for 3 weeks at least. This will affect 2 nd crop (area and yields and also transportation costs. Concerns of possible drought later in the season in the south of the country (RS), where weather yields have been good for last two years. | | |
|---|---|--|--|
| | | | |
| Costs and Returns | Farmers purchased inputs for the 2010/11 season during the first semester of 2010. Since, during this period futures price was around \$1.5 to \$2/bu lower than current standards, they managed to reduce their costs by 3% in US\$ and 16.2% in BRL. | | |
| | | | |
| Consolidation Trend | The 20 largest producers in Mato Grosso planted 3 million acres (up from 1.3 mln acres five years ago) and were responsible for 20% of soybean output. (Source: IMEA) | | |
| | | | |
| Restrictions on Foreign Ownership of Land | New interpretation of an old law (Lei n° 5.709/71) is creating uncertainty in the market. This interpretation states that brazilian companies with foreign ownership should be treated as foreign co. | | |



Brazilian Soybean Processing 2006/07-2010/11 (000 Tons)



Biodiesel Mandate of 5% Drives Demand for Soyoil

Estimated Demand and Biodiesel Purchases through Brazil's Petrol Agency Auctions



Biodiesel Plants and Capacity in Brazil (2010)



Source: MME

| Degião | nº uniman | Capacidade Instalada | | |
|--------|-------------|-------------------------|------|--|
| Regiao | in usinas . | mil m ³ /ano | % | |
| N | 6 | 193 | 4% | |
| NE | 5 | 597 | 13% | |
| со | 21 | 1.802 | 38% | |
| SE | 11 | 844 | 18% | |
| s | 8 | 1.260 | 27% | |
| Total | 51 | 4.695 | 100% | |

Meat Production Growth (1994-2009)



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- 58% of Brazil's Soymeal demand is from Poultry and 27% from the Pork industry (both = 85%)
- Economic stabilization, strong domestic market, low cost and aggressive international marketing

Source: ABIEC, ABEF, UBA , SINDIRAÇÕES, and ABIPECS, 2010



Soybean Production in Brazil – Logistics Costs





Transportation Cost Reductions with BR 163

Route Ferronorte

Sorriso – A. Araguaia, MT



835 km (520 miles)

Alto Araguaia - Santos, SP



1,100 km (690 miles)

Total: 1,935 km (1,210 miles)



Route BR 163

Sorriso - Santarém, PA



1,344 km (840 miles)

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Cost Reduction (Estimated): US\$ 30/Ton

Expansion Projects of the Rail Mesh



Brazil's Northern Ports



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Source: Aprosoja



Brazilian Biomes



| Brazilian Biomes | AREA (Millions of km²) | Conserved Area (%) |
|---------------------|------------------------------|--------------------------|
| Bioma | 10 | |
| Amazonia | 4.2 | 85.0 |
| Cerrado | 2.0 | 61.1 |
| Mata | | |
| Atlântica | 1.1 | 27.4 |
| Caatinga | 0.8 | 62.7 |
| Pampa | 0.2 | 41.3 |
| Pantanal | 0.1 | 88.7 |

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Source: Mapa de Cobertura Vegetal dos Biomas Brasileiros. Ministério do Meio Ambiente. 2006.

Brazilian Environmental Legislation



BRAZIL: WORLD LEADER IN GRAIN PRODUCTION?



| | Country Area | Area with Agriculture | |
|-------------|-----------------|--------------------------|-------|
| COUNTRY | km² | km² | % |
| China | 9,569.9 | 1,422.1 | 14.9% |
| USA | 9,162.0 | 1,650.1 | 18.0% |
| Europe (27) | 4,185.1 | 1,107.6 | 26.5% |
| India | 2,973.2 | 1,451.8 | 48.8% |
| Brazil | 8,459.4 | 586.2 | 6.9% |

Source: CIA Factbook, 2010 Compiled by Ricardo Arioli Silva

INDIAN RESERVATIONS AND ENVIRONMENT CONSERVATION AREAS IN THE AMAZON





Preserved Area is larger than California + Ohio states. 67% of these Preserved Areas belong to farmers

MATO GROSSO X USA

TOTAL AREA versus AGRICULTURE AREA

| Area (million hectares) | | | |
|-------------------------|-------|-------------|------|
| STATE | Total | Agriculture | % |
| Illinois | 14,1 | 12,7 | 90,1 |
| lowa | 14,5 | 13,0 | 89,8 |
| MT | 90,3 | 8,6 | 9,5 |

