

Dry Grind Ethanol Process Overview

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Associate Professor

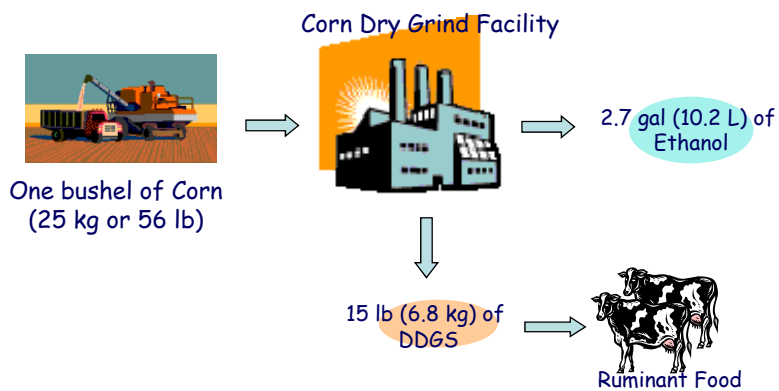
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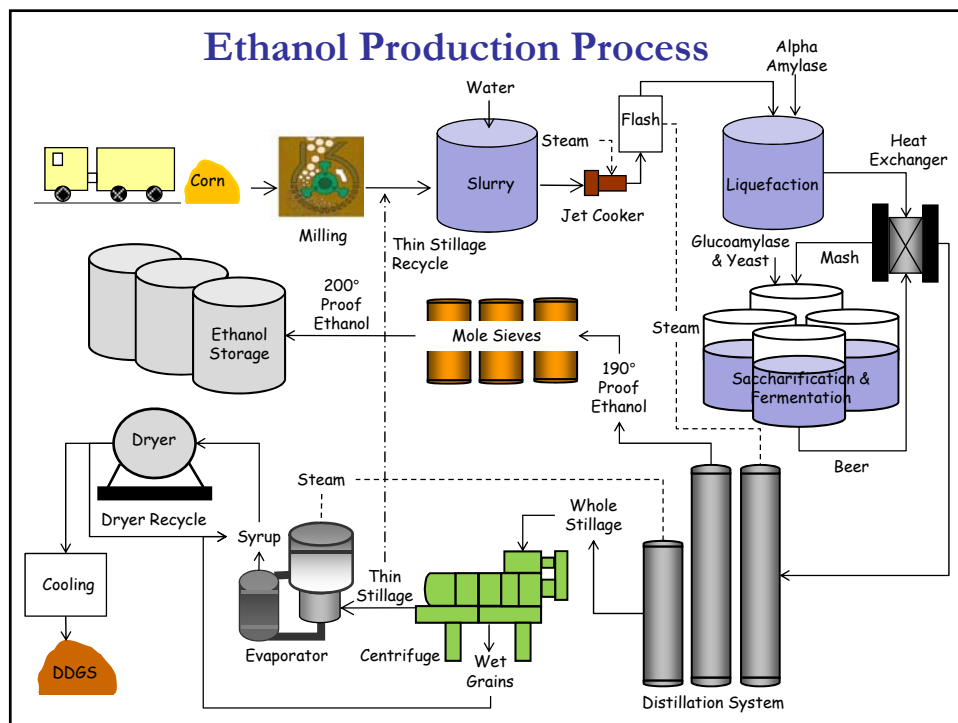
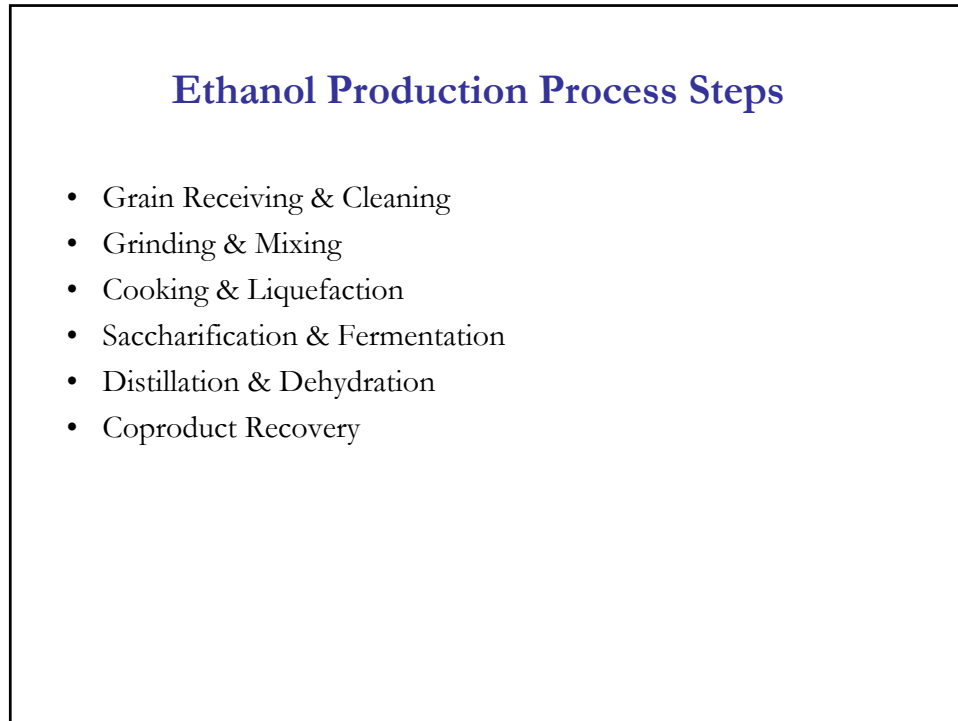
1st Brazil-U.S. Biofuels Short Course

