



December 5<sup>th</sup>, 2011

## BIOTECHNOLOGY REPORT

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- *Biotechnology adoption for the 2011/12 season is expected to reach 31.8 million hectares.*
- *If such area is confirmed, it will translate into a 20.9% growth in relation to the 2010/11 season, and a 4.5% increase compared to the first monitoring report.*
- *In the case of soybeans, 21.4 million hectares or 85.3% of the area predicted is expected to be cultivated with genetically modified crops, a 16.7% increase in relation to the previous harvest.*
- *In the case of cotton, a 22% drop in its adoption rate is expected in relation to the first monitoring report, totaling 469 thousand hectares for the current crop, or 32.2% of the projected area, planted with GM crops.*
- *In the case of the summer corn crop, we estimate that 4.93 million hectares will be sown with GM constructs, a growth of 1.54 million hectares compared to the 2010/11 season (+45.4%) and an increase by 450 thousand hectares (+10%) in the use of biotechnology in this summer crop, compared to the first monitoring report.*
- *In the winter corn crop, the analysis of the adoption figures for the 2011/12 season points to a 20.9% growth in the area to be sown with biotech crops, increasing from 4.1 to 4.98 million hectares. With this growth, 82.9% of the 2011/12 area will be sown with GM crops.*

# 1 SOYBEANS

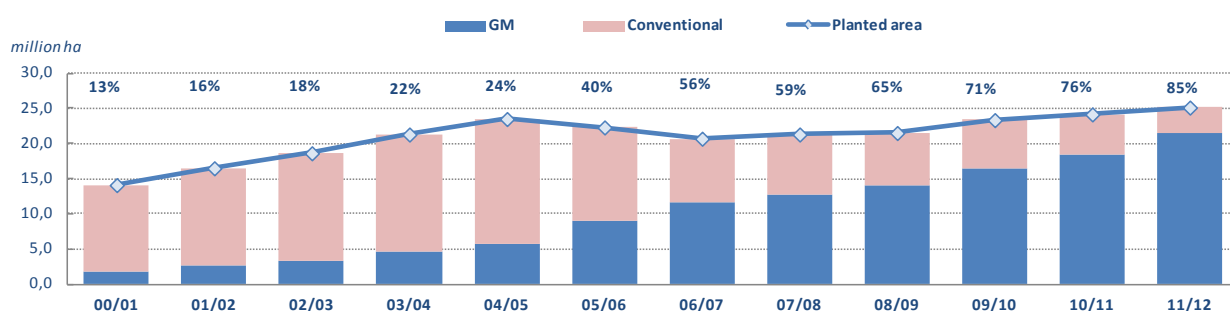
- ✦ *In the 2<sup>nd</sup> crop biotechnology adoption monitoring report for the 2011/12 season, we predict that the use of GM technologies will take over 31.8 million hectares, a 20.9% growth compared to the adoption rate recorded for the 2010/11 season (26.3 million ha) and 4.5% compared to the 1<sup>st</sup> monitoring report.*
- ✦ *With a yet favorable scenario over the decision planting phase and the planting per se, the Brazilian soybean growers will sow 21.4 million hectares with GM soybeans in the 2011/12 season, expanding this technology's use by 3.1 million hectares, compared to the previous harvest (+16.7%).*
- ✦ *Compared to the 1<sup>st</sup> monitoring report, the Brazilian soybean growers increased not only their intention of planting soybeans, but also of using biotechnology. In August, the expectation was the sowing of 25.0 million hectares as opposed to the 25.1 million hectares currently projected by Céleres. For the adoption of GM soybeans, the area rose from 20.7 to 21.4 million hectares in this last monitoring report.*
- ✦ *Regionally, the Center-West already occupies the national leading position in employing GM soybeans, with 9.1 million hectares or 42.7% of the total area sown with GM soybeans, followed by South Brazil, with 8.7 million hectares or 40.4% of the total area. In the third place, Northeast Brazil accounts for 8% of the area sown with GM soybeans, i.e., 1.7 million hectares.*

