

GODAVARI BIOREFINERIES LTD (GBL)



Integrated Biorefining at Godavari Biorefineries Limited

February 2014

Godavari Biorefineries

- What are we doing?
- What are we doing different ?

GBL's Milestones



- No.1 Processor for Sugar at a Single Location.
- Processing 2 – 2.5 Million Tons of Sugarcane per year.
- Sugar Production & Sugar Refinery Capacity - 550 Thousand MT p.a



- Power plant capacity 50 MW.



- Ethanol Production Capacity - 85 Mn liters p.a.
- Leading manufacturer of Beverage Grade Ethanol & Anhydrous Ethanol used in blending with gasoline.



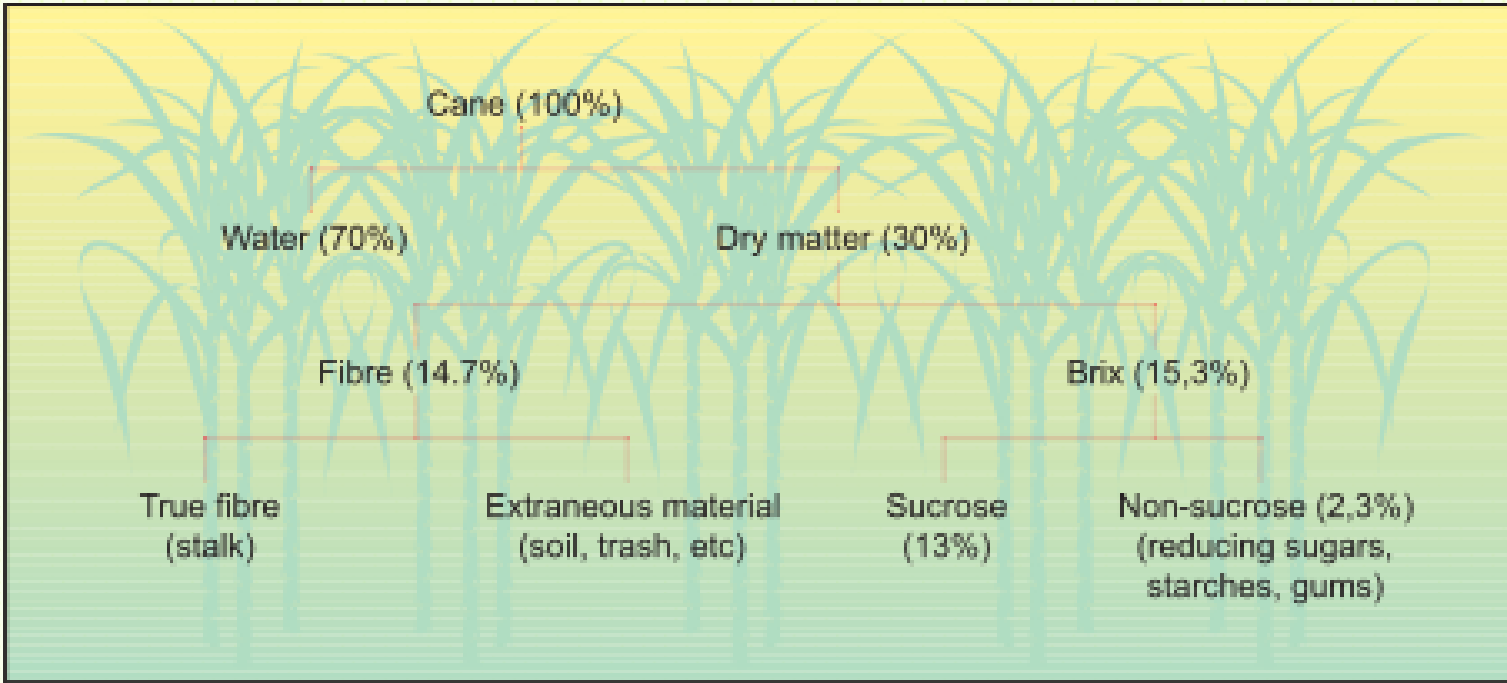
- Produces various chemicals using Ethanol as feedstock.
- Among top 10 producers in the world of Ethyl Acetate with production capacity of 80,000 MT p.a & 1,00,000 MT p.a including other Somaiya Group Companies.
- GBL's Chemical Unit is an Export Oriented Unit (EOU).

