

THE RAW SUGAR FACTORY

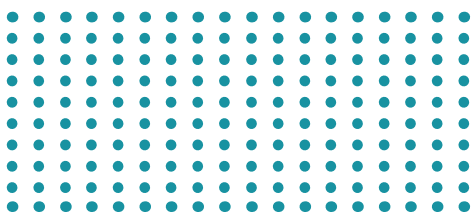


IN LOUISIANA

The Raw Sugar Factory in Louisiana

When you visit a raw sugar factory in Louisiana, you will see one of Louisiana's largest, oldest and most fascinating industries in operation. Take this pamphlet with you. It will help you better understand the process of making sugar from sugarcane. The basic steps used in making sugar are illustrated and explained briefly. Other sugarcane-producing areas of the world follow the same methods, many of which were developed right here in Louisiana.

Mill Yard



Large derricks, or bulk cane unloading equipment, unload cane from the trucks and place it in temporary storage piles in the mill yard or place it directly on the cane carrier (conveyor). Cane is supplied to the carrier 24 hours a day.

Cane Knives

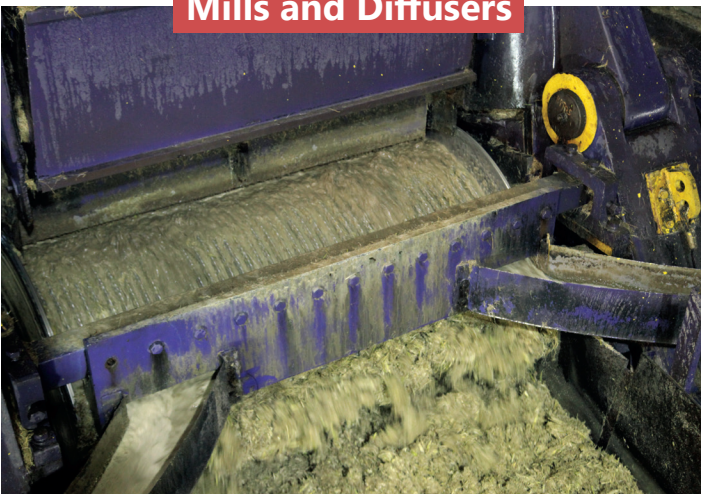
The cane on the carrier passes a series of revolving knives that cut the stalks or stalk pieces into very small pieces. Some raw sugar factories also have shredders. They tear the cane into shreds. Knives and shredders extract no juice from the cane. They only prepare the cane for milling.



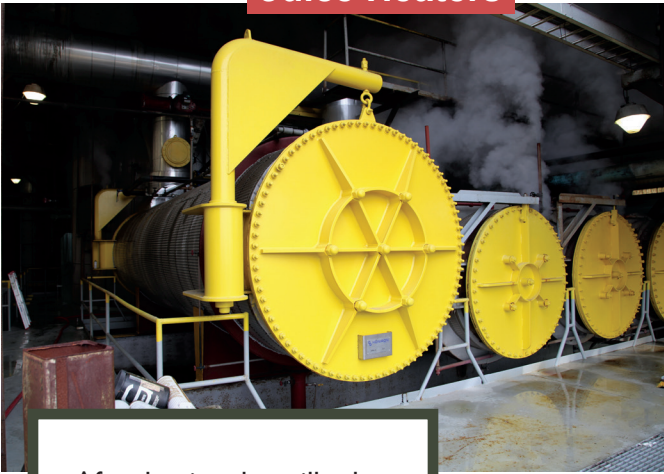
Mills and Diffusers

The juice in the cane is extracted by either mills or diffusers. Most of the factories in Louisiana use heavy-duty mills to extract the juice in the cane. Typically, six mills arranged in a series called a tandem achieve an extraction of about 95 to 96 percent of the sucrose in the cane. Water is applied to the cane mat entering the last mill to dilute the juice and improve the extraction. The dilute juice extracted by the last mill is then applied to the preceding mill to improve its extraction. Similarly, the juice from the other mills in the tandem are returned to the preceding mills (except for the first two mills in the tandem) to increase the extraction. The fibrous residue from the last mill is known as “bagasse.” The bagasse is burned in boilers to provide all the steam required to operate the entire factory.

One Louisiana factory also employs a cane diffuser to extract the juice in the cane. In a diffuser, the juice in the shredded cane is removed by counter-current leaching. The wet bagasse leaving the last stage of the diffuser is dewatered using two conventional mills. The bagasse from both a milling tandem or a diffuser has a moisture content of about 50 percent and is suitable for combustion in the boiler furnaces.



Juice Heaters



After leaving the mills, the cane juice is strained to remove fine particles of bagasse. Then the juice is limed and heated to about 215 degrees Fahrenheit. The lime is necessary to raise the pH, making sucrose more stable for the following processes. Lime also supplies calcium, which is necessary in the clarification process.

