# Advanced **Hardwood Biofuels** Northwest

**hardwoodbiofuels.org**

*Poplar trees grown for bioenergy can reach heights of 30 feet or more in three years.*

## Building the Bioeconomy

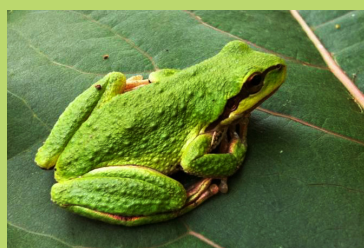
Advanced Hardwood Biofuels Northwest (AHB) is a program funded by the USDA National Institute of Food and Agriculture. AHB integrates research, education, and extension to develop the framework for a poplar-based biofuel and bio-based chemical industry. This interdisciplinary project is investigating all aspects of feedstock production, conversion technologies, sustainability, and bioenergy education and outreach.

The goals of AHB are to create economic opportunities in rural communities, reduce net greenhouse gas emissions, decrease foreign oil dependence, increase community understanding of energy issues, and provide environmental benefits such as improved water quality and wildlife habitat. AHB is laying the groundwork for a bio-based industry in the Pacific Northwest (PNW) that will achieve environmental, economic, and social sustainability throughout the supply chain.

## Growing Poplar

Hybrid poplar, the fastest-growing tree in temperate regions, can be grown as an energy crop across the PNW. The poplars can be harvested every three years, ensuring that a reliable supply of biomass will be consistently available to the biorefinery. Poplar resprouts (coppices) vigorously after harvest, so a single planting can be productive for more than 20 years.

*AHB is dedicated to teaching young students about bioenergy.*



United States Department of Agriculture

National Institute of Food and Agriculture

UNIVERSITY of WASHINGTON

WASHINGTON STATE UNIVERSITY

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*AHB can convert poplar into bio-jet fuel, a potential renewable energy option for air travel.*

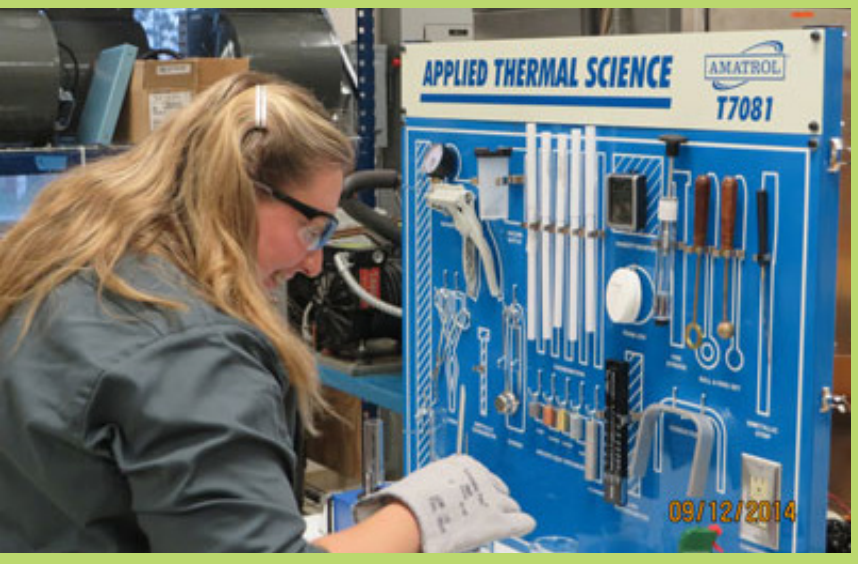
## From Trees to Fuels and Chemicals

After harvest, the poplar wood can be converted to biofuels, such as ethanol and jet fuel ("bio-jet"), and bio-based chemicals, such as acetic acid and lactic acid. The sugars in poplar wood are the foundation of this process. Heat, microorganisms, and chemical reactions are used to break down the wood, release the sugars, and convert them into a variety of biofuels and bio-based chemicals.

## Environmental Benefits

Poplar trees are grown across the PNW for environmental uses including wastewater and biosolids management, to reclaim land contaminated by mining and other industrial uses, and to contain landfill leachate. AHB is investigating an integrated system that would provide these ecosystem services while also producing feedstock for a biofuel and bio-based chemical industry.

*Opportunities for poplar are discussed at AHB's Poplar for Biofuels Field Tours.*




*AHB supports technical career training at Walla Walla Community College to build the future bioenergy workforce.*

## Energy Education and Outreach

Introducing bioenergy to classroom students generates knowledge of, appreciation for, and career interests in bioenergy. AHB provides K-12 teachers innovative bioenergy curricula and lesson plans. AHB helped develop higher education programs in bioenergy at colleges and universities in the region. AHB Extension specialists engage community members, landowners, elected officials, and other stakeholders through objective, research-based information that increases bioenergy literacy in PNW communities.

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