



SUGAR BEETS

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Sugar Beets

Sugar beets are planted in early spring. A high altitude and a combination of cool nights and warm days provide ideal conditions for beets to produce a high amount of sugar. The growing season is from April until October. Producers plant about three sugar beet seeds per foot.

The sugar beet plant produces sugar in its leaves by a process called photosynthesis. In photosynthesis, the plant combines water with carbon dioxide from the air and energy from the sun to produce sugar. The sugar is then stored inside the beet.

Harvesting

During harvest in the fall, producers use a machine called a defoliator to cut off the tops of the beets that are left in the field. A sugar beet lifter/loader then lifts the beets out of the soil onto a truck, and the beets are delivered to a receiving station at the sugar beet processing plant. Harvested sugar beets are very heavy. An average pile of beets weighs about 40,000 tons. The average yield is 20.5 tons per acre with 16.7% sugar.

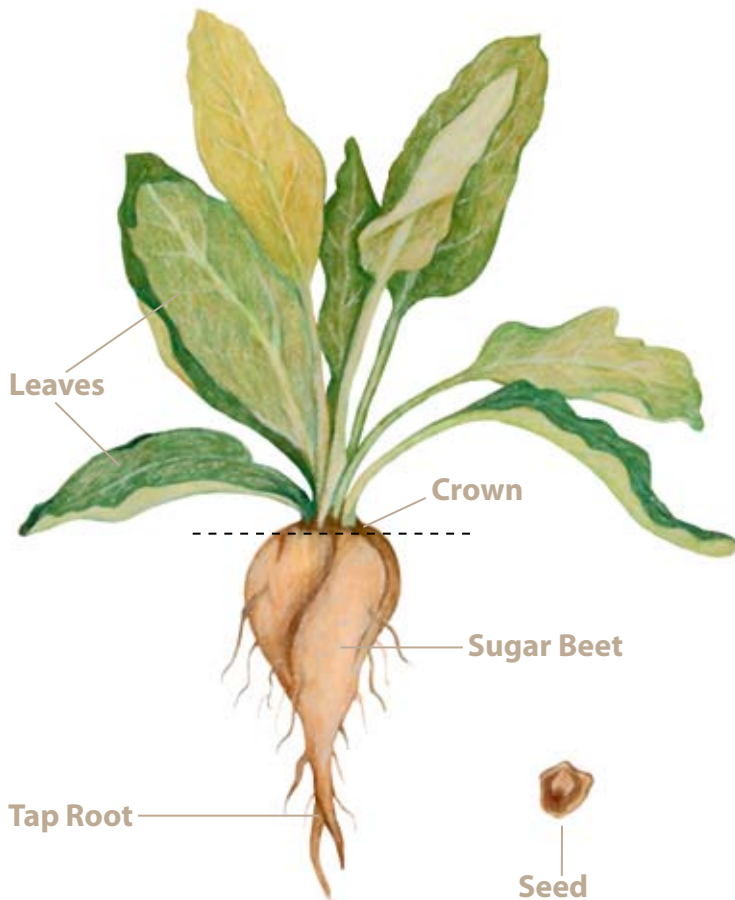
The Factory Process

First, the beets are cleaned in a beet washer. Then, a machine called a slicer is used to cut the beets into long strips that look like shoestring potatoes or noodles. The beet noodles are sent through a machine called a diffuser or extractor. Hot water is mixed with the beets to dissolve and remove the sugar from the beet noodles.

The water and sugar juice are saved and this solution is called "raw juice." The beet noodles, now free of most of their sugar, are dried into beet pulp for livestock feed. The raw juice is treated with lime and carbon dioxide gas to clean the mixture again. It is sent through a big, round filter to clean it and remove other non-sugars. The raw juice goes into a series of big tanks called evaporators where some of the water is boiled off. At this point, the mixture contains more sugar than water. It is a thick syrup and it is filtered again to make sure it is very clean.

Crystallizes Into Sugar

The mixture passes through a big tank called a white pan that allows the thick juice to boil at a low temperature. As the water boils away, the sugar solution becomes a thick mass that is dropped into a centrifuge machine. The machine spins very fast to separate the sugar crystals which drop onto a conveyor belt for further drying and cooling. The finished sugar moves into bulk bins for storage or to the warehouse for packaging. The packaged sugar is distributed to grocery stores to be purchased by the consumer.



On The Front

A. Sugar Beet Plant

The sugar beet plant is a root crop that grows underground. When fully grown, a sugar beet weighs two to five pounds and produces about three teaspoons of sugar.

B. Sugar Beet Seed

The sugar beet seed is tiny. It is about half the size of a grain of rice. It is a rough, bumpy seed. Most seeds for sugar beet plants are produced in Willamette Valley, Oregon, the destination point of the historic Oregon Trail. It takes two years to produce sugar beet seeds.