Agenda

- Country Statistics
- Soil & Climate
- No Till and GMO
- Double Cropping
- Profitability
- Contractors
- Land Markets
Facts & Figures

Argentine Grain Production - Thousands Mt

Source: Sagpya
The emergence of soybean production in Argentina during the 1970s followed Brazil by about a decade.

Soybean yields in Argentina, Brazil, and the U.S. have been near parity since 1999

World Corn Exports

- USA: 60%
- Argentina: 6%
- Brazil: 3%
- Other: 19%
- China: 8%
- Ukraine: 4%

World Sunflower Oil Exports

- Argentina: 37%
- Ukraine: 35%
- Russia: 17%
- Other: 6%
- EU-27: 3%
- Turkey: 2%

Source: Sagpya
Region’s Soil & Climate
Global Soil Regions

Soil Orders

- Alfisols
- Entisols
- Inceptisols
- Spodosols
- Rocky Land
- Andisols
- Gelisols
- Mollisols
- Ultisols
- Shifting Sand
- Aridisols
- Histosols
- Oxisols
- Vertisols
- Ice/Glacier

Map credits:
US Department of Agriculture
Natural Resources Conservation Service
Soil Survey Division
World Soil Resources
soils.usda.gov/use/worldsoils

November 2005
Climate Classification

Tipos de Clima (Köppen)

A. Tropical húmedo
   - Tropical húmedo (selva: Af,Am)
   - Tropical húmedo y seco (sabana: Am)

B. Seco
   - Semiárido o estepa (BS)
   - Arido o desierto (BW)

C. Mesotérmico húmedo
   - Subtropical verano seco (Cs)
   - Subtropical húmedo verano cálido (Ca)
   - Marítimo verano fresco (Cb, Cc)

D. Microtérmico húmedo
   - Continental verano cálido (Dn, Dz)
   - Continental verano fresco (Df)
   - Subártico (Do, Dd)

E. Polar
   - Tundra (ET)
   - Polar (EF)

F. Altura
   - Altura (H)
Annual average rainfall (mm)
Argentina (1961 – 1990)

Source: Servicio Meteorológico Nacional
Annual average temperatures (° C)
Argentina (1961 – 1990)

Source: Servicio Meteorológico Nacional
Technology impact – No Till and GMO
In the 30’s Michigan University adapted the first no tillage seeding machine.

However, large scale tillage was made when 2,4-D (a broadleaf weed killer) was made available to farmers and later Atrazine and Paraquat.

In the 80’s Glyphosate, was the key for the system expansion.

In 1992 Glyphosate patent expires, its price falls drastically, and this leads to the expansion of no tillage seeding.

Currently there are more than 100 million hectares under no tillage world wide. Have of it in South America (mainly Argentina).
### Commercial events approved in Argentina

<table>
<thead>
<tr>
<th>Specie</th>
<th>Introduced feature</th>
<th>Event Processing</th>
</tr>
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<tbody>
<tr>
<td>Soybean</td>
<td>Glyphosate tolerance</td>
<td>&quot;40-3-2&quot;</td>
</tr>
<tr>
<td>Corn</td>
<td>Lepidoptera resistance</td>
<td>&quot;176&quot;</td>
</tr>
<tr>
<td>Corn</td>
<td>Glufosinate ammonium tolerance</td>
<td>&quot;T25&quot;</td>
</tr>
<tr>
<td>Cotton</td>
<td>Lepidoptera resistance</td>
<td>&quot;MON 531&quot;</td>
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<tr>
<td>Corn</td>
<td>Lepidoptera resistance</td>
<td>&quot;MON 810&quot;</td>
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<tr>
<td>Cotton</td>
<td>Glyphosate tolerance</td>
<td>&quot;MON 1445&quot;</td>
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<tr>
<td>Corn</td>
<td>Lepidoptera resistance</td>
<td>&quot;Bt 11&quot;</td>
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<tr>
<td>Corn</td>
<td>Glyphosate tolerance</td>
<td>&quot;NK 603&quot;</td>
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<tr>
<td>Corn</td>
<td>Lepidoptera resistance and Glyphosate</td>
<td>&quot;TC 1507&quot;</td>
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<tr>
<td></td>
<td>ammonium tolerance</td>
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<tr>
<td>Corn</td>
<td>Glyphosate tolerance</td>
<td>&quot;GA 21&quot;</td>
</tr>
<tr>
<td>Corn</td>
<td>Glyphosate tolerance and Lepidoptera</td>
<td>NK603x810</td>
</tr>
<tr>
<td></td>
<td>resistance</td>
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<tr>
<td>Corn</td>
<td>Lepidoptera resistance and Glyphosate</td>
<td>1507 x NK603</td>
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<td></td>
<td>ammonium and</td>
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<td></td>
<td>Glyphosate tolerance</td>
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</table>

**Evolution of the area cultivated with GMO in Argentina**

*Source: Argenbio, 2009*
No Tillage in Argentina

Over 70% of Agricultural area under no tillage system. This value is 10 times higher than in most parts of the world.

The fast expansion of the area under no tillage, from 9 million hectares in 1999 to 25,000,000 hectares in 2009, shows the continue interest in this technology.

Source: Aapresid
Evolution of the Area with GMO in Argentina

Source: Argenbio 2010
Rotation Assumptions

1st Year

S

100

W

60

40

S

30

15

15

40

W

40

60

S

40

30

15

15

W

60

40

Legend:
- 1st Crop Soybean
- 2nd crop Soybeans
- 2nd crop Sorghum
- 2nd Crop Corn
- Fallow
- Wheat

1st Year Rotation Scheme:
- S: Soybeans
- W: Wheat
- S: Soybeans
- W: Winter
- S: Soybeans
- S: Sorghum
- W: Winter
- S: Corn
- W: Winter

The diagram illustrates the distribution of crops over the 1st year, with each square representing 100% of the land.