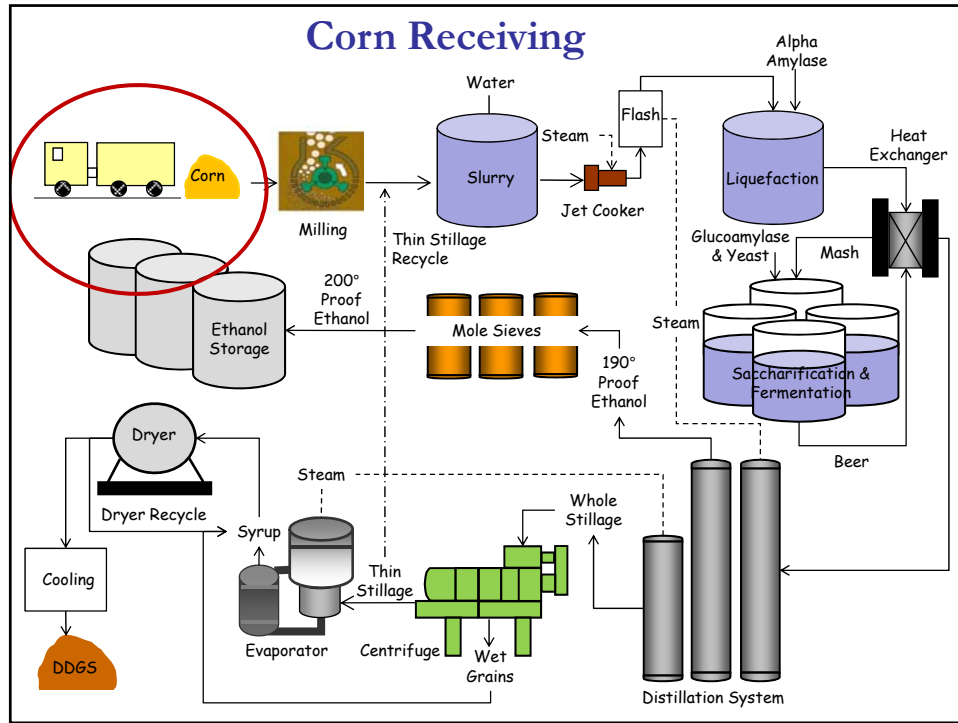
São Paulo, Brazil

July 27 - August 7, 2009

Ethanol Produced from a Bushel of Corn







Corn Receiving



Corn Receiving



Corn Receiving



Corn Quality Testing

- Corn delivered at plant is measured for
 - Moisture content
 - Fungus Contamination
 - BCFM (broken corn and foreign material)
 - Test Weight
 - Grade

