Wheat in Brazil

São Paulo, 2013
The essence of our strategy

Think like a grower

Develop innovative solutions

Integrate like a grower at scale
The essence of our new strategy

Intensity

Outperform

Innovation at scale

Health
Deep crop & customer insight to address grower's unmet needs

On the farm
Seed to harvest

Before the farm
Purchasing, environment

After the farm
Distribution, processing
Syngenta in Brazil

● Syngenta Brazil has around 1,800 professionals direct
● Business strategy is intimacy with customers
● Structured into two main areas:
  - Sugarcane Territory which includes Sugarcane Unit
  - Brazil Territory which includes four business units: Specialties, Agricultural Companies, Distribution North and South Distribution
Cereals in world

Cultivated around the world, multi-billion dollar business
- 124 countries, 270 M ha, ~800m tons of grain
- ~$10bn crop protection and seeds inputs; $200bn grain value

Manifold end-uses: food, feed, and fuel
- ~80% food; ~20% feed; bio-ethanol marginal
- #2 food crop globally; #1 feed crop in EAME

Interconnected value chain: from commodity grain to specialty use
- ~20% globally traded; quality segregation for end uses
- Downstream pull for quality and sustainability; partnerships
Cereals is a global crop with distinct regional differences

Grown around the world with huge yield variation

- 95 Mt
- 189 Mt
- 75 Mt
- 14 Mt
- 118 Mt

Grown in 124 countries

Yield t/ha
- Intensive 5-9
- Emerging 2-5
- Extensive 1-4

- 23 Mt
- 82 Mt
- 35 Mt
- 222 Mha wheat
- 51 Mha barley

Grain value of ~$200 billion:
648 Mt of wheat*, 123 Mt of barley**

Yield variability: from <1 t/ha to UK average of 7.4 t/ha to record >15 t/ha

*2020h **2007h
Brazil is not a key producer, but it is a key importer

Consumption, production and imports (m t)

- Brazil is not sufficient in wheat
- Import more than half of internal consumption from Argentine and Canada

Exports evolution (m t)

- Exportation has been experienced over the last 2 years by farmers, but the quality of grain is still a barrier
Wheat production in Brazil is concentrated in South region

<table>
<thead>
<tr>
<th>Regions</th>
<th>Environment Conditions</th>
<th>Planted Areas (m ha)</th>
<th>Planting</th>
<th>Harvested</th>
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<tbody>
<tr>
<td>RS</td>
<td>Weather:</td>
<td>976</td>
<td>Jun to Jul</td>
<td>Oct to Nov</td>
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<tr>
<td></td>
<td>• Low temperatures (~ 8 to 20ºC)</td>
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<td></td>
<td>• Low quantity of rains (~450 to 600 mm)</td>
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<td>PR</td>
<td>Soil:</td>
<td>774</td>
<td>Apr to Jul</td>
<td>Aug to Nov</td>
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<td></td>
<td>• Sandy clay</td>
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<td>• Deep</td>
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<td>• pH 6</td>
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<td>• Saturation of bases between 40 e 60%</td>
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<td>• Flat areas</td>
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<td>SC</td>
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<td>67</td>
<td>May to Aug</td>
<td>Sep to Dec</td>
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<td>SP</td>
<td></td>
<td>32</td>
<td>Feb to May</td>
<td>Jun to Sep</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>1849</td>
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Improvements in yield, but there is still opportunity to increase

Average Yield Evolution
(kg/ha)

Yield Results from key Growers
(kg/ha)
Wheat is the second crop for ~12,000 Brazilian growers

Crop rotation in all segments: soybean / wheat

**Biggest growers**
- Farming area: 3,500 ha
- Crop area = 1,300 ha
- Estimated # farmers: 30
- Main channel: dealer

**Big growers**
- Farming area: 2,000 ha
- Crop area = 1,000 ha
- Estimated # farmers: 250
- Main channel: cooperative

**Medium growers**
- Farming area: 700 ha
- Crop area = 345 ha
- Estimated # farmers: 2,000
- Main channel: cooperative

**Small growers**
- Farming area: 90 ha
- Crop area = 43 ha
- Estimated # farmers: 9,000
- Main channel: cooperative

Source: AMIS Kleffmann. Crop analysis..
Market Value Drivers – Technology Adoption