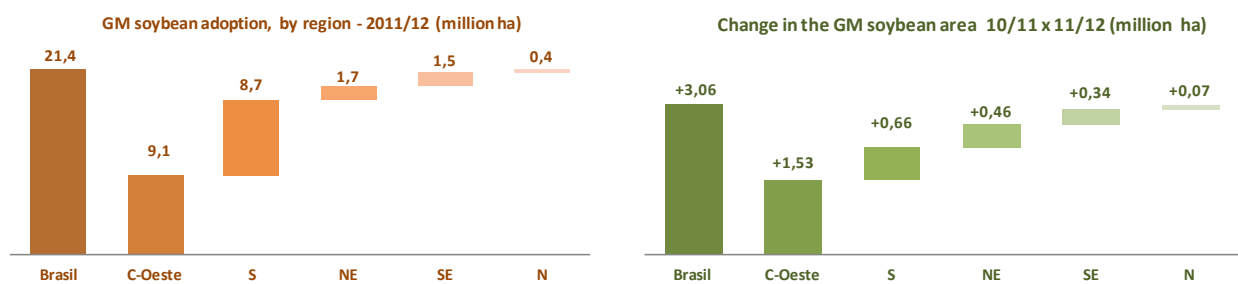
GM soybean planting in Brazil - 2011/12 - 2nd survey

	Planted area (,000 ha)	Yield (Kg/ha)	Production (,000 t)	Adoption rate (% total area)				Biotech area (,000 ha)			
				IR	HT	STACK	Total	IR	HT	STACK	Total
<b>NORTH</b>	712.8	3,102.2	2,211	0.0%	62.3%	0.0%	62.3%	0	444	0	444
<b>NORTHEAST</b>	2,090.0	3,092.5	6,463	0.0%	81.4%	0.3%	81.7%	0	1,701	6	1,707
Maranhão	550.0	3,245.0	1,785	0.0%	78.0%	0.0%	78.0%	0	429	0	429
Piauí	410.0	2,932.9	1,202	0.0%	76.0%	0.0%	76.0%	0	312	0	312
Bahia	1,130.0	3,076.2	3,476	0.0%	85.0%	0.6%	85.6%	0	961	6	967
<b>SOUTHEAST</b>	1,740.0	2,887.7	5,025	0.0%	84.7%	0.3%	85.0%	0	1,474	5	1,479
Minas Gerais	1,100.0	3,040.7	3,345	0.0%	84.0%	0.3%	84.3%	0	924	3	927
São Paulo	640.0	2,624.8	1,680	0.0%	86.0%	0.3%	86.3%	0	550	2	552
<b>SOUTH</b>	9,230.0	2,760.1	25,475	0.0%	93.7%	0.1%	93.8%	0	8,650	7	8,656
Paraná	4,590.0	3,142.8	14,425	0.0%	88.5%	0.1%	88.6%	0	4,062	5	4,067
Santa Catarina	490.0	3,033.4	1,486	0.0%	96.9%	0.0%	96.9%	0	475	0	475
Rio Grande do Sul	4,150.0	2,304.5	9,564	0.0%	99.1%	0.1%	99.2%	0	4,113	2	4,115
<b>C-WEST</b>	11,340.0	3,212.9	36,434	0.0%	80.5%	0.1%	80.6%	0	9,127	16	9,143
Mato Grosso	6,700.0	3,324.7	22,276	0.0%	78.0%	0.2%	78.2%	0	5,226	10	5,236
Mato Grosso do Sul	1,900.0	2,797.6	5,315	0.0%	83.0%	0.1%	83.1%	0	1,577	2	1,579
Goiás	2,680.0	3,226.3	8,646	0.0%	84.8%	0.2%	85.0%	0	2,273	4	2,277
Distrito Federal	60.0	3,273.9	196	0.0%	85.0%	0.0%	85.0%	0	51	0	51
<b>N/NE</b>	2,802.8	3,095.0	8,675	0.0%	76.5%	0.2%	76.8%	0	2,145	6	2,151
<b>C-SOUTH</b>	22,310.0	3,000.2	66,934	0.0%	86.3%	0.1%	86.4%	0	19,251	27	19,278
<b>BRAZIL</b>	25,112.8	3,010.7	75,608	0.0%	85.2%	0.1%	85.3%	0	21,396	34	21,429

