

Production of 1G bioethanol in Brazil

Technology for biobased products

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Season 2012/2013: Numbers for total sector

Processing
590.4 million tons
of sugar cane



Turnover
R\$ 60 billion

Producing **38.4 million tons** sugar

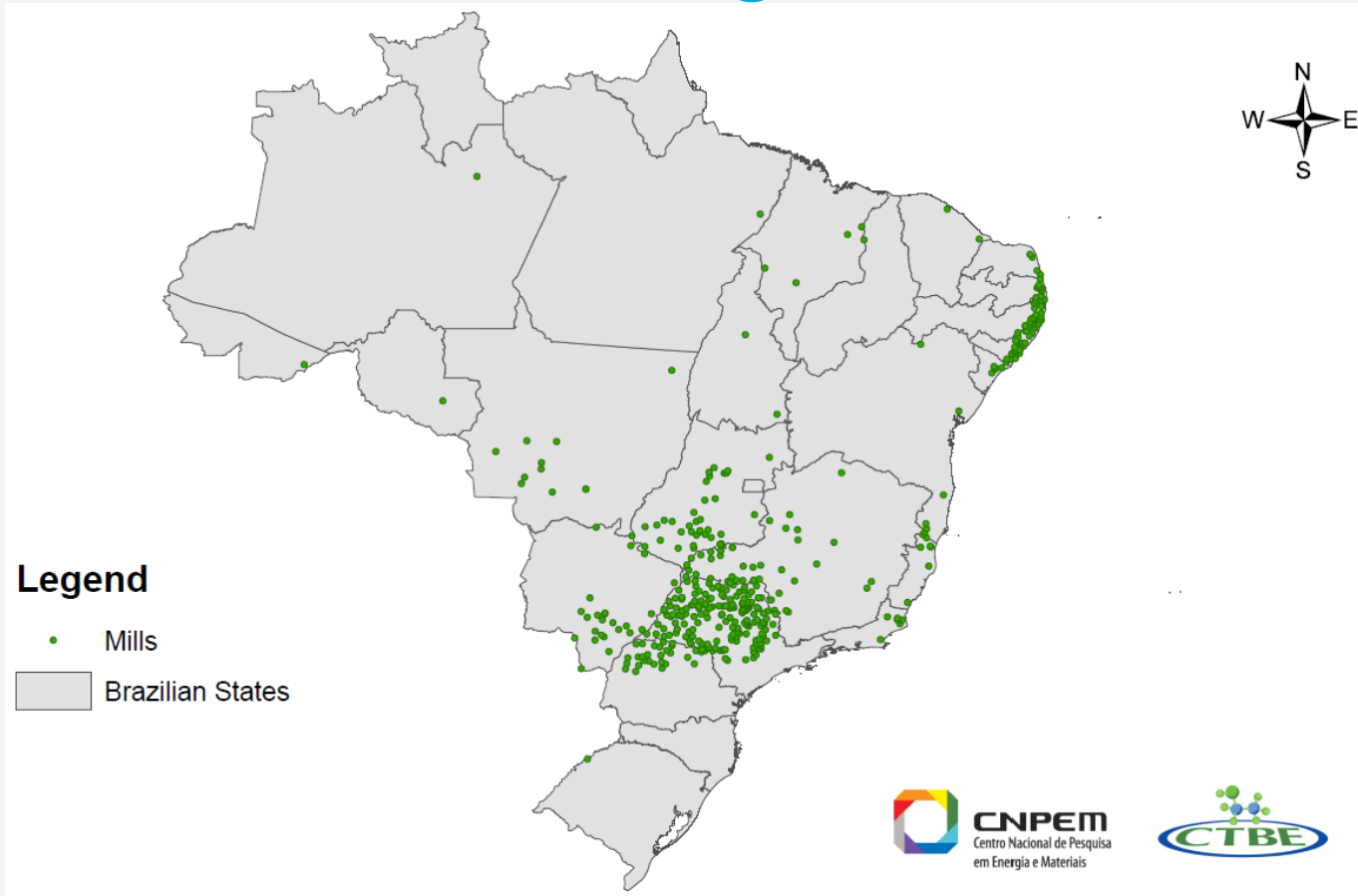
Producing **23.2 billion litres** of ethanol