20
Carbon/ha/year Amount necessary to keep an appropriated level of O.M (2,5% in an ArgiudolTipico soil) = 4,3 tn/ha

- SOY 1º : 70%
- WHEAT/SOY : 20%
- CORN : 10%
- TOTAL : 2,8 TN/HA

- WHEAT/SOY : 50%
- CORN : 50%

TOTAL : 4,8 TN/HA
( 11tn corn - 4,1tn wheat – 3,3 tn soy )
Profitability
<table>
<thead>
<tr>
<th>AR330ZN</th>
<th>SOY dev</th>
<th>LATE SOYBEANS</th>
<th>WHEAT</th>
<th>CORN</th>
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<td>83</td>
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<td>165</td>
<td>83</td>
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<td>596</td>
<td>508</td>
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<td>Gross Revenue</td>
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<td>596</td>
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<td>54</td>
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<td>133</td>
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<tr>
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<td>51</td>
<td>41</td>
<td>58</td>
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<td>Contract work</td>
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<td>94</td>
<td>132</td>
<td>203</td>
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<td>200</td>
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<td>651</td>
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<td>396</td>
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<td>NET MARGIN (Before Tax)</td>
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<td>SOY dev</td>
<td>LATE SOYBEANS</td>
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<td>CORN</td>
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<td>Acarage</td>
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<td>846</td>
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<td>Insecticide</td>
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<td>Other Pesticide</td>
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<td>Plant Protection Total</td>
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<td>49</td>
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<td>53</td>
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<tr>
<td>Contract work</td>
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<td>149</td>
<td>151</td>
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<td>270</td>
<td>363</td>
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<tr>
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<td>700</td>
<td>576</td>
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<td>Land Value USD/Ha</td>
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<tr>
<td>NET MARGIN (Before Tax)</td>
<td></td>
<td></td>
<td></td>
<td>19%</td>
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</table>
Contractors in Argentina
• In the early stages of agriculture immigrants faced difficulty in accessing land ownership.
• So they either invested on Machinery or got employed at the farms.
• During the 40’s worker conflicts convinced owners to outsource services avoiding to keep machinery and employees in their payroll.
• Parallel to this is a growing trend of farm owners to move to the cities.

Source: Barsky Osvaldo y Gelman Jorge (2001)
During the 50’s the government subsidized interest rates for the purchase of machinery. Parallel to this, in the 40’s and 60’s several laws and decrees aimed to protect producers over land owners gave new impulse towards contractor works. These laws included automatic rent contract renewal, fixed rent prices and land sale restriction while they were rented. All this forced land owners to produce their own land and the only way to achieve this was by hiring contractors.

Source: Barsky Osvaldo y Gelman Jorge (2001)
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• These laws included automatic rent contract renewal, fixed rent prices and land sale restriction while they where rented.

• All this forced land owners to produce their own land and the only way to achieve this was by hiring contractors.

Source: Barsky Osvaldo y Gelman Jorge (2001)
• Another reason was that at the beginning machinery required up to 25 persons to operate.
• Today this has been reduced but machinery requires high training and specialization.
• No till technology is another reason for the expansion of contractor around Argentina.
• In the 90’s large production pools originated and pushed even farther the need for contractors.

Source: Barsky Osvaldo y Gelman Jorge (2001)
# Cuadro 1

**Explotaciones Agropecuarias – Provincia de Buenos Aires**

**Contratación de Servicios de Maquinaria Agrícola**

(en hectáreas y % del total implantado/cosechado)

<table>
<thead>
<tr>
<th></th>
<th>1988</th>
<th></th>
<th>1996</th>
<th>% (1)</th>
<th>2001</th>
<th>% (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ha.</td>
<td>ha.</td>
<td>% (1)</td>
<td>ha.</td>
<td>% (1)</td>
<td></td>
</tr>
<tr>
<td>Presiembra /siembra</td>
<td>5.413.119</td>
<td>50,8%</td>
<td>8.420.420</td>
<td>66,4%</td>
<td></td>
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<tr>
<td>Fertilización / Pulverización</td>
<td>3.925.189</td>
<td>36,8%</td>
<td>7.109.050</td>
<td>56,0%</td>
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<td></td>
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<tr>
<td>Cosecha</td>
<td>6.022.084</td>
<td>72,0%</td>
<td>6.493.011</td>
<td>72,3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Siembra directa /otros</td>
<td>396.163</td>
<td>3,7%</td>
<td>1.604.331</td>
<td>12,6%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total**

|        | 7.986.994 | 15.756.554 | 23.626.812 |

| **Cantidad de EAP que demandan servicios /Total de EAPs** | 48% | 56% | 62% |


Nota: (1) en % del total implantado, salvo para las tareas de Cosecha que se expresa en % del total cosechado.
Land Markets
Argentina has suffered from bouts of severe hyperinflation*

*Monthly observed annual inflation rate based on CPI data. Scale capped at 500 percent to facilitate presentation.
Source: IFS/IMF.
• Convertibility Plan
• Elimination of Export Taxes
• Elimination on restrictions to import Ag. Inputs
• Tax exemption on capital goods imported
• Elimination of government commodity agencies holding export monopolies.
• Privatization of Marketing and Transport infrastructure.

Source: USDA
Land Value

Source: Inta
THANK YOU!

Headquarters:
Cerrito 1070, 11th floor,
PO Code (1010)
Ciudad Autónoma de Buenos Aires - Argentina