Source: CÉLERES

\* Updated in: December, 5th, 2011





## 2 COTTON

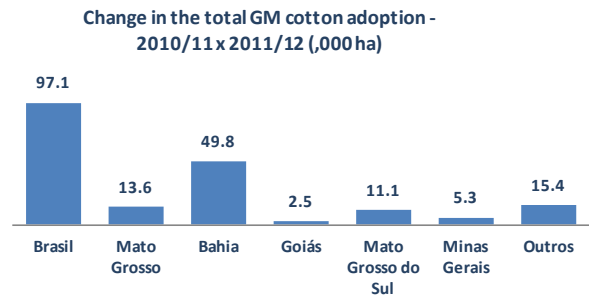
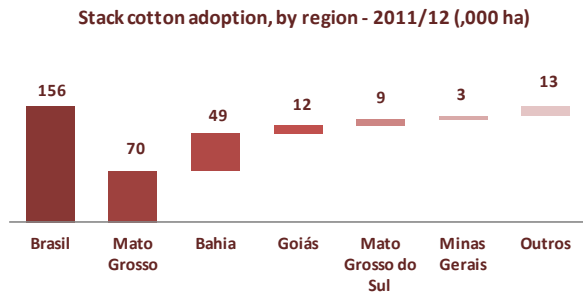
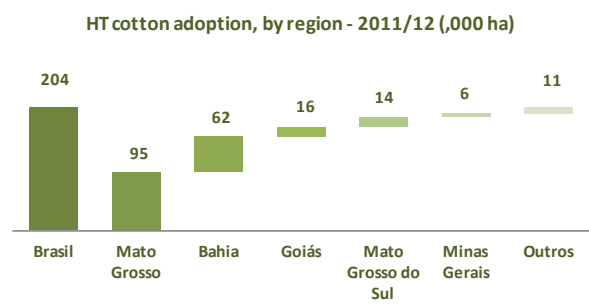
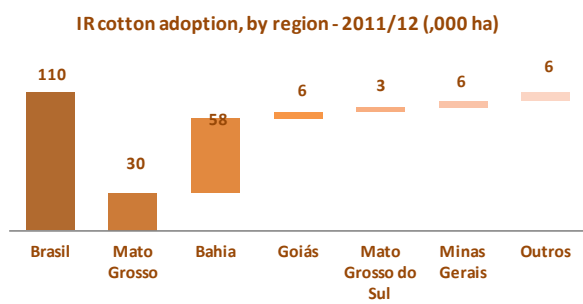
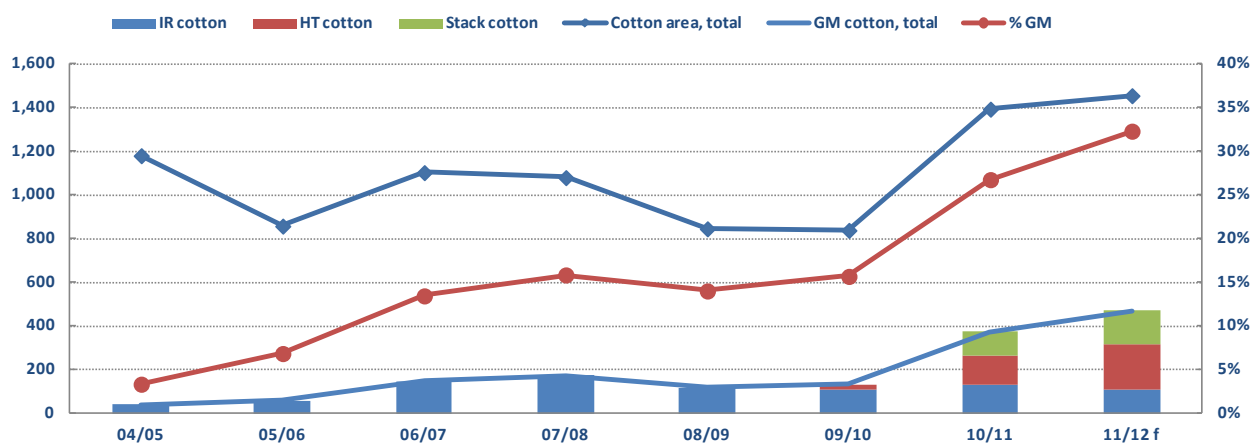
- ⊕ Since the 1<sup>st</sup> biotechnology adoption rate monitoring report, published in August, the scenario for cotton in 2012 has undergone an inflection, reflected in the intention to reduce plantations, and a decreased biotechnology adoption rate.
- ⊕ In the 1<sup>st</sup> monitoring report, we predicted the sowing of 1.55 million hectares, which has today dropped to 1.45 million hectares, as a result of price scenario changes. Taking into consideration the concentration characteristic of Brazil's cotton crop, and also due to the fact that the planting window is still open, we have not disregarded significant changes in the estimates around cotton, to be disclosed in the 3<sup>rd</sup> biotechnology adoption monitoring report in April 2012.
- ⊕ In terms of biotechnology per se, we project in this 2<sup>nd</sup> monitoring report the planting of 469 thousand hectares with GM cotton crops, a growth of 26.1% compared to the 2010/11 season planting, but a drop of 22% compared to the estimate made in the 1<sup>st</sup> monitoring report.
- ⊕ The main reason cotton growers gave for their remaining cautious – compared to soybean and corn growers – in terms of their employing GM cotton, is the limited availability of transgenic events that are adapted to the different Brazilian farming regions. Another determining factor is the boll weevil control problem, which has not been addressed by the current GM technologies.
- ⊕ Regionally, the Center-West follows as the leading GM cotton region, with 256 thousand hectares or 54.6% of the total biotech crop area, followed by Northeast Brazil, with 189 thousand hectares, or 40.3% of the total biotech crop area.