Cogenerating **12.200 GWh** of surplus electricity

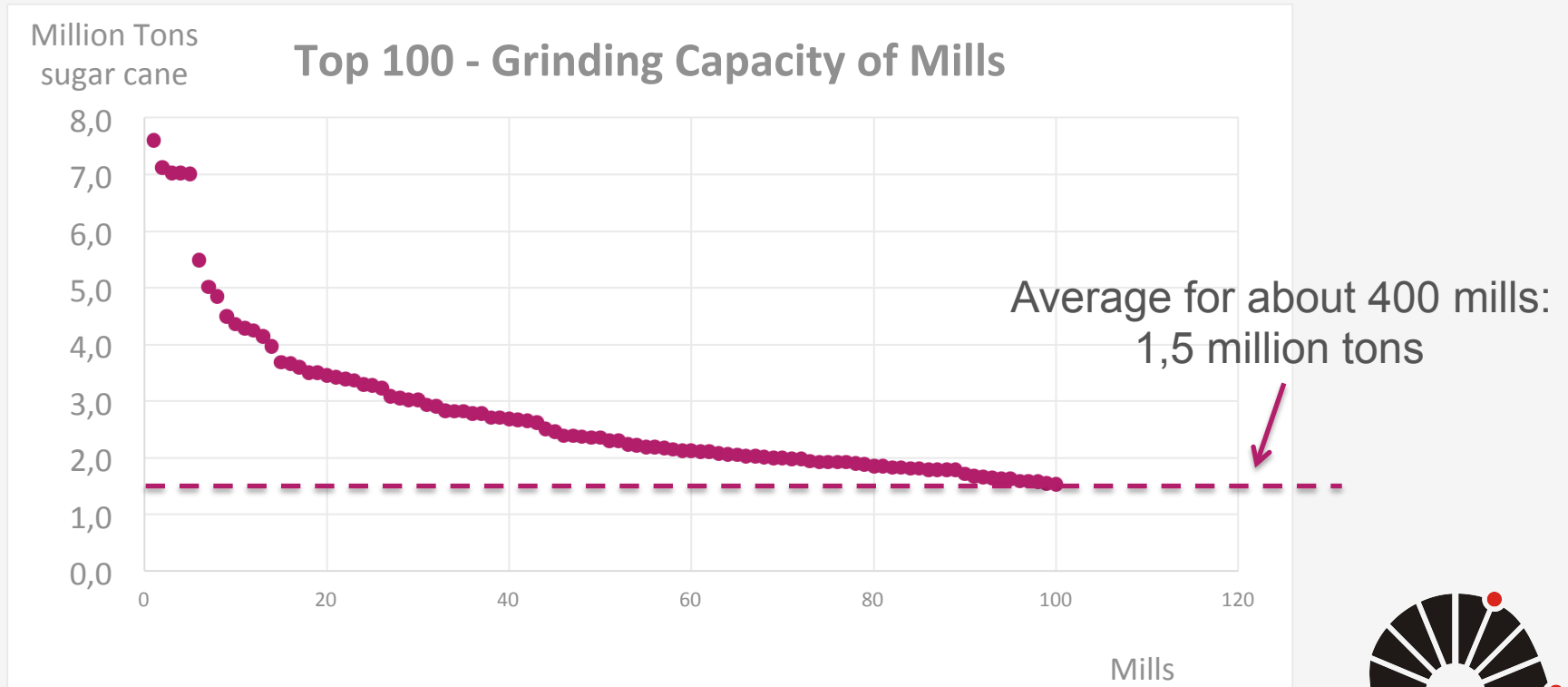
Source: *Anuário da Cana 2013*



