

Biodiesel from Fuel Crops in Hawaii

Presented at: West Coast Collaborative Hawaii Partners Meeting
June 25, 2008



Biodiesel from Fuel Crops in Hawaii Project Grant Award Information



EPA awards \$100,000 grant to Honolulu Clean Cities for biodiesel project

- **Award XA-960428-01**
- **Period of Performance ends: November 30, 2008**
- **Honolulu Clean Cities is project lead**
 - **Pacific Biodiesel**
 - **Hawaii Agricultural Resource Center**
 - **University of Hawaii – Hilo, College of Agriculture, Forestry, and Natural Resource Management**
 - **Grace Pacific**
 - **Oceanic Institute**



Project Overview

- Evaluate oil seeds and nut crops that are currently available in Hawaii to determine suitability for producing ASTM-grade biodiesel fuel.
- Provide economic model data to encourage local farmers to produce oilseed crops.
- Demonstrate seed crushing, oil extraction, biodiesel manufacture, co-product suitability, and emissions testing data from these crops.

Project Partners

Honolulu Clean Cities

- A Hawaii non-profit focused on promoting the use of alternative fuels to reduce emissions.
- Members include fleet operators, alternative fuel providers, alternative fuel (e.g., electric, hydrogen fuel cell) vehicle manufacturers, retrofit specialists, and others.
- Affiliated with the U.S. Department of Energy Clean Cities program designed to achieve a cleaner environment in urban areas, reduce dependence on imported crude oil, and stimulate local economies.
- Project Responsibility: Project Lead



Project Partners

Pacific Biodiesel

- Pioneer and leader in the U.S. biodiesel industry.
- Creator of the first commercial biodiesel pump in the country.
- Manufacturer of biodiesel on Maui and Oahu.
- Builder of biodiesel production facilities nationwide.
- Project Responsibility: Operations Lead and Biodiesel manufacture.

Project Partners

University of Hawaii – Hilo, College of Agriculture, Forestry, and Natural Resource Management

- Promotes understanding of production, management, processing, distribution, and marketing in the agriculture sciences field.
- Supporting expansion of seed crushing capability in Hawaii.
- Project Responsibility: Crop identification, Data compilation

Project Partners

Hawaii Agriculture Research Center

- Conducts crop research including agronomy, plant nutrition, plant physiology, genetic engineering, pest control, and others.
- “Biodiesel Crop Implementation in Hawaii” – September 2006.
- Project Responsibility: Crop identification, Data compilation and reporting

Project Partners

Oceanic Institute

- Non-profit research and development organization affiliated with Hawaii Pacific University.
- Dedicated to marine aquaculture, biotechnology, and coastal resource management.
- Aquatic Feeds and Nutrition Department operates feed processing and oil extraction equipment.
- Project Responsibility: Oil extraction, oil and press cake analysis