GM cotton planting in Brazil - 2011/12 - 2nd survey

	Planted area (,000 ha)	Yield (Kg/ha)	Production (,000 t)	Adoption rate (% total area)				Biotech area (,000 ha)			
				IR	HT	STACK	Total	IR	HT	STACK	Total
<b>NORTH</b>	<b>8.3</b>	<b>3,611.6</b>	<b>12</b>	<b>3.2%</b>	<b>12.9%</b>	<b>10.7%</b>	<b>26.8%</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>
Tocantins	8.3	1,361.3	12	3.2%	12.9%	10.7%	26.8%	0	1	1	2
<b>NORTHEAST</b>	<b>482.3</b>	<b>1,500.0</b>	<b>742</b>	<b>13.0%</b>	<b>14.2%</b>	<b>12.1%</b>	<b>39.3%</b>	<b>63</b>	<b>68</b>	<b>58</b>	<b>189</b>
Maranhão	20.0	1,490.2	29	7.7%	12.9%	17.9%	38.5%	2	3	4	8
Piauí	20.2	1,324.0	29	7.7%	12.9%	17.9%	38.5%	2	3	4	8
Bahia	430.0	1,556.0	681	13.6%	14.4%	11.4%	39.4%	58	62	49	169
<b>SOUTHEAST</b>	<b>60.0</b>	<b>1,426.6</b>	<b>87</b>	<b>12.9%</b>	<b>14.4%</b>	<b>8.6%</b>	<b>35.8%</b>	<b>8</b>	<b>9</b>	<b>5</b>	<b>21</b>
Minas Gerais	40.0	1,457.6	59	15.0%	14.4%	7.5%	36.9%	6	6	3	15
São Paulo	20.0	1,331.7	29	8.6%	14.4%	10.7%	33.6%	2	3	2	7
<b>SOUTH</b>	<b>1.3</b>	<b>789.5</b>	<b>1</b>	<b>8.0%</b>	<b>13.5%</b>	<b>4.7%</b>	<b>26.2%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Paraná	1.3	789.5	1	8.0%	13.5%	4.7%	26.2%	0	0	0	0
<b>C-WEST</b>	<b>902.0</b>	<b>1,399.2</b>	<b>1,425</b>	<b>4.3%</b>	<b>13.9%</b>	<b>10.1%</b>	<b>28.4%</b>	<b>39</b>	<b>126</b>	<b>91</b>	<b>256</b>
Mato Grosso	720.0	1,371.9	1,134	4.2%	13.3%	9.7%	27.2%	30	95	70	195
Mato Grosso do Sul	70.0	1,463.4	111	4.3%	20.0%	12.9%	37.1%	3	14	9	26
Goiás	110.0	1,565.5	178	5.5%	14.4%	10.9%	30.7%	6	16	12	34
Distrito Federal	2.0	1,293.2	3	8.6%	14.4%	15.7%	38.6%	0	0	0	1
<b>N/NE</b>	<b>490.6</b>	<b>1,498.1</b>	<b>753</b>	<b>12.8%</b>	<b>14.2%</b>	<b>12.1%</b>	<b>39.1%</b>	<b>63</b>	<b>70</b>	<b>59</b>	<b>192</b>
<b>C-SOUTH</b>	<b>963.3</b>	<b>1,400.1</b>	<b>1,513</b>	<b>4.9%</b>	<b>13.9%</b>	<b>10.0%</b>	<b>28.8%</b>	<b>47</b>	<b>134</b>	<b>97</b>	<b>278</b>
<b>BRAZIL</b>	<b>1,453.9</b>	<b>1,434.3</b>	<b>2,267</b>	<b>7.6%</b>	<b>14.0%</b>	<b>10.7%</b>	<b>32.3%</b>	<b>110</b>	<b>204</b>	<b>156</b>	<b>469</b>