Brazil, 2013: Active sugar/ethanol mills



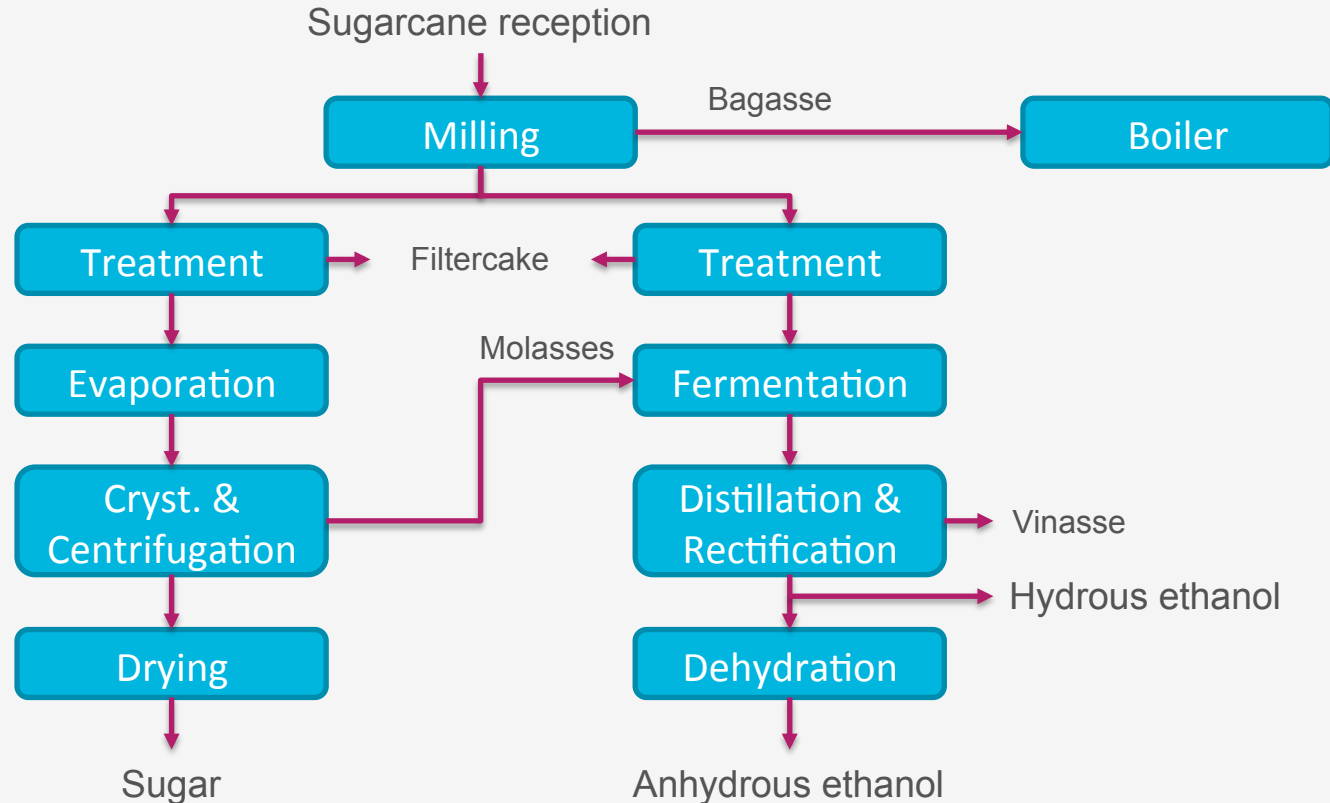
Capacity of Brazilian mills (season 2012/13)