Corn Receiving & Storage



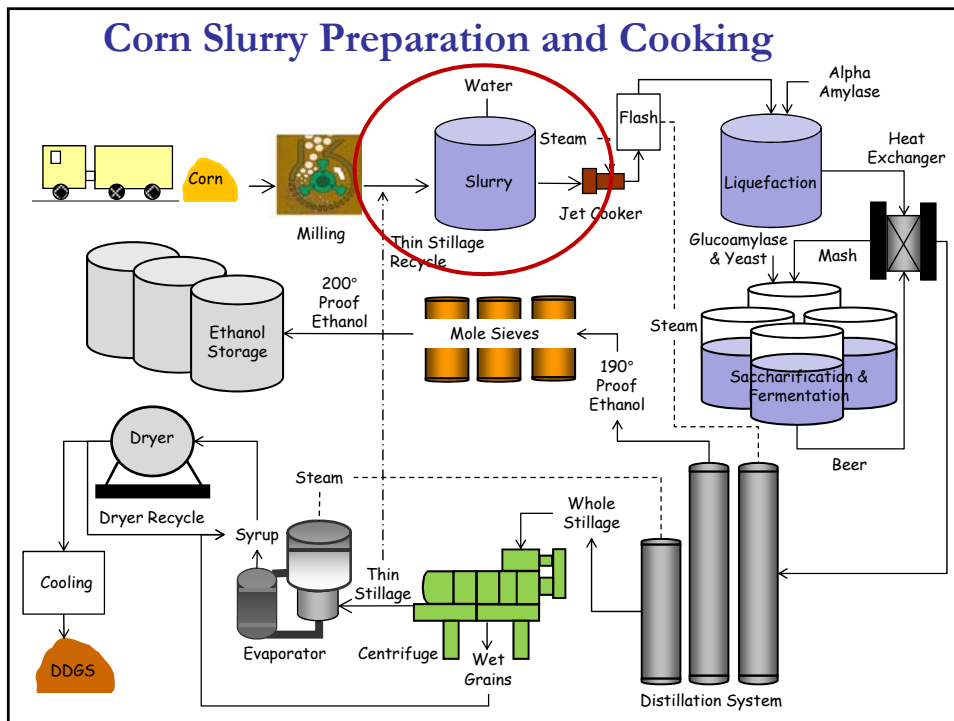
Corn Storage and Milling

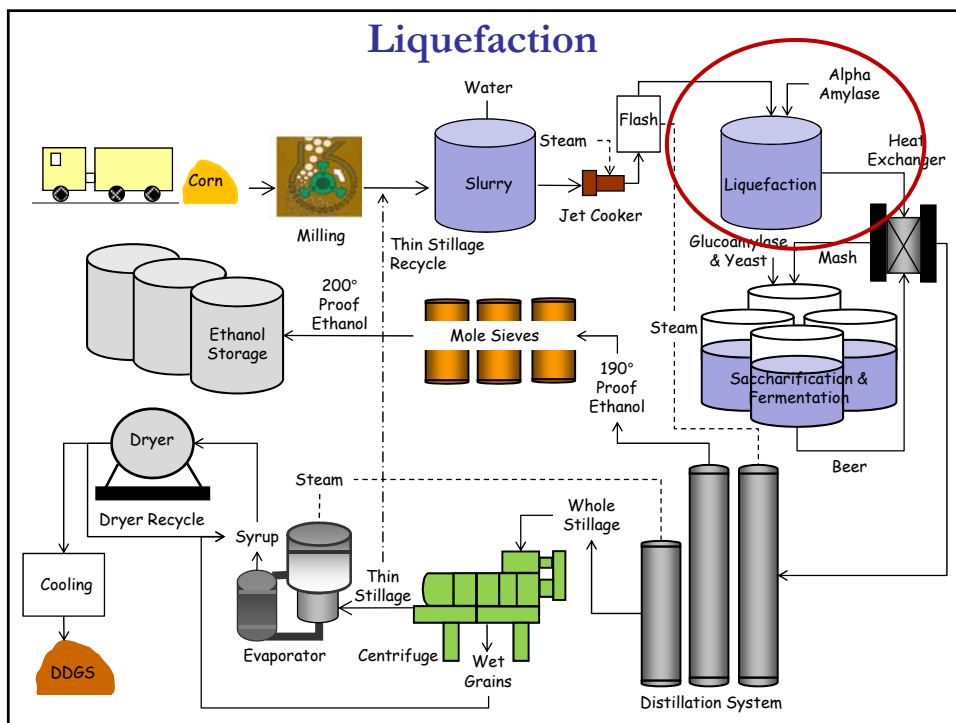


Corn Milling: Hammer Mills



Corn Slurry Preparation and Cooking

