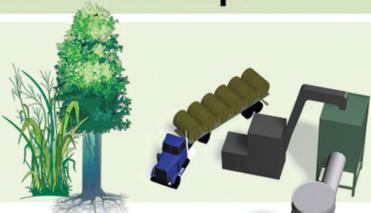


# Grassoline: Driving Away from Corn

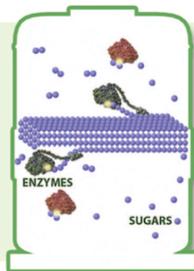
## Cellulosic Biofuel Production Steps

**1 Biomass Production and Delivery**  
Biomass is harvested, delivered to the biorefinery, and ground into particles.

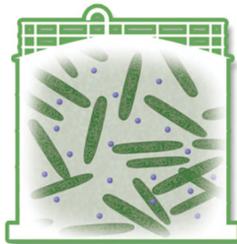


**2 Pretreatment**  
Pulverized biomass is pretreated with heat and chemicals to make cellulose accessible to enzymes.

**3 Cellulose Hydrolysis**  
Enzymes are added to break down cellulose chains into sugars.



**4 Sugar Fermentation**  
Microbes ferment sugars into ethanol and other biofuels.

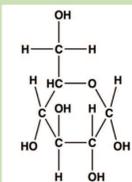


**5 Biofuel Processing**  
Biofuels are extracted from the fermentation tank and prepared for distribution.

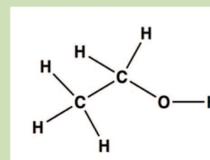


## Fermentation

**Sugar (Glucose)**



**Ethanol**



**Carbon Dioxide**



## Hurdles to Creating Cellulosic Ethanol

Compare the steps necessary for conversion of sugar cane (glucose), corn (starch), and switchgrass (cellulosic biomass).

