

## BIOFUELS—Will native prairie grasses become a new Idaho crop and fuel source?

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UNIVERSITY OF IDAHO RESEARCHERS are partnering with colleagues at the state and federal levels to explore new ethanol production methods to retool existing ethanol plants for using perennial grasses as feedstocks and the production of those grasses in southeastern Idaho.

The University of Idaho, Boise State University, and Idaho State University are cooperating to develop processes existing ethanol plants could use to make biofuel from cellulose sources such as switchgrass rather than food grains. Switchgrass (*Panicum virgatum*), a tall native North America grass that used to feed buffalo, is among grasses being considered to fuel cars.

The three-year project through the Center for Advanced Energy Studies at Idaho Falls and in partnership with the Idaho National Laboratory received \$450,000 to study the potential for adapting plants to use cellulose to make the alcohol-based gasoline alternative.

“We haven’t picked a feedstock,” said Jon Van Gerpen, Biological and Agricultural Engineering Department head. “The goal is to assess the difficulty of converting existing plants, feedstock transportation concerns, and other factors.”

**Tests at Tetonia.** Cellulosic ethanol is widely regarded as a better biofuel option. It can be made from high-yielding perennial crops such as switchgrass and avoids the food vs. fuel argument that has plagued ethanol.

Multi-purpose research focused on native and introduced grasses at the UI Tetonia Research and Extension Center in cooperation with the USDA Agricultural Research Service could advance understanding of future biofuel feedstocks. Jim Whitmore, Tetonia superintendent, said the ARS collaboration and work at the center focuses on grasses including basin wild rye, creeping wild rye, switchgrass, needlegrass, Reeds canary grass, timothy, fescues, and bromes.

One grass nursery at Tetonia serves UI Extension efforts to help Idaho landowners who frequently ask which grasses would survive best in high elevation for forage or to stabilize or restore areas. Another nursery serves cooperative ARS and Idaho investigations of grasses with biofuel potential. Tetonia nurseries fill a valuable research niche by providing the chance to evaluate which species can prosper at 6,200 feet elevation. “We’re also growing them under dry-land conditions, important given the lack of water we’re facing,” Whitmore said.

## \$1 million grant continues UI expertise in national biofuels research, education

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A NATIONAL PROGRAM to educate consumers and producers about biodiesel will remain a cornerstone of the University of Idaho College of Agricultural and Life Sciences’ Department of Biological and Agricultural Engineering with the renewal of a five-year, \$1 million grant from the U.S. Department of Agriculture.

Jon Van Gerpen continues to lead the program, which focuses largely on producers to help them bring high quality fuel to market.

Van Gerpen and his predecessor as BAE

department head, Chuck Peterson, pioneered the national biodiesel education program six years ago in coordination with the National Biodiesel Board. The new funding will enable continued research on the technical processes of biodiesel production and more workshops to inform the public.

The education program recently produced a video that details safety precautions needed to handle methanol safely. Also known as wood alcohol, methanol is used to convert vegetable oils or animal fats to biodiesel.

## Will switchgrass be a good Idaho crop?

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AT THE KIMBERLY Research and Extension Center, UI Extension forage specialist Glenn Shewmaker is evaluating switchgrass as a potential biofuