

Ethanol

Read the following passages, then create two flowcharts to show the steps for each type of ethanol production on a separate sheet of paper.

Dry Mill Ethanol Process

In dry milling, the entire grain kernel is first ground into “meal,” then slurried with water to form a “mash”. Enzymes are added to the mash to convert starch to sugar. The mash is cooked, then cooled and transferred to fermenters. Yeast is added and the conversion of sugar to alcohol begins. After fermentation, the resulting “beer” is separated from the remaining “stillage.” The ethanol is then distilled and dehydrated, then blended with about 2% denaturant (such as gasoline) to render it undrinkable. It is then ready for shipment. The stillage is sent through a centrifuge that separates the solids from the solubles. These co-products eventually become distillers grains, as well as corn distillers oil.

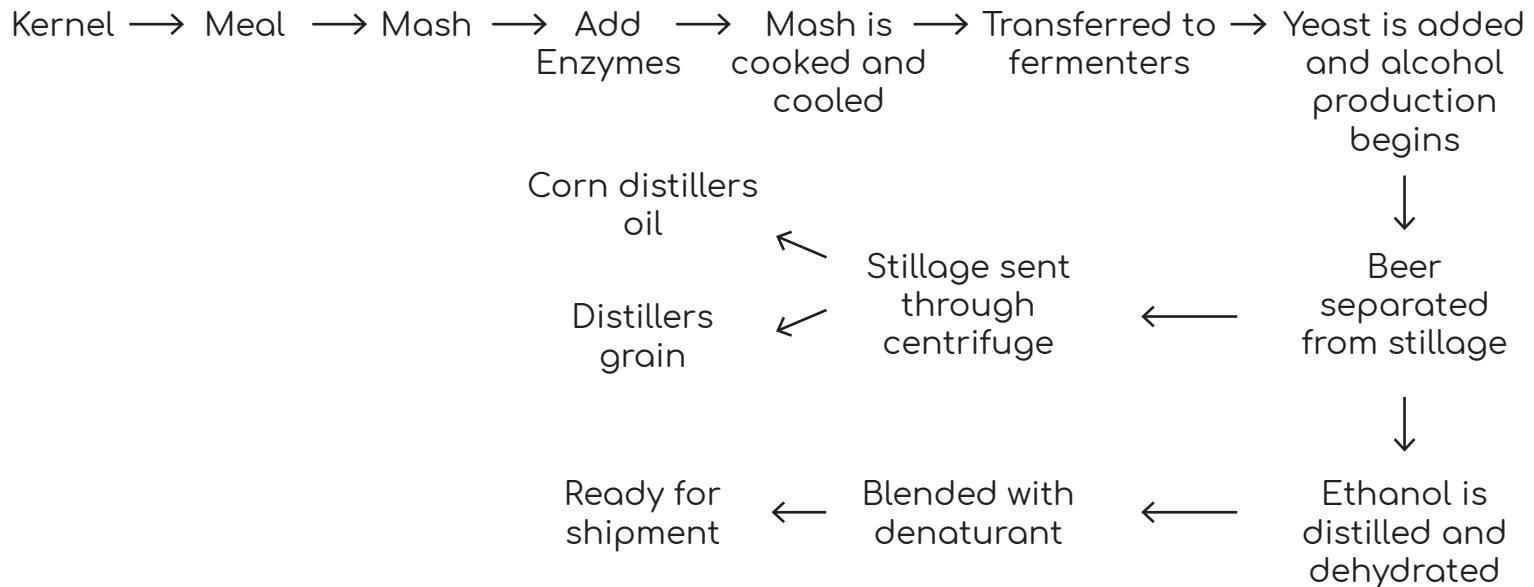
Wet Mill Ethanol Process

In wet milling, the grain is first separated into its basic components through soaking. After steeping, the slurry is processed through grinders to separate the corn germ. The remaining fiber, gluten and starch components are further segregated. The gluten component (protein) is filtered and dried to produce animal feed. The remaining starch can then be fermented into ethanol, using a process similar to the dry mill process.

This activity was developed from Renewable Fuels Association <https://ethanolrfa.org/>.

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Dry Mill Ethanol Process



Wet Mill Ethanol Process