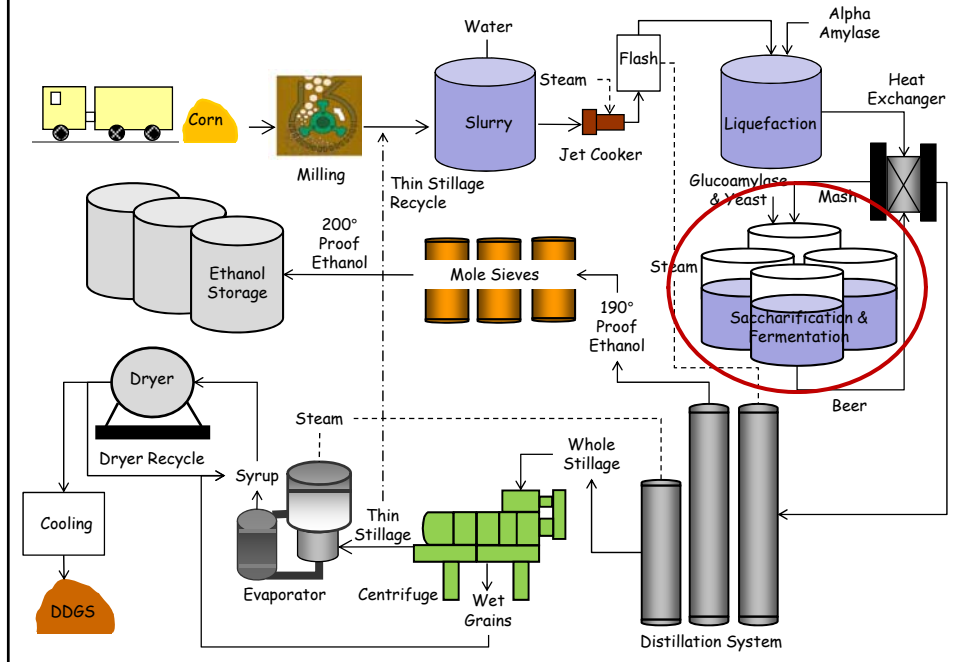




Liquefaction Tanks



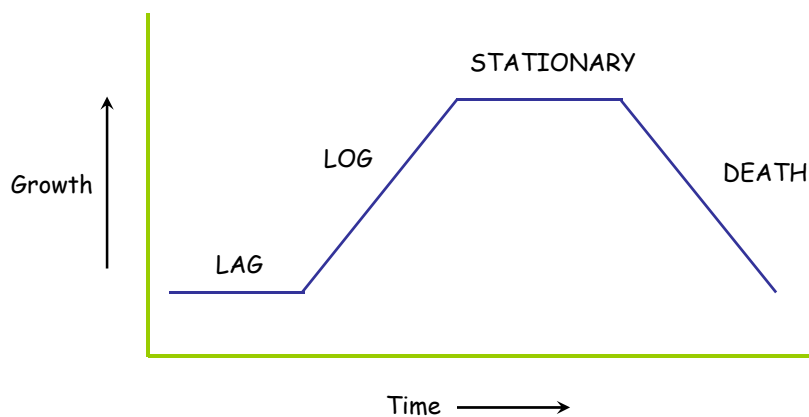
Saccharification and Fermentation



Yeast Propagation Tank