**Key insights**

- In the short term: no increments in technology adoption is expected in 2014 due to lesser profitability
- In the long term: improvements in crop management driven by new requirements in terms of grain quality
- Breeding program has prioritized yield instead of rusticity
- Weed resistance issue has increased
- NO GMO entrance is expected despite of first trials in the field (PAT E P5CS - gluphosinate and water stress tolerance)
Global companies are not in the value chain

Wheat seeds business model and value chain.
Total certified market value = 213,000 t (2012); values in 1,000 t; % of total certified market.
Values are not considering write-off.

Key breeders

Basic seeds producer

Basic 17t

Licensor ~180#

Certified 213t
66% of total acreage

Coops Growers

124t

Dealers ~70#

Certified 70t (33%)

Growers ~11,000#

Certified 124t (58%)

Exportation

Wheat grain ~5,300 t

1,500 t

3,400 t

Traders ~TBD#

Coops Dealers

Local Mills

Saved seeds 110 t
34% of total acreage

Source: AMIS Kleffmann. Crop analysis.
Brazilian wheat production challenges

YIELD
Grain QUALITY
Small PROFIT MARGIN
LIQUIDITY
Syngenta: uniquely positioned to win in Cereals

- Global reach
- Grower proximity
- Downstream connectivity
- Portfolio breadth
- Integrated solutions
- Technology innovation
- Leading footprint

Focus on creating value for the farmer
With technology helping growers to cover challenges in multiple decision points to maximize return on investment.

1. **Seeding**
   - **Planting**
     - Field preparation
     - Setting the yield and quality potential
   - **Leaves**
     - Soil-borne diseases and insects
     - Water and nutrient stress
     - Root strength and early vigor
   - **161 products**

2. **Crop establishment**
   - **Tillering**
     - Weed control, including resistance management
     - Water and nutrient use efficiency
     - Lodging prevention
   - **56 products**

3. **Yield protection**
   - **Stem elongation**
     - Optimizing grain filling and quality
     - Disease control, including resistance management
   - **47 products**

4. **Yield delivery**
   - **Boot**
   - **Heading/flowering**
   - **45 products**

**Delivering yield and quality potential: solutions across the growing cycle**
Integrated Crop Solution
Brazil needs 2.9 m tons to replace imports of high quality wheat to meet domestic demand

Imported wheat from Argentine and Canada is supplying this demand

Imported top / high milling wheat is overpriced 20% to 50% versus Brazilian basic production
Customer target: large and mid size growers who want to add value

Progressive influencer grower
Average crop area = 600 ha
Estimated # farmers: ~2,300
By solving the quality issue, we will address the main growers pain points

Grain QUALITY

Small PROFIT MARGIN

Little LIQUIDITY
Trigold platform = integrated solution to leverage quality improvement for higher profitability

**PROTOCOL**
- CP + SE Technology
- **Best practice** in crop management

**SERVICES: SEGREGATION**
- New grower **process to separate** high grain quality from basic grain quality
- Market has **adequate storage capacity**

**COMMERCIALIZATION**
- **Connect** our customers to specialty markets which are able to pay for premium product
Improving farm profitability by 25%

Setting base case:
1) Basic wheat price: USD 157.50/t; UDS 9.45/bag
2) Appreciation of bag in barter: 15%

Current offer

Farmer Pays (USD/ha)

- CP + SE = USD 237/ha
  Bag = 9.45

Farmer Pays (bag/ha)

- CP + SE = 25 bags

Wheat yields:

- 4.0 t/ha

Farm profit:

- USD 394/ha
  + USD 17/ha
  - 2 bags
  +0.5 t/ha
  +USD 97/ha (25% over)
  USD 491/ha
Incorporating new processes in crop management; segregation and commercialization

1) Segregation - build the network (storage) to separate top and high milling from basic production

2) Commercialization - connect growers with specialty markets

NUTRADE is a Syngenta company
Generating a strong competitive advantage in the commodity market

- Addresses the main pain points
- New and unique process segregation and commercialization
- Barter and commercialization expertise, capability to improve quality
- Aligned channels Strategic partners
Bringing plant potential to life