

California Seed Association Fact Sheet Series



Background

Q What are biofuels?

"Energy crops" are those grown specifically for energy production, as opposed to crops primarily grown for food or feed (e.g., corn) that are also sources of biofuels. Currently, the vast majority in the U.S. of biofuel feedstocks are corn grain for ethanol and soybeans for biodiesel. However, much research is ongoing into second-generation biofuels, which convert diverse plant material, mainly cellulose, (instead of sugars) into ethanol and other liquid fuels. Additionally, many other sources of cellulose, such as tree prunings, crop residue, and forestry residues can be used for electricity production and liquid fuels.

A Plant biomass or products used for energy production.

Both federal and state policy mandate reduced greenhouse gas emissions. While biofuels also produce carbon dioxide when burned, they are made from carbon dioxide removed from the air during plant growth. Thus, they are more "neutral" with respect to greenhouse gases. Simultaneously, biofuels will displace petroleum with renewable fuel sources. California Assembly Bill AB32 mandates that statewide greenhouse gas emissions be reduced to 1990 levels by 2020. Additionally, Governor Schwarzenegger issued Executive Order S-06-06 calling for 20% of electricity in 2010 come from renewable sources of which 75% be grown in California by 2020. California does not have the capacity to meet policy goals with current biomass sources. Therefore, the state will need to expand energy crop production.

It is estimated that 200 million hectares of land will be under cultivation of dedicated energy crops in the coming decades in the U.S. alone. New crops such as switchgrass, energy-cane and sorghum will likely be planted on acreage considered marginal for traditional crop cultivation and will therefore require breeding for enhanced environmental tolerance. Breeding programs for yield improvement, drought tolerance and conversion efficiency will expand the capability of California to meet renewable energy standards. Some of these crops have not been in commerce as seeds and much research and development will be required to produce and market seeds for propagation of these new crops.

More Information

California Biomass Collaborative (<http://biomass.ucdavis.edu/>)
University of California at Davis Bioenergy Research Group
(<http://bioenergy.ucdavis.edu/>)
California's Bioenergy Action Plan
(http://www.energy.ca.gov/bioenergy_action_plan)
Department of Energy, Bioenergy Science Center
(<http://bioenergycenter.org/>)

California  Seed
Association