Different Phases of Yeast Growth Cycle

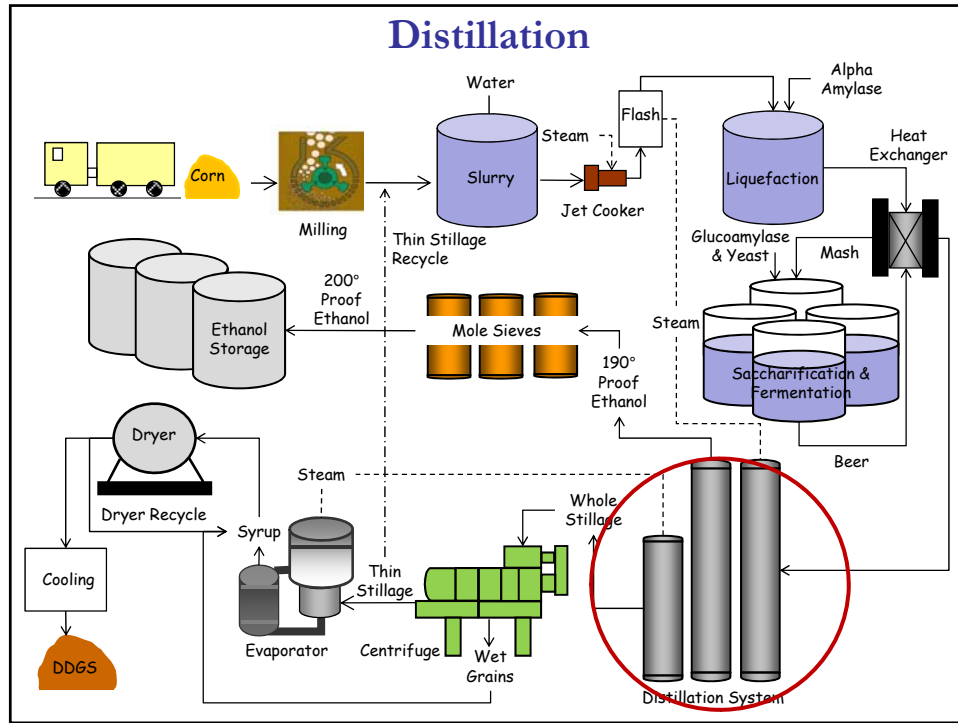


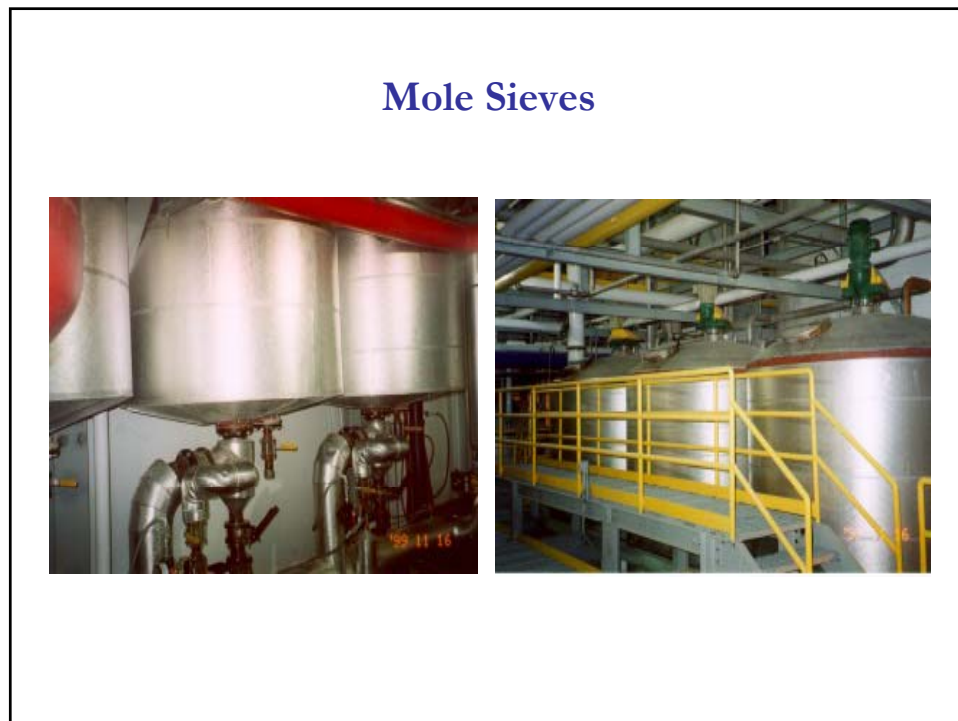
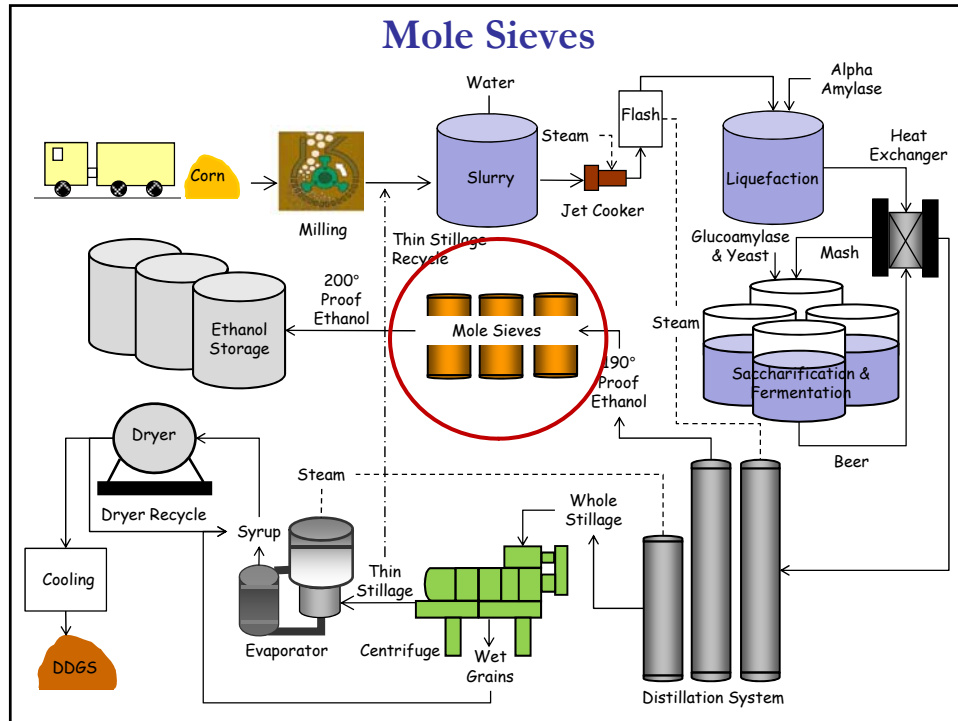
Saccharification and Fermentation



Beer Well



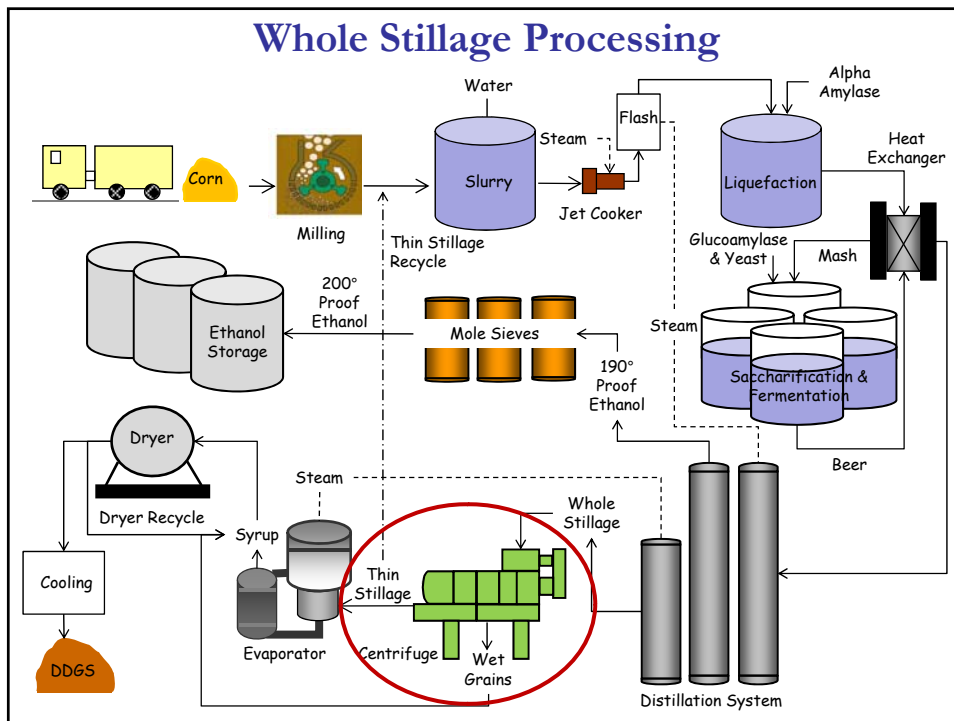




Mole Sieve Beads



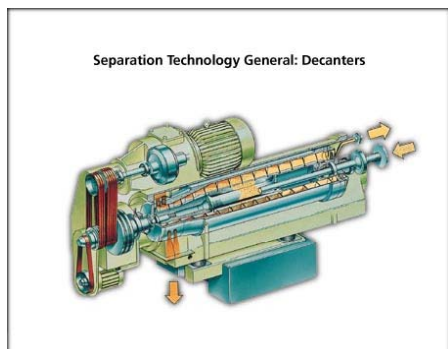
Whole Stillage Processing