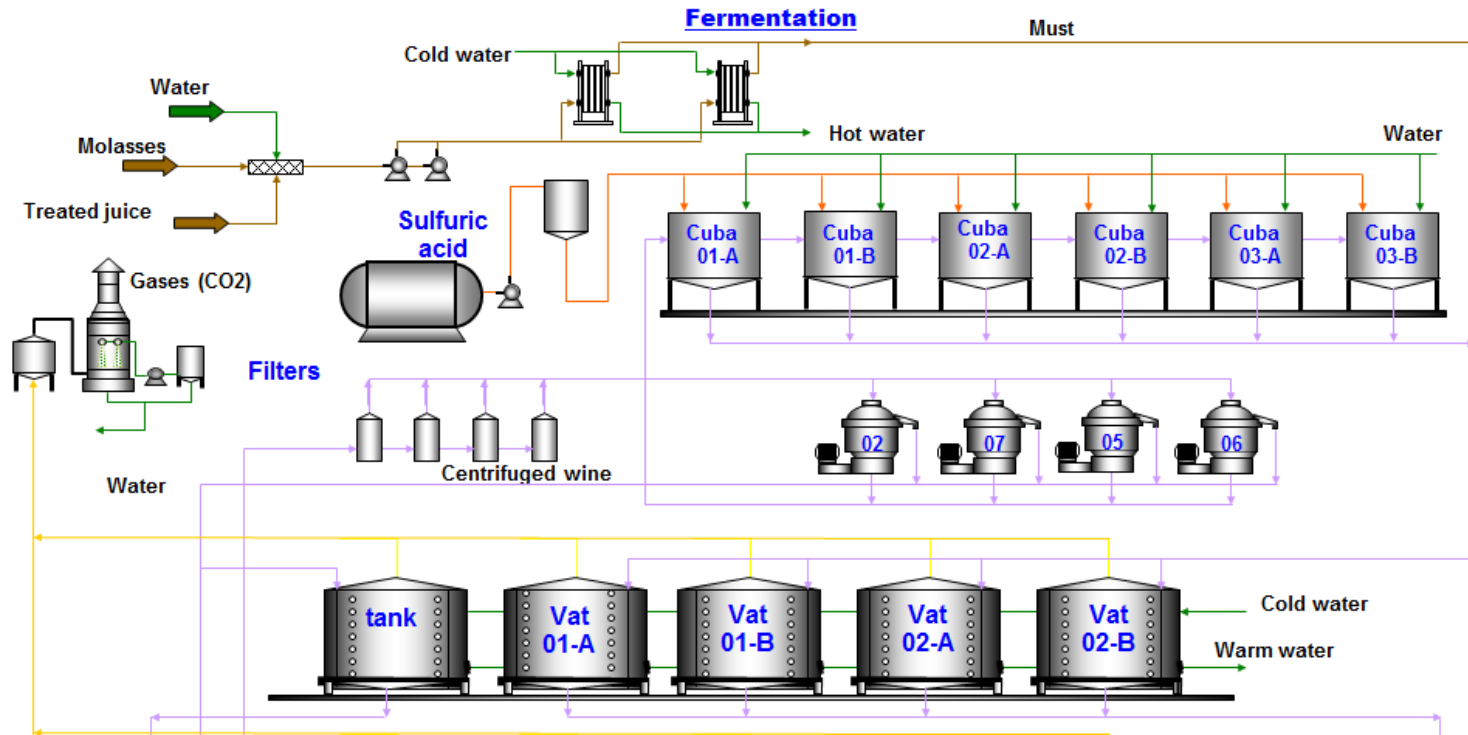
Source: Anuário da Cana 2013



Schematic of 1G ethanol production: total process