About Somaiya Group ...

Somaiya group established in 1939 is one of the oldest and well established industrial houses in India and has diversified interest in:

- Sugar
- Ethanol
- Bulk Organic Chemicals
- Specialty Chemicals
- Agriculture & Agricultural Research
- Renewable energy
- Education
- Healthcare
- Printing and Publishing
- Food Processing

Cane Composition



SOUTH AFRICAN SUGAR ASSOCIATION

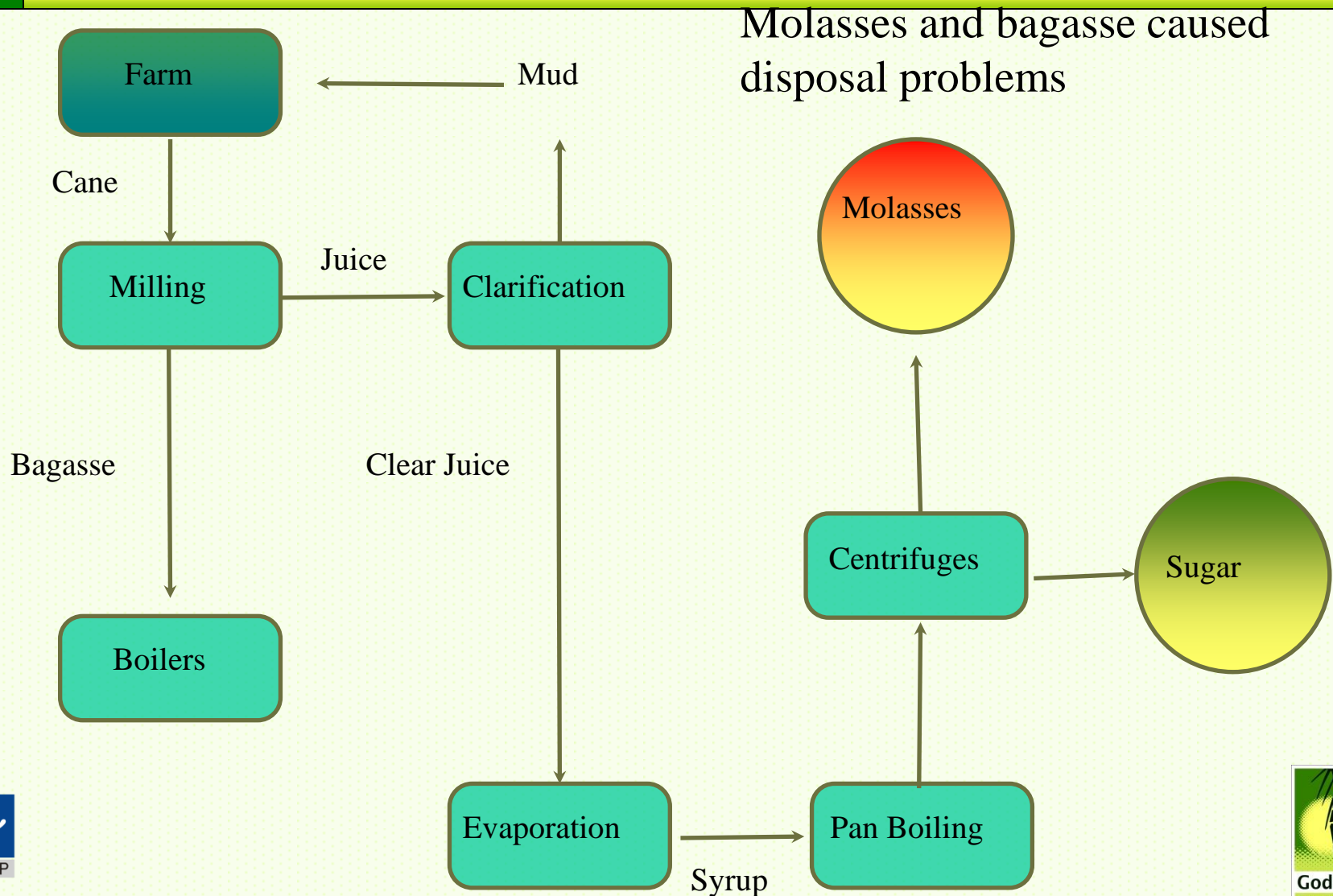
EXPERIMENT STATION