Whole Stillage Centrifuge



Whole Stillage Centrifuge

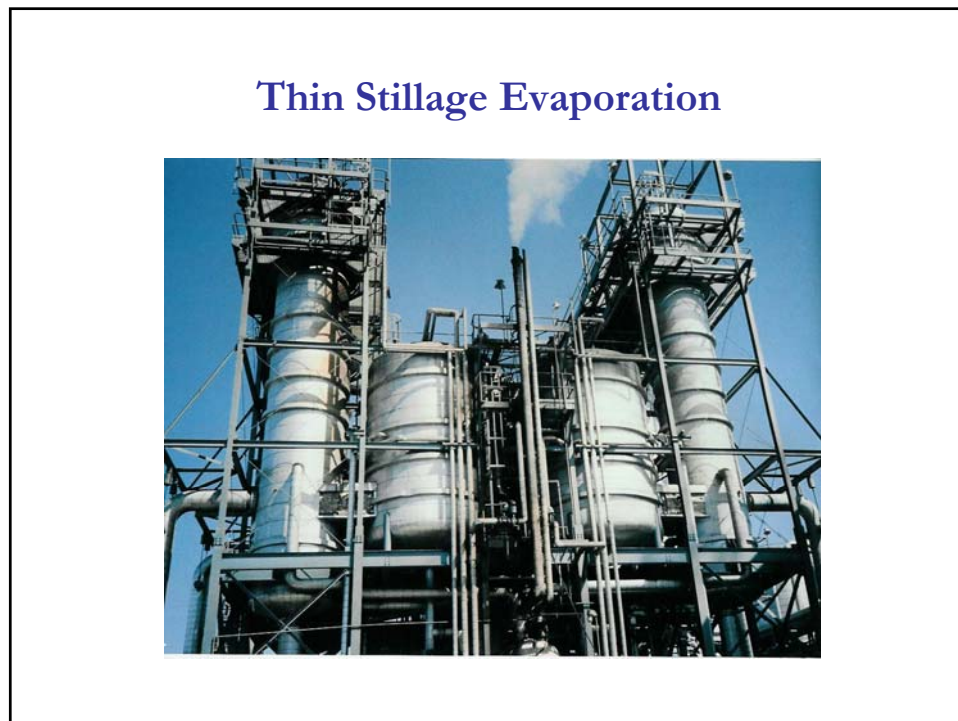
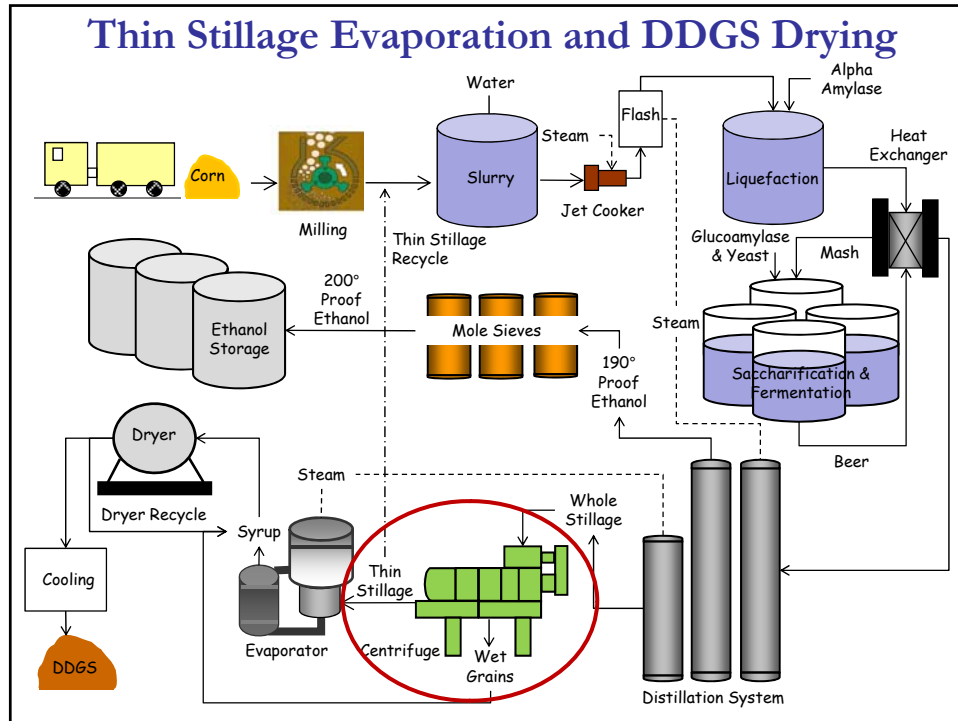