Schematic of 1G ethanol production: fermentation

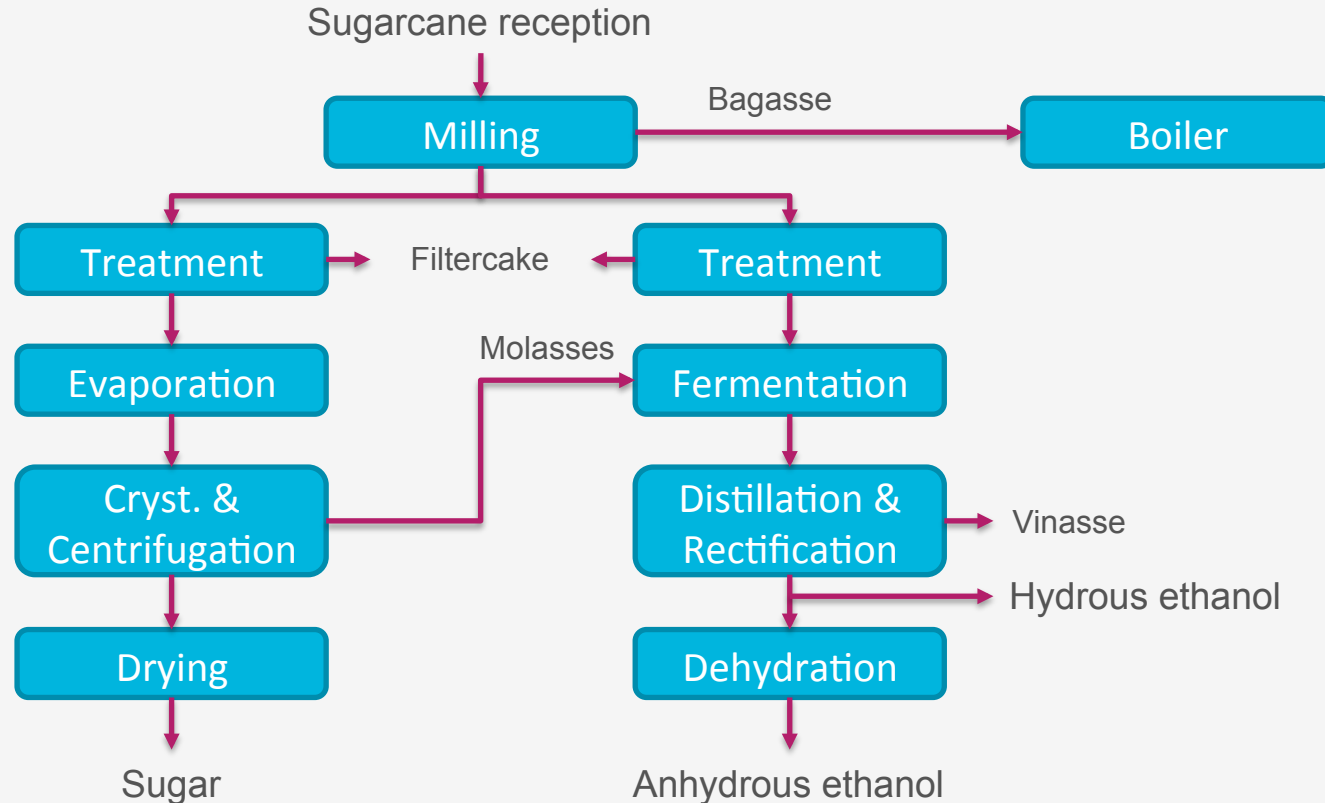


Source: CTC