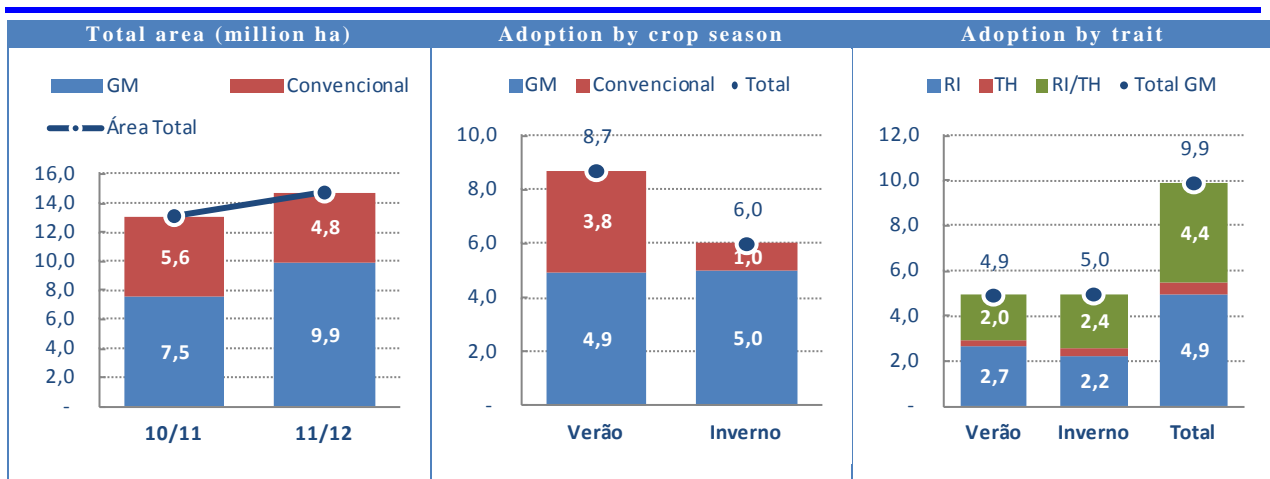
Source: CÉLERES\* \* Up dated: December 5th, 2011

\* Lint cotton production in thousand t IR: Insect resistant; HT: Herbicide tolerant; RI/TH: stack gene



### 3 CORN

- ✦ *In this 2<sup>nd</sup> crop biotechnology adoption rate monitoring report in Brazil, the total adoption rate for corn is expected to reach 9.91 million hectares, or 67.3% of the total area sown with the grain (summer & winter crops). Such number represents a growth of 32%, compared to the 7.5 million hectares sown in the 2010/11 season.*
- ✦ *Compared to the 1<sup>st</sup> monitoring report for the 2011/12 season, the Brazilian farmers increased their intention of planting GM constructs by 810 thousand hectares.*
- ✦ *In the analysis of the total crop season, the insect-resistant crops still represent the largest area sown (4.9 million ha), but the stacked traits are close to the leading position, with 4.4 million hectares. At this rate, for the 2012/13 season, the stacked genes technologies will assume the leadership as being the preferred GM technology of the Brazilian corn growers. It is noteworthy that for the winter crop, most of the area sown with GM corn will be planted with the stacked-gene variety.*
- ✦ *We draw attention to the fact that upon the closing of this monitoring report, the estimates regarding the winter corn crop had not yet been determined. Depending on the market situation, we may expect some additional expansion of the total sown area, which, in turn, will influence the GM corn adoption rate.*



