Oilseeds for Biofuels and Biochemicals in Texas

Description

Much of the interest in the United States in biofuels focuses on ethanol and other alcohols as gasoline additives or extenders. Though gasoline represents 80 percent of motor fuels consumed in the U.S., diesel is the fuel of the agriculture, construction, and transportation industries, with about 45 billion gallons burned annually. As the nation strategizes to reduce consumption of imported oil, developing renewable diesel plays a vital role.

Much of the biodiesel industry in the United States depends on soybean as the vegetable oil feedstock. Soybean is the largest acreage oilseed in the nation, but prices for soybean oil are high, relative to the diesel market. A major limitation to developing and expanding the U.S. renewable fuel industry is the availability of affordable vegetable oil feedstocks and the competition of current feedstocks (primarily soybean) with food and feed markets.

The price of October 2009 Chicago soybean oil futures ranged more than 40 cents per pound over the history of its contract life, ranging from 30 to 70 cents per pound, giving the value of vegetable oil inputs into a gallon of biodiesel a cost range of $2.30 to $5.30 per gallon prior to processing and transportation. The contract high was in March 2008 and the low in January 2009, as food processors pressured bids to ensure adequate supplies of vegetable oil for domestic use. This resulted in negative margins or margins too small for U.S. biodiesel manufacturers to be competitive in the domestic market. U.S. biodiesel manufacturers are closing, consolidating, or suspending operations in the face of the high cost of vegetable oil feedstocks. With the large demand for renewable fuel feedstocks, the industry cannot continue to rely on oil from a food crop with a relative low oil yield (about 18 percent) and with a high demand as a food ingredient.

Texas is home to many chemical refineries that use petrochemicals as feedstocks but that can use vegetable oils as feedstocks. In some cases, vegetable oils are superior feedstocks, reducing the cost of manufacturing biopolymers significantly over petroleum.

Research

Texas AgriLife Research and Extension are researching feedstock development in second-generation oilseeds with higher oil content than soy and cotton and better adaptation to harsh growing conditions in the state. Candidate crops include perennial oilseeds (jatropha, Chinese tallow), summer annuals (peanut, castor, safflower), and cool-season annuals (rapeseed, mustards, flax, safflower, camelina, crambe). These studies show that Texas can have a position in the production of alternative vegetable oil feedstocks that will not compete with food or feed and yet deliver large quantities of highly desirable vegetable oil for biochemical refineries and the biodiesel market.

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