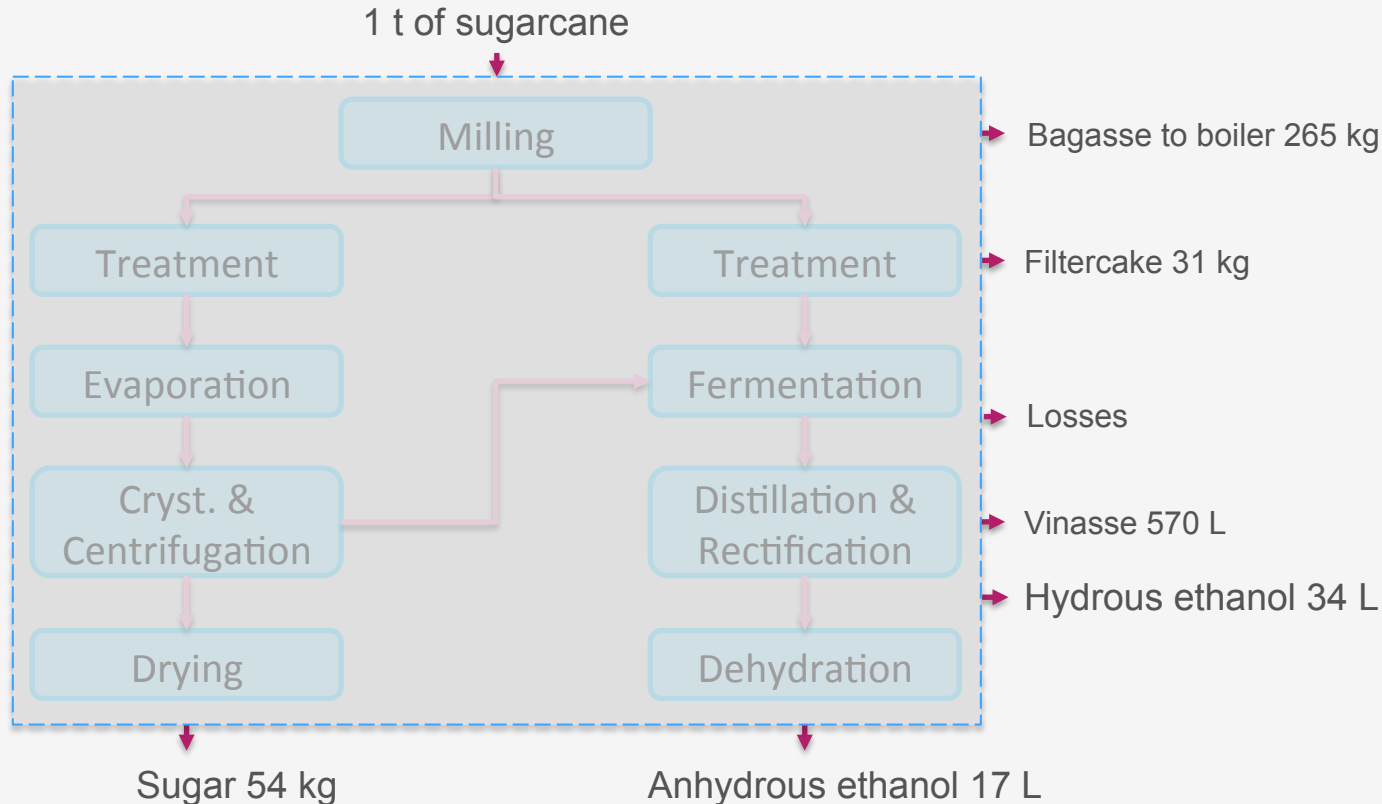
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Schematic of 1G ethanol production