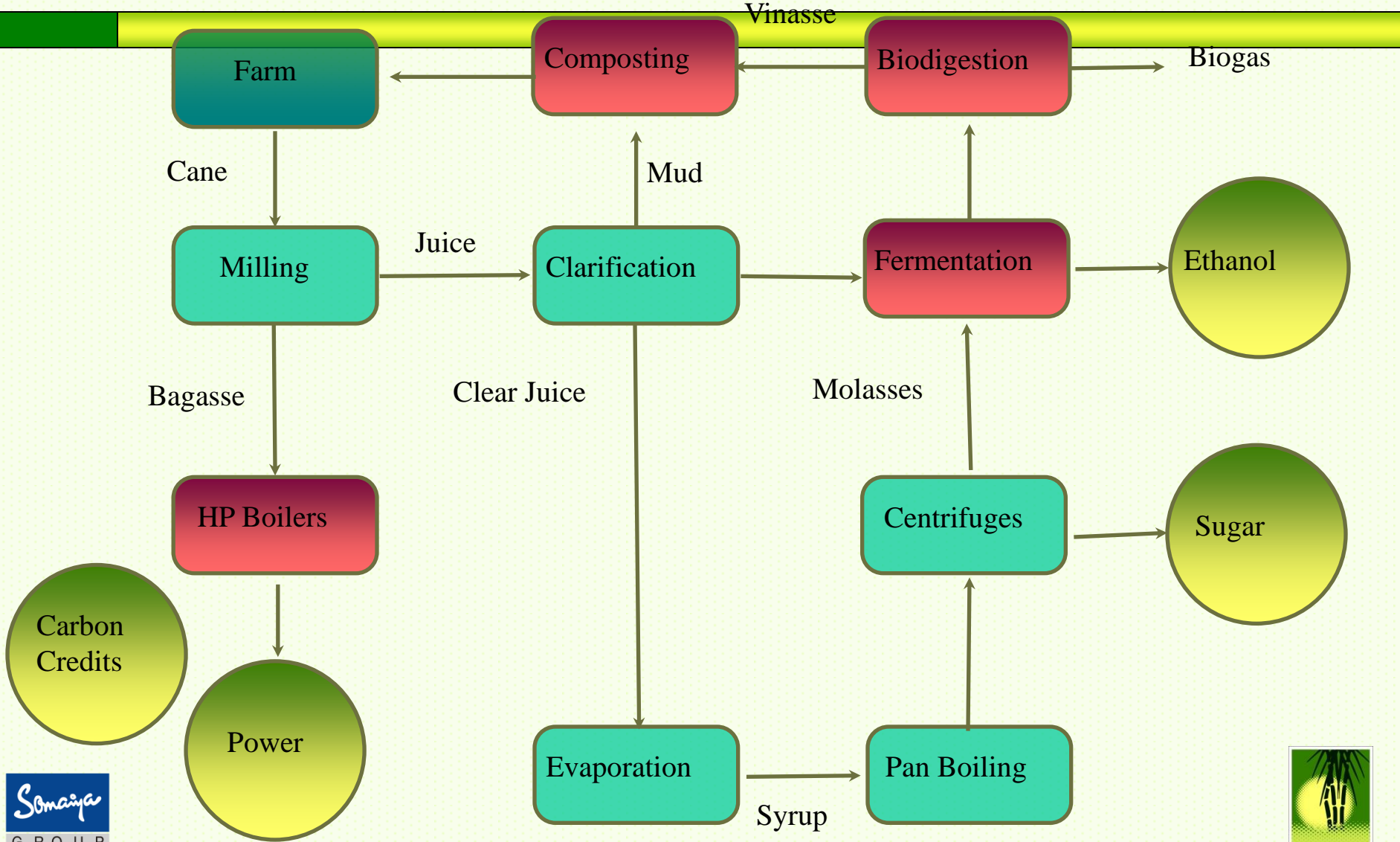


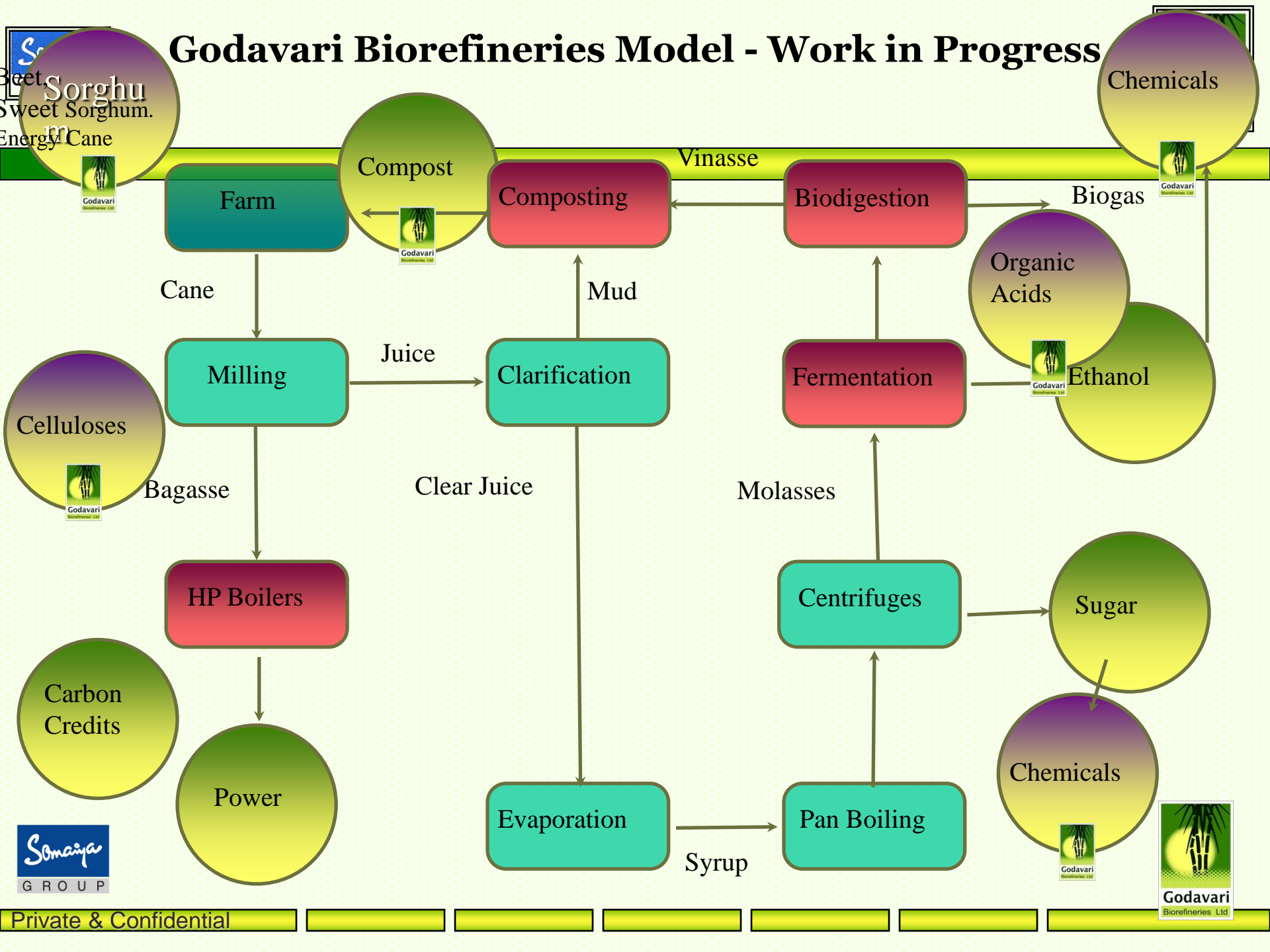
Variety	Sugarcane (Kg)	Trash (Kg)	Trash + Green top (%)	Juice (Kg)	Bagasse (Kg)	Recovery (%)
Co 86032	275	5.95	2.79	144.5	124.16	11.85
Co 91010	355	13.50	4.40	187.8	152.95	12.10