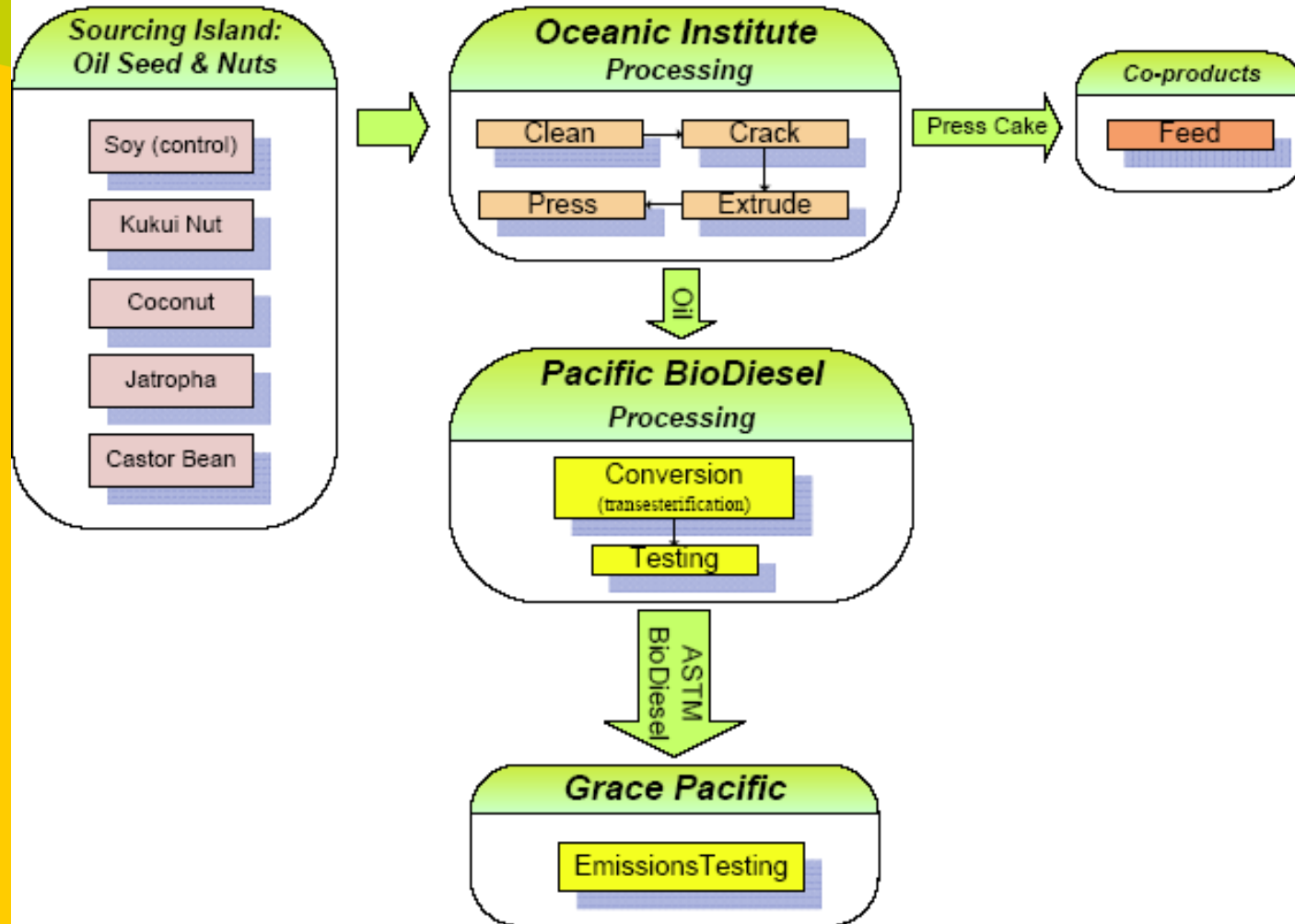
Project Partners

Grace Pacific

- Provider of asphalt production and paving services, aggregate, and road maintenance solutions.
- Operator of a sizeable diesel fleet located throughout the State.
- Project Responsibility: Diesel emissions testing

Honolulu Clean Cities

EPA Emission Reduction Grant



Project Progress

- Gathering oil seeds & nuts for crushing. Crops include:
 - Soy (control)
 - Kukui nut
 - Coconut
 - Castor bean
 - Jatropha
- Extrude and extract oil from seeds.
- Analyze oil and resultant press cake.



Upcoming Events

- Manufacture biodiesel fuel from oils obtained.
- Conduct ASTM D-6751 testing of resulting fuels.
- Provide biodiesel to Grace Pacific for emissions testing in diesel generator.
- Reporting.

Logical Next Step

- Grow and harvest oil seed crops on a large scale to determine and overcome hurdles to production of locally-grown, large scale oil seed feedstock.
- Infuse market with locally-grown and produced biodiesel to reduce diesel emissions, increase Hawaii's energy self reliance, and keep agricultural lands "green."