Source: CÉLERES®

- ⊕ *Upon specifically analyzing the summer crop figures, we estimate that 4.93 million hectares will be planted with GM constructs, a growth of 1.54 million hectares compared to the 2010/11 season (+45.4%). Compared to the 1<sup>st</sup> monitoring report, we point to a growth of 450 thousand hectares (+10%) in the use of biotechnology for this summer's corn crop.*
- ⊕ *Such fact is greatly influenced by the favorable price scenario for corn, mostly for farmers with high productivity levels. In this regard, the use of GM constructs has been an important tool to leverage productivity in plantations that employ high technology.*
- ⊕ *In regional terms, the highest concentration of GM corn has been observed in South Brazil, with 2.2 million hectares or 43.9% of the total area with GM crops, followed by the Southeast, with 1.47 million hectares (29.9% of the total area with GM crops).*
- ⊕ *The geographic dispersion of the GM corn adoption, mostly in the Center-South, indicates the inexistence of trade restrictions to the employment of this technology. On the other hand, the low adoption rate of GM corn in the North and Northeast also shows a technology gap amongst the different corn growers in Brazil, since GM corn is essentially adopted by high tech farmers. We believe that if there were public policies in place to enable the distribution of biotechnology to low income farmers, the income of these low technology farmers would improve.*
- ⊕ *The analysis of the adoption rate estimates for the 2011/12 winter crop shows a growth of 20.9% in the area to be sown with GM crops, rising from 4.1 to 4.98 million hectares. With such growth, 82.9% of the area to be sown in the 2011/12 winter crop season will be sown with GM crops. Compared to the 1<sup>st</sup> monitoring report, we observe a 7.6% rise in the intention of using biotechnology.*
- ⊕ *We highlight, however, that the intention of planting corn in the winter of 2012 has also increased from 5.5 million hectares to 6.0 million hectares, as a result of the favorable scenario for the crop. As previously mentioned, there still is time left for substantial changes to occur in the estimates regarding the total area to be sown with corn in the winter, as well as the biotechnology adoption rate, until the actual beginning of the planting season, towards the end of January of the upcoming year.*

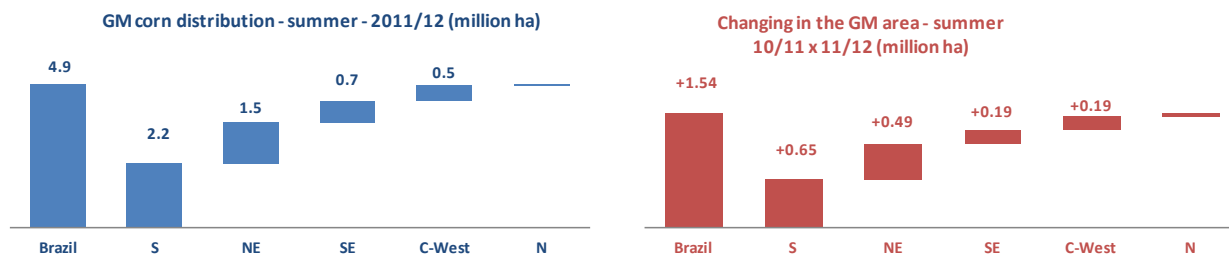
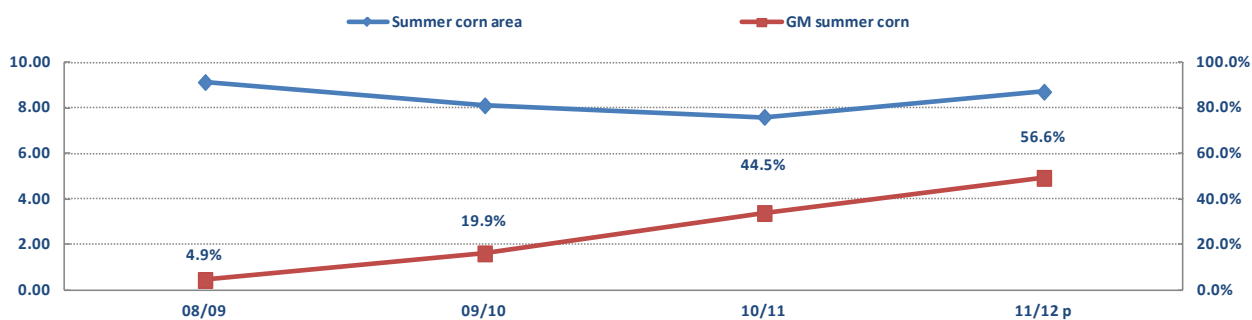
**Biotech corn plantings - summer crop - 2011/12 - 2nd survey**