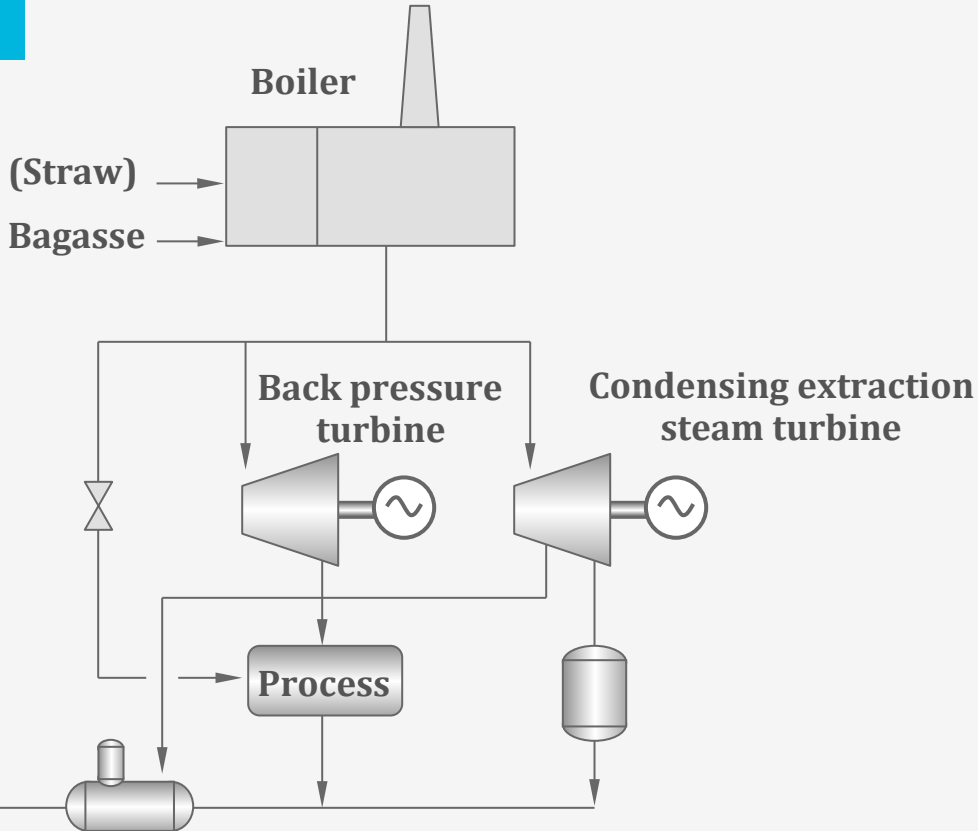


Mass balance (output per ton sugarcane)

** Values may vary considerably from mill to mill*



Cogeneration



Per ton of sugar cane

Electricity generation	90 kWh
Steam consumption	500 kg
Electricity consumption	30 kWh
Electricity surplus	60 kWh

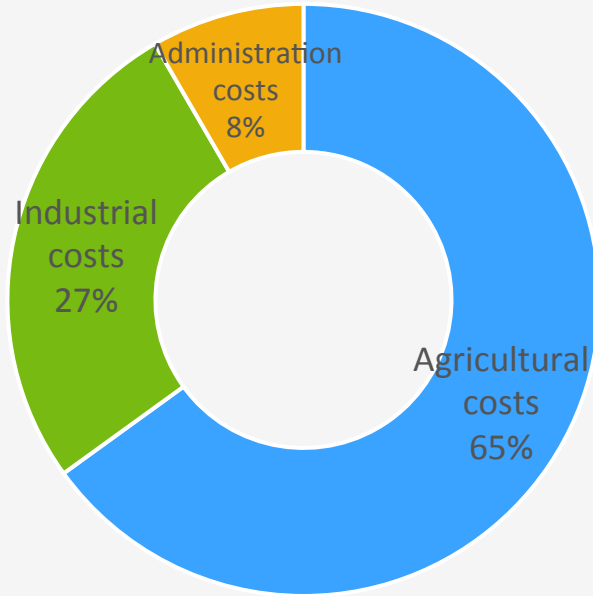
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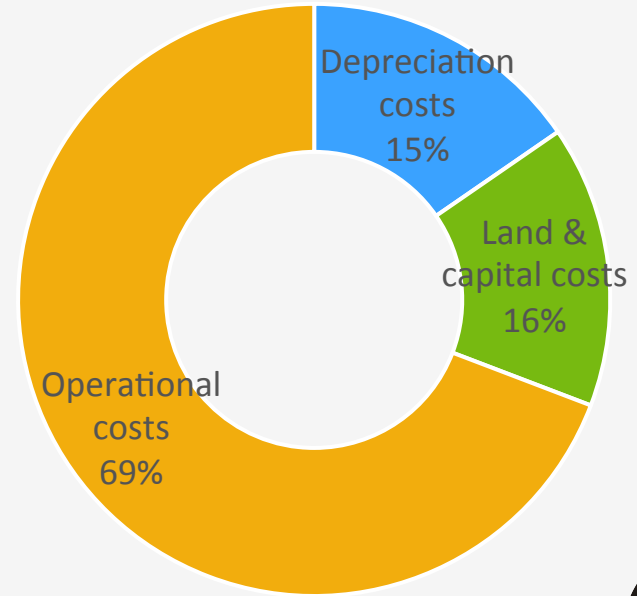
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Cost distribution, expansion region, 2011/2012 season


Agro-industrial costs



Ethanol costs



Source: PECEGE (2012)



Thank you for your attention

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