Traditional Model: Sugar from Cane

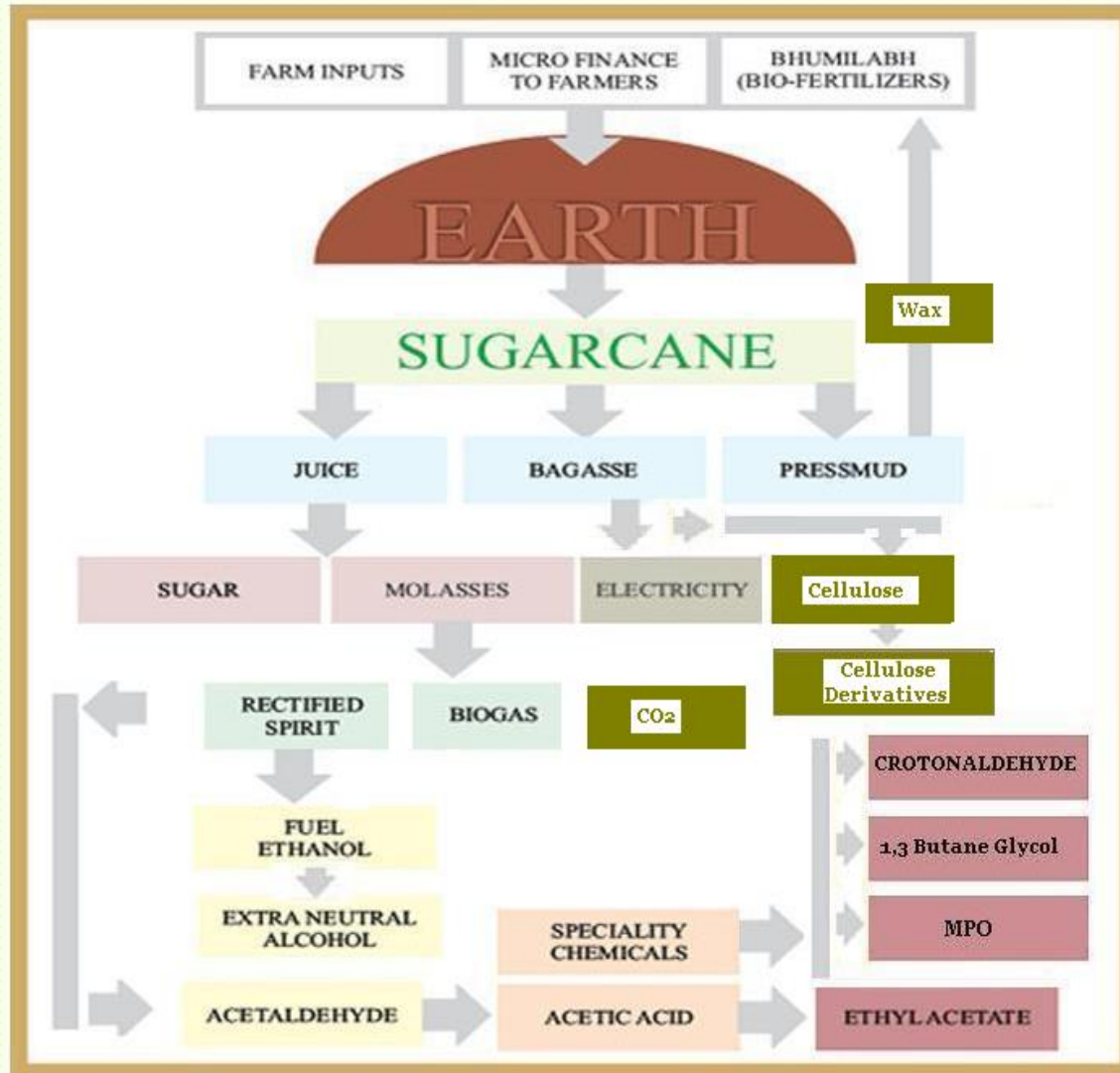


Current Model - Sugar, Ethanol, Electricity from Cane



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GBL's Value Chain



Biomass availability per season at GBL



Sugar cane crushing per season = $15000 \times 30 \times 6 = 2700000$ Tons

Bagasse = 2700000×0.15
405000 T on dry basis

Press mud = 2700000×0.04
108000 T having 80% mc

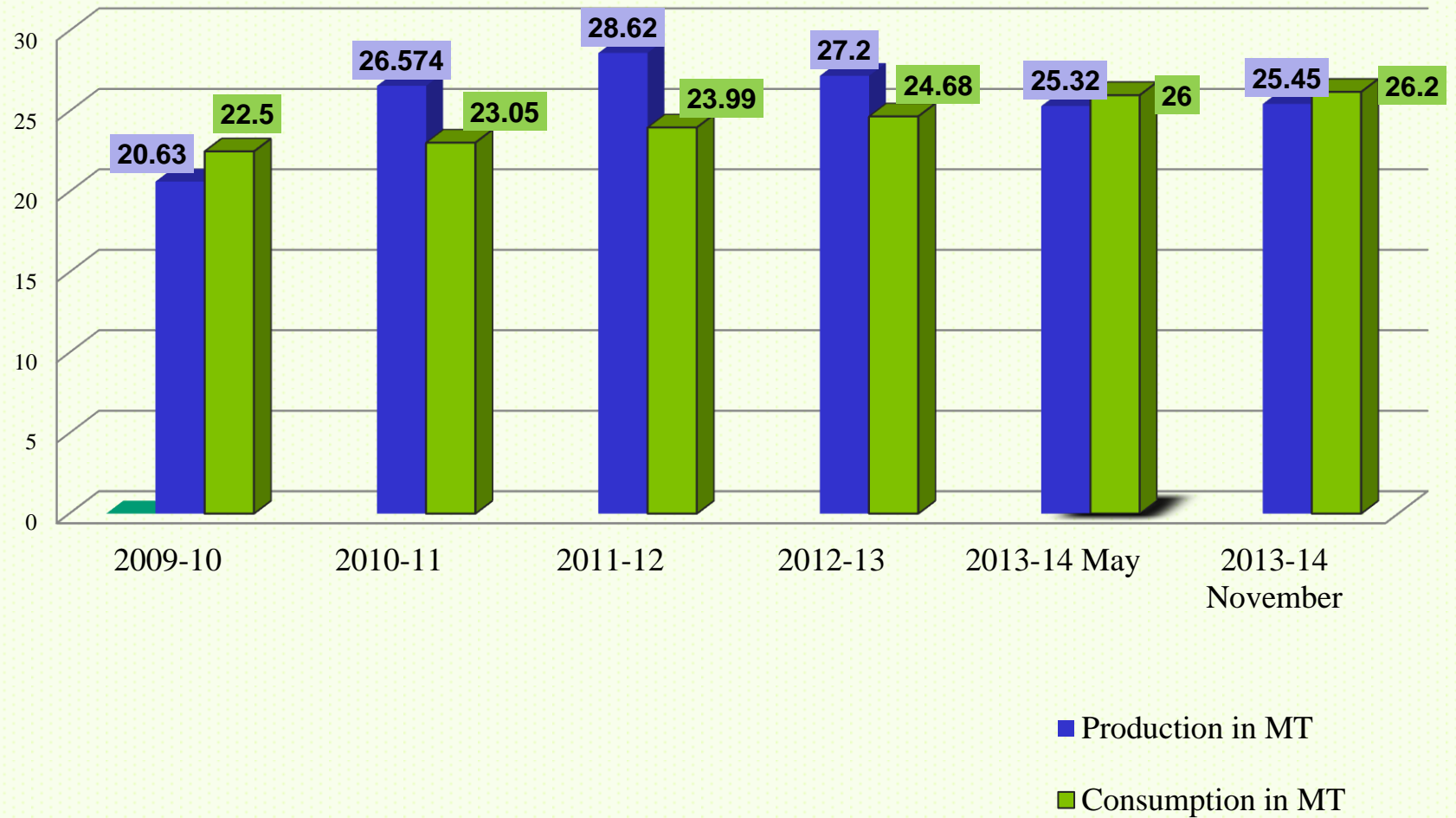
Sugarcane tops = 2700000×0.03
81000T

Sugar production in Million Tons