	Planted area (,000 ha)	Yield (Kg/ha)	Production (,000 t)	Adoption rate (% total area)				Biotech area (,000 ha)			
				IR	HT	STACK	Total	IR	HT	STACK	Total
<b>NORTH</b>	<b>507.4</b>	<b>2,411.1</b>	<b>1,224</b>	<b>6.4%</b>	<b>1.1%</b>	<b>2.6%</b>	<b>10.2%</b>	<b>33</b>	<b>6</b>	<b>13</b>	<b>52</b>
Tocantins	75.0	3,232.8	243	33.5%	5.9%	12.7%	52.1%	25	4	10	39
<b>NORTHEAST</b>	<b>2,795.0</b>	<b>1,583.6</b>	<b>4,426</b>	<b>15.0%</b>	<b>1.5%</b>	<b>8.4%</b>	<b>24.9%</b>	<b>420</b>	<b>41</b>	<b>235</b>	<b>696</b>
Maranhão	403.0	1,710.3	684	31.4%	2.9%	19.0%	53.3%	127	12	77	215
Piauí	340.0	1,355.5	456	30.8%	2.8%	17.0%	50.6%	105	10	58	172
Bahia	445.0	3,644.0	1,610	32.6%	3.0%	19.2%	54.8%	145	13	85	244
<b>SOUTHEAST</b>	<b>1,890.0</b>	<b>5,885.1</b>	<b>11,123</b>	<b>44.2%</b>	<b>4.2%</b>	<b>29.5%</b>	<b>77.9%</b>	<b>835</b>	<b>79</b>	<b>558</b>	<b>1,472</b>
Minas Gerais	1,185.0	5,881.1	6,992	47.6%	3.7%	25.9%	77.2%	564	44	307	915
São Paulo	650.0	6,053.7	3,962	37.4%	4.7%	36.7%	78.8%	243	31	239	512
<b>SOUTH</b>	<b>2,815.0</b>	<b>6,072.2</b>	<b>17,093</b>	<b>39.9%</b>	<b>3.2%</b>	<b>33.7%</b>	<b>76.9%</b>	<b>1,124</b>	<b>91</b>	<b>950</b>	<b>2,165</b>
Paraná	980.0	7,984.1	7,866	40.6%	3.1%	33.2%	76.8%	398	30	325	753
Santa Catarina	630.0	6,034.6	3,834	39.5%	4.0%	34.1%	77.6%	249	25	215	489
Rio Grande do Sul	1,205.0	4,434.9	5,393	39.6%	3.0%	34.0%	76.6%	477	36	410	923
<b>C-WEST</b>	<b>702.0</b>	<b>6,753.8</b>	<b>4,741</b>	<b>38.2%</b>	<b>3.9%</b>	<b>35.8%</b>	<b>77.9%</b>	<b>268</b>	<b>27</b>	<b>251</b>	<b>547</b>
Mato Grosso	150.0	5,564.2	839	40.0%	4.1%	30.7%	74.8%	60	6	46	112
Mato Grosso do Sul	95.0	7,471.6	704	39.0%	4.0%	34.0%	77.0%	37	4	32	73
Goiás	435.0	6,978.4	3,006	37.5%	3.8%	37.8%	79.1%	163	17	164	344
Distrito Federal	22.0	8,824.4	192	36.5%	3.7%	38.1%	78.3%	8	1	8	17
<b>N/NE</b>	<b>3,302.4</b>	<b>1,710.7</b>	<b>5,650</b>	<b>13.7%</b>	<b>1.4%</b>	<b>7.5%</b>	<b>22.6%</b>	<b>453</b>	<b>47</b>	<b>248</b>	<b>748</b>
<b>C-SOUTH</b>	<b>5,407.0</b>	<b>6,095.3</b>	<b>32,957</b>	<b>41.2%</b>	<b>3.7%</b>	<b>32.5%</b>	<b>77.4%</b>	<b>2,227</b>	<b>198</b>	<b>1,758</b>	<b>4,183</b>
<b>BRAZIL</b>	<b>8,709.4</b>	<b>4,432.7</b>	<b>38,607</b>	<b>30.8%</b>	<b>2.8%</b>	<b>23.0%</b>	<b>56.6%</b>	<b>2,680</b>	<b>245</b>	<b>2,006</b>	<b>4,931</b>

Source: Céleres

\* Up dated: December 5th, 2011

\* IR: Insect resistant; HT: Herbicide tolerant; Stack gene: IR/HT



**DISCLAIMER:** The information contained in this report was obtained from sources considered reliable. Céleres® does not guarantee that this information is complete and cannot be held liable for it. The opinions and analyses expressed herein reflect the conclusions reached upon the closing of this report and are subject to changes without prior notice.