Source: USDA, NASS, 2010; IMEA, 2010. Compiled by Ricardo Arioli Silva

MATO GROSSO X USA

CRP – Conservation Reserve Program

| | Preserved | Payment for Farmers | | In Bushels |
|-------------|---------------|----------------------------|---------------------------|-----------------------|
| State | Area | (1.000 US\$) | | per acre |
| | (1.000 acres) | TOTAL | Amount paid (U\$/acre) | Based on U\$ 12/bu |
| Illinois | 1,065 | 112.344 | 105.50 | 8.8 |
| Indiana | 310 | 29.155 | 94.05 | 7.8 |
| Iowa | 1,934 | 209.707 | 108.40 | 9.0 |
| Minnesota | 1,793 | 110.416 | 61.60 | 5.1 |
| Total USA | 36,055 | 1.821.201 | 50.60 | 4.2 |
| Mato Grosso | 92,970 | ZERO | ZERO | ZERO |

Source: Conservation Reserve Program, 2007. Compiled by Ricardo Arioli Silva



Low Productivity pastures could be converted into Soybeans ...when? At what pace?

170 Million hectares (410 million acres)

Cattle Productivity: 36 Kg / hectare (33 lb/acre) Soy + Corn 7.067 Kg / hectare (107 bu/acre or 6,420 lb/ac) PROSO JA

Economics of Pasture Land Convertion

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Lease contracts of 11bags/hectare are equivalent to pasture conversion @ 1,75 exchange rate in different price levels. If land leases of less than this amount are available, farmers would prefer the lease.

Source: Aprosoja / 1 sc = 1 bag of 60 kg of beans or 2.2 bushels/bag

| Sec. 1 | | Cost of F | Production | | |
|--------|---------------------------|-----------|---------------------------|-----------|----------|
| | Soybean - Season 10/11 | | Corn - Season 09/10 | | APROSOJA |
| | Central-North | US\$/acre | Medium technology | US\$/acre | |
| | 1. INPUT | 169.49 | 1. INPUT | 121.09 | |
| | Seeds | 25.24 | Seeds | 21.25 | |
| | Soybean seed | 20.81 | Corn seed | 21.25 | |
| | Forage seed | 4.43 | | | |
| | Fertilizer | 88.08 | Fertilizer | 66.68 | |
| | Lime | 6.85 | | | |
| | Macronutrients | 79.69 | Macronutrients | 66.68 | |
| | Micronutrients | 1.54 | Micronutrients | 0.00 | |
| | Chemical | 56.17 | Chemical | 33.16 | |
| | Fungicide | 16.36 | Fungicide | 5.49 | |
| | Herbicide | 13.96 | Herbicide | 13.34 | |
| | Inseticide | 22.66 | Inseticide | 13.71 | |
| | Adjuvants | 3.19 | Adjuvants | 0.63 | |
| | 2. FIELD OPERATIONS | 39.71 | 2. FIELD OPERATIONS | 28.21 | |
| | A - OPERATIONAL | | | | |
| | COST | 209.20 | A - OPERATIONAL COST | 149.30 | |
| | 3 - OTHER EXPENSES | 74.32 | 3 - OTHER EXPENSES | 58.87 | |
| | B - VARIABLE COST | 283.53 | B - VARIABLE COST | 208.17 | |
| | C - FIXED COST | 49.46 | C - FIXED COST | 24.71 | |
| | Depreciation | 8 51 | Depreciation | 9 98 | |
| | (machinery) | 0.51 | (machinery) | 5.50 | |
| | Land opportunity cost | 40.96 | Land opportunity cost | 14.74 | |
| | TOTAL COST (B+C) | 332.99 | TOTAL COST (B+C) | 232.89 | |
| | | \$ | | \$ | |
| | Price at the farm | 7.18 | Price at the farm | 3.06 | |
| | Transportation Cost | 3.42 | Transportation Cost | 2.36 | |
| | Break-even at CBOT/ | \$ | Break-even at CBOT/ | \$ | |
| | CMF | 10.60 | CMF | 5.42 | |

Brazil: Agricultural Superpower





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Brazil: Agricultural Superpower?



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Source: CIA Factbook, 2010 Compiled by Ricardo Arioli Silva



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