The heated juice is transferred to clarifiers. Here, flocculating agents are added, helping impurities in the juice to settle out of the solution. The clear or clarified juice then goes to the evaporators. The muddy juice at the bottom of the clarifier is taken to the filter station.

Clarifiers



Filters

The filter separates the muddy juice into filtrate juice, which is clear, and mud, which is also called a filter cake. The filter cake is hauled to local sugarcane fields and spread as a fertilizer. The filtrate juice is recycled to the juice heaters and goes back through to the clarifiers.



Evaporators



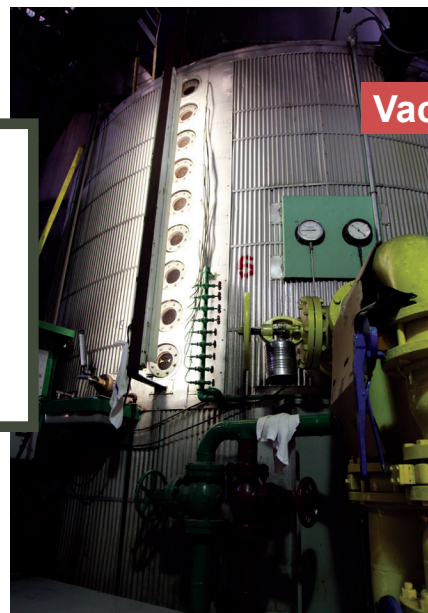
The juice, when it comes to the evaporators, contains its natural water plus water added during the milling process. The evaporators remove most of this water, and the juice becomes a thick syrup.



The vacuum pans boil the heavy syrup at low temperatures under a partial vacuum. Seed crystals are added to the pans. This process causes the growth and development of sugar crystals. The resulting mixture of sugar crystals and molasses is called “massecuite.”



Vacuum Pans



Crystallizers

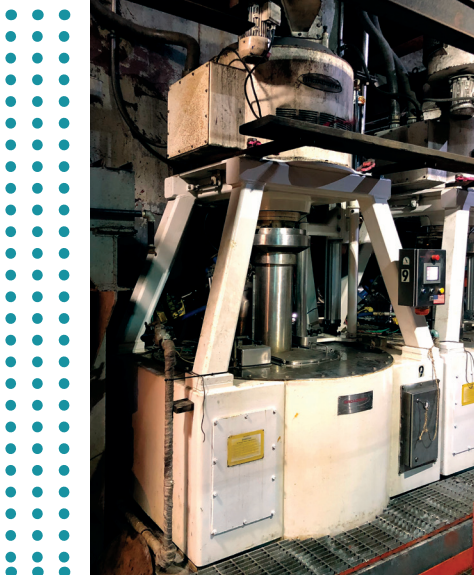


The process of sugar boiling and crystallization is actually more complicated than the foregoing brief explanation may lead one to believe. At certain points in the process, crystallizers are used to cause the growth and development of sugar crystals. A crystallizer is a large open tank or vertical vessel where certain massecuites are slowly stirred while cooling to further crystal development.



The massecuite is delivered to the centrifugal machines, which separate the sugar crystals from the molasses. A centrifugal machine is a perforated drum or basket that spins at high speed within an iron casing. The sugar crystals remaining in the drum are known as “raw sugar.” The molasses is returned to process for reboiling and removing additional sugar. After all of the commercially recoverable sugar has been removed from the molasses, the residue is known as “blackstrap molasses.” Blackstrap molasses is used for animal feed and in the production of alcohol, yeast, citric acid and vinegar. Raw sugar is shipped exclusively in bulk to refineries by either truck or barge.

Centrifugals



Facts About the Louisiana Sugar Industry:

✓ LOUISIANA, FLORIDA AND TEXAS PRODUCE **SUGARCANE** FOR SUGAR IN THE UNITED STATES.

✓ LOUISIANA SUGARCANE IS GROWN ON **460,000 ACRES** ANNUALLY IN **24 PARISHES** ON ABOUT **450 FARMS**.

✓ LOUISIANA SUGARCANE IS PROCESSED INTO RAW SUGAR BY **11 RAW SUGAR FACTORIES**.

✓ RAW SUGAR PRODUCED BY THE RAW SUGAR FACTORIES IS **REFINED** INTO A **FOOD-GRADE** REFINED SUGAR BY TWO LOUISIANA SUGAR REFINERIES.

✓ SUGARCANE IS PLANTED IN THE **FALL**, AND A CROP IS HARVESTED EACH FALL FOR THREE TO FIVE YEARS (OR MORE) AFTER THE INITIAL PLANTING.

✓ SUGARCANE HARVEST BEGINS IN **LATE SEPTEMBER** AND CAN CONTINUE INTO MID-JANUARY.

✓ ABOUT **225 POUNDS OF SUGAR**, 6 GALLONS OF BLACKSTRAP MOLASSES AND 270 POUNDS OF BAGASSE (BONE-DRY BASIS) ARE OBTAINED FROM A GROSS TON OF LOUISIANA SUGARCANE.

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