**Biotech corn planting - winter crop - 2011/12 - 2nd survey**

	Planted area (,000 ha)	Yield (Kg/ha)	Production (,000 t)	Adoption rate (% total area)				Biotech area (,000 ha)			
				IR	HT	STACK	Total	IR	HT	STACK	Total
<b>NORTH</b>	<b>35.1</b>	<b>2,662.4</b>	<b>95</b>	<b>7.0%</b>	<b>1.7%</b>	<b>12.1%</b>	<b>20.8%</b>	<b>2</b>	<b>1</b>	<b>4</b>	<b>7</b>
<b>NORTHEAST</b>	<b>418.0</b>	<b>1,222.2</b>	<b>454</b>	<b>16.0%</b>	<b>3.0%</b>	<b>21.0%</b>	<b>40.0%</b>	<b>67</b>	<b>13</b>	<b>88</b>	<b>167</b>
Bahia	418.0	1,222.2	454	16.0%	3.0%	21.0%	40.0%	67	13	88	167
<b>SOUTHEAST</b>	<b>350.0</b>	<b>2,935.6</b>	<b>1,147</b>	<b>38.9%</b>	<b>5.0%</b>	<b>41.7%</b>	<b>85.6%</b>	<b>136</b>	<b>18</b>	<b>146</b>	<b>299</b>
Minas Gerais	50.0	5,392.7	306	38.0%	5.2%	41.0%	84.2%	19	3	20	42
São Paulo	300.0	2,693.5	841	39.0%	5.0%	41.8%	85.8%	117	15	125	257
<b>SOUTH</b>	<b>1,750.0</b>	<b>4,136.3</b>	<b>7,917</b>	<b>39.0%</b>	<b>4.9%</b>	<b>43.6%</b>	<b>87.5%</b>	<b>683</b>	<b>86</b>	<b>763</b>	<b>1,531</b>
Paraná	1,750.0	4,136.3	7,917	39.0%	4.9%	43.6%	87.5%	683	86	763	1,531
<b>C-WEST</b>	<b>3,456.5</b>	<b>4,358.4</b>	<b>15,105</b>	<b>39.1%</b>	<b>5.4%</b>	<b>41.6%</b>	<b>86.1%</b>	<b>1,350</b>	<b>186</b>	<b>1,439</b>	<b>2,975</b>
Mato Grosso	2,150.0	4,739.5	9,988	39.5%	5.5%	42.0%	87.0%	849	118	903	1,871
Mato Grosso do Sul	880.0	2,828.4	2,873	38.0%	5.1%	40.8%	83.9%	334	45	359	739
Goiás	420.0	5,139.6	2,207	39.0%	5.3%	41.5%	85.8%	164	22	174	360
Distrito Federal	6.5	5,744.9	38	38.0%	4.5%	42.0%	84.5%	2	0	3	6
<b>N/NE</b>	<b>453.1</b>	<b>1,341.9</b>	<b>549</b>	<b>15.3%</b>	<b>2.9%</b>	<b>20.3%</b>	<b>38.5%</b>	<b>69</b>	<b>13</b>	<b>92</b>	<b>175</b>
<b>C-SOUTH</b>	<b>5,556.5</b>	<b>4,199.9</b>	<b>24,169</b>	<b>39.0%</b>	<b>5.2%</b>	<b>42.3%</b>	<b>86.5%</b>	<b>2,168</b>	<b>289</b>	<b>2,348</b>	<b>4,805</b>
<b>BRAZIL</b>	<b>6,009.6</b>	<b>3,981.9</b>	<b>24,718</b>	<b>37.2%</b>	<b>5.0%</b>	<b>40.6%</b>	<b>82.9%</b>	<b>2,238</b>	<b>302</b>	<b>2,440</b>	<b>4,980</b>

Source: Céleres \* Up dated: December 5th, 2011

\* IR: Insect resistant; HT: Herbicide tolerant; Stack gene: IR/HT