Wet Distiller Grains (Wet Cake)



Wet Distiller Grains (Wet Cake)





Thin Stillage Evaporation



Ethanol Loadout



Ethanol Loadout



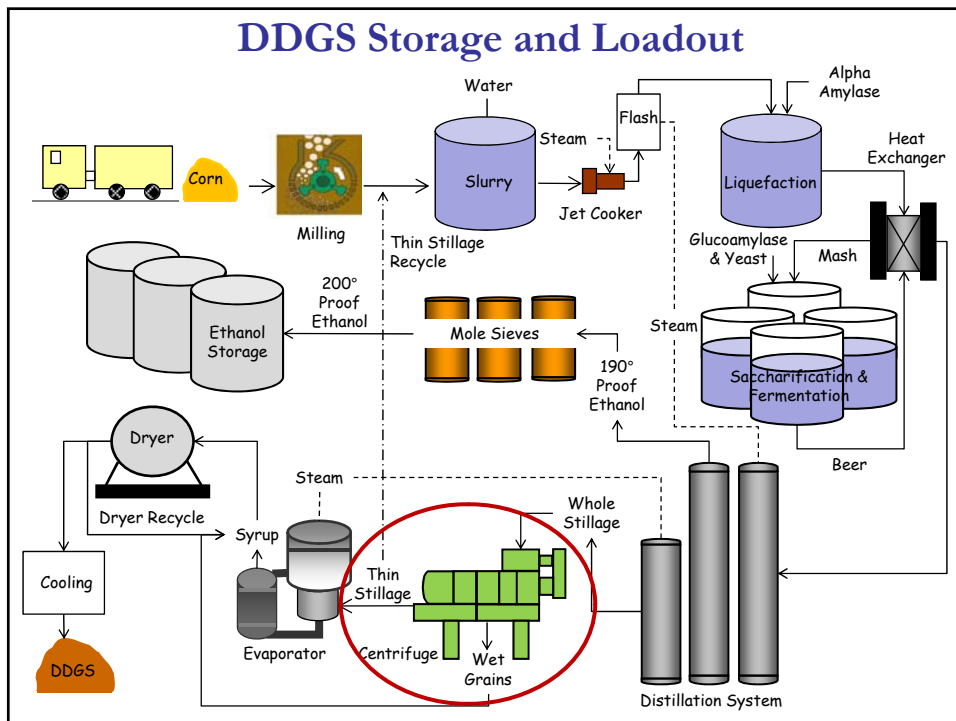
Feed Dryer



Feed Dryer



DDGS Storage and Loadout



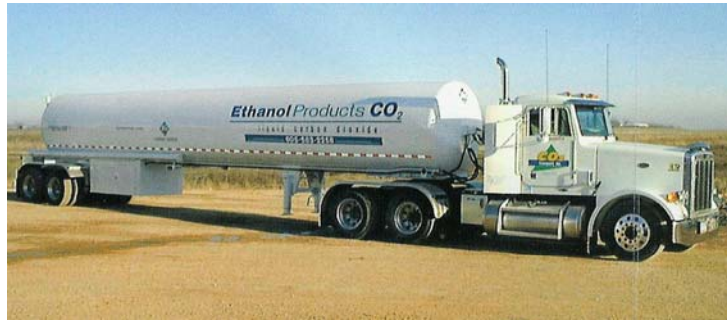
DDGS Storage and Loadout



DDGS Loadout



CO₂ Recovery



CO₂ Facility



CO₂ Storage



Regenerative Thermal Oxidizer