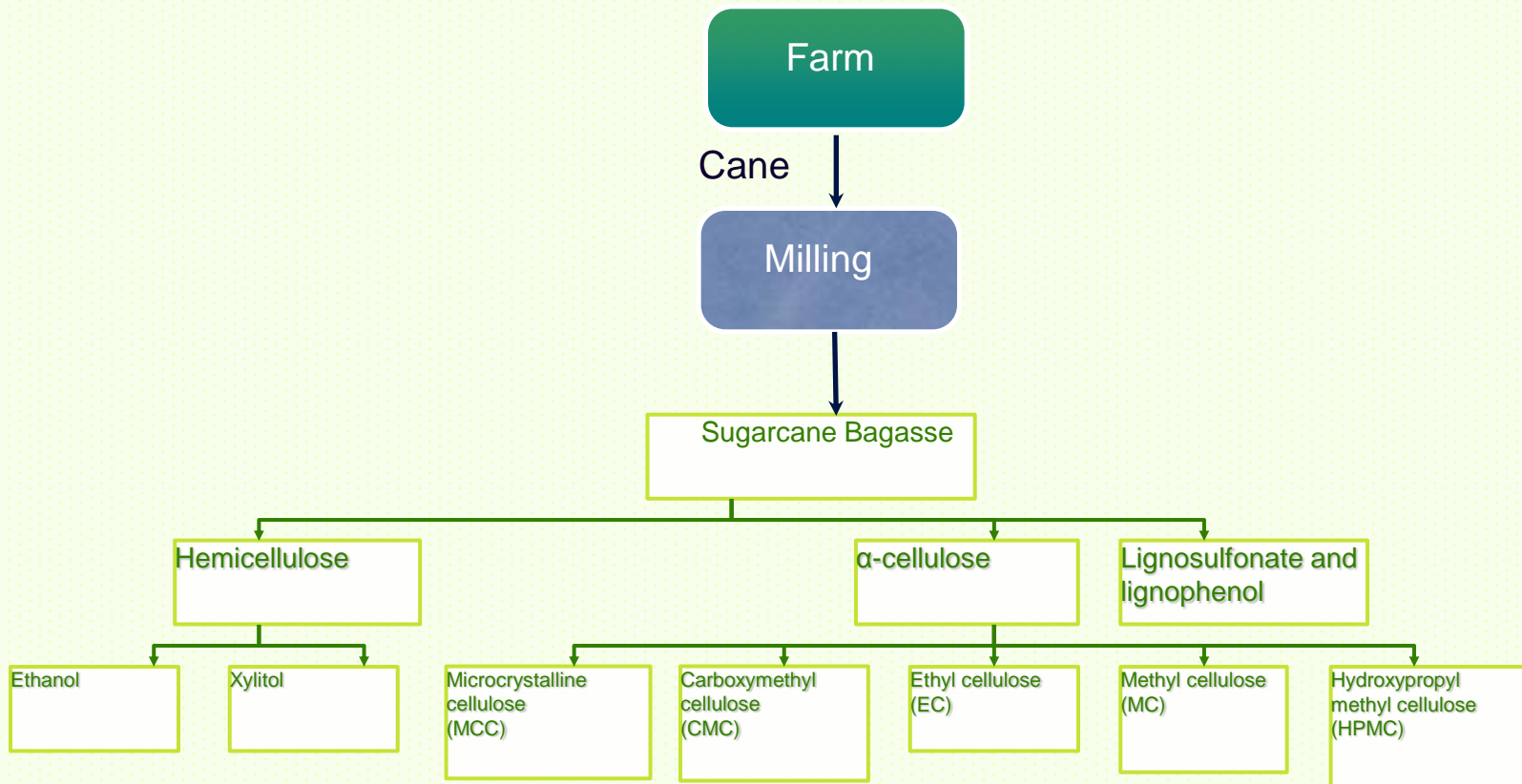
2009-10	2010-11	2011-12	2012-13	2013-14 MAY	2013-14 NOVEMBER
20.63	26.574	28.62	27.2	25.32	25.45

Sugar consumption in Million Tons

2009-10	2010-11	2011-12	2012-13	2013-14 MAY	2013-14 NOVEMBER
22.5	23.05	23.993	24.685	26.0	26.2



Innovation in Chemical Process Technology Separating Bagasse into its constituents



Fermentations

■ Molasses/Sugar as a Substrate

■ D-Lactic acid

■ Pyruvic acid

■ Succinic acid

■ Levulinic acid

■ Others

Ethanol Value Chain

- Ethanol as a feedstock to produce
 - Acetaldehyde & Derivatives
 - Crotonaldehyde & Derivatives
 - Methyl Pentenone
 - 1,3 Butane Diol
 - Methoxy butanol & Its ester
 - Ethyl Acetate
 - Mining Frothers
 - Other chemicals

Company Leaders



Padmabhushan Late Mr. K. J. Somaiya (1902-1999)

(Padmabhushan: - one of the highest Civilian award by Government of India given for Mr. Somaiya's outstanding contribution in field of Industrialization & Education)

- Founder Chairman of Somaiya group of Industries
- Founder Chairman of Somaiya Trust, Somaiya Vidhyavihar



Late Dr. S. K. Somaiya (1927 - 2010)

- Former Chairman & MD of GBL.
- Former President of All India Manufacturers' Organization, Indian Merchants' Chamber (IMC), Indian Sugar Mills Association (ISMA)



Mr. Samir. S. Somaiya:

- Chairman & MD of GBL
- Former President of Indian Sugar Mills Association
- Former President of Western Region of Indian Chemical Council (ICC),
- Chairman of Educational committee of of IMC,
- Member of Federation of Indian Chambers of Commerce & Industry (FICCI)
- Chairman of Somaiya Trust & KJ Somaiya Medical Trust.

THANK YOU...