

## Our Business / Sugar, Ethanol and Energy

Main Businesses

Farming - Crops

Farming - Rice

Farming - Dairy

Land Transformation

► **Sugar, Ethanol and Energy**

### We are a growing and efficient producer of Sugar, Ethanol and Energy in Brazil

#### WHY SUGARCANE?

Sugarcane is the most efficient agricultural raw material used in the production of sugar, ethanol and Energy, with the following characteristics:

- **Sustainable:** Sugarcane only needs to be replanted every five to seven years, as a semi-perennial crop. It can be harvested without uprooting the plant, and therefore its cultivation has less of an impact on the soil and the surrounding environment. The mechanization of the harvesting and planting process further improves sustainable agricultural management.
- **Energy Efficient:** Sugarcane is highly efficient in converting sunlight, water and carbon dioxide into stored energy. The energy output of sugarcane is equal to nine times the energy input used in the production process, whereas the energy output of corn ethanol is only about 1.9 to 2.3 times the energy input used in its production process. Sugarcane produces seven times more energy compared to corn in ethanol production.
- **Bioelectricity:** A by-product of the sugarcane milling process is bagasse, which together with the trash and leaves collected from the harvested field will be the main raw material used in the production of bioelectricity in sugar mills. Since we are sugarcane crushers we have a constant renewable source of co-generated electricity.
- **Renewable:** Sugarcane ethanol, unlike coal or oil, which can be depleted, is produced from sugarcane plants that grow back year after year, provided that they are replanted every six to eight years. Expanding production of clean, renewable sugarcane derived products could significantly reduce global dependence on fossil fuels.
- **Low Carbon Emissions:** Compared to gasoline, sugarcane ethanol reduces greenhouse gases by more than 80%, which is the greatest reduction of any other liquid biofuel produced today in large quantities. Ethanol made from sugarcane is deemed an advanced biofuel by the United States EPA.

#### WHY BRAZIL?

Brazil's agronomic conditions, such as climate and soil quality, provide high yields and sugar content. Furthermore, the development of a robust ethanol market driven by a growing flex fuel vehicle fleet combined with a bio-friendly power grid, make Brazil one of the most efficient places in the world to grow sugarcane at low-cost.

#### OUR BUSINESS MODEL

We are building a unique business model focused on extracting the most value per ton of sugarcane crushed. We have developed a fully-integrated operation in order to achieve the lowest production cost with the highest agricultural and industrial efficiencies.

- **Full cogeneration:** All our mills are equipped with high pressure steam boilers which allow us to generate electricity from sugarcane bagasse (fibrous residue left after sugarcane is crushed). Cogeneration is used to run our mills and the excess electricity is sold in the local power grid.
- **Availability of Land:** Our mills have been strategically located in Mato Grosso do Sul, where the lack of competition for land from grain farmers and other mills, results in greater availability of productive farmland compared to other traditional sugarcane production regions.
- **Highly integrated sugarcane supply:** Our agricultural background enhanced our understanding that the key business drivers and economics are related to sugarcane production. Therefore, we designed our model to produce approximately 95% of the sugarcane that is supplied to our mills. In addition, our plantations are located in one of the most productive regions for sugarcane growth in Brazil. The fertility of the soils and favourable climate allows us to achieve high yields and sucrose content (TRS).
- **Product mix flexibility:** Our mills have a high flexibility to produce both sugar and ethanol. We can adjust our product mix driven by relative market prices to maximize profitability.

- ▶ **Tax benefits:** Our mills have been granted important long-term tax advantages due to our investments.

## OUR MILLS

We currently operate 3 sugar and ethanol mills in Brazil with 7.2 million tons of sugarcane crushing capacity, and are in the process of expanding our capacity to 10.2 million tons by mid 2015. All of our mills are equipped with state-of-the-art technology including full cogeneration capacity, flexibility to produce sugar and ethanol and fully mechanized agricultural operations.

In the State of Mato Grosso do Sul, we are developing one of the most modern and efficient sugarcane clusters in Brazil. The consolidation of the cluster will generate important synergies, operating efficiencies and economies of scale.

- ▶ **Usina Monte Alegre:** We acquired UMA in 2005, as our gateway into the sugar and ethanol sector. UMA is located in the state of Minas Gerais, Brazil. The mill has a crushing capacity of 1.2 million tons and can produce sugar, ethanol and bio-electricity. UMA has an 80 year history in the region and a strong presence in the regional retail market.
- ▶ **Angelica:** The Angelica mill is located in the city of Angelica, in the state of Mato Grosso do Sul. Angelica was our first greenfield project, which we began building in 2008 and completed in 2010. The mill has 4.0 million tons of sugarcane crushing capacity and was equipped with state-of-the-art technology and modern equipment. Angelica has a high flexibility to produce both sugar and ethanol, and has full cogeneration capacity to produce bio-electricity. Angelica holds storage for 120,000 cubic meters of ethanol and 90,000 tons of sugar.
- ▶ **Ivinhema:** The Ivinhema mill is located in the city of Ivinhema, in the state of Mato Grosso do Sul, 45 kilometres south of the Angelica mill. Both mills will form a 9.0 million ton cluster surrounded by 120,000 hectares of sugarcane. The construction of the first phase of Ivinhema began in 2012. The mill currently has 2.0 million tons of crushing capacity. We are currently in the process of building the second phase, which will increase total capacity to 5.0 million tons. The mill is expected to be completed by mid 2015. Ivinhema is equipped with similar technology as Angelica and has storage capacity of 40,000 cubic meters of ethanol and 120,000 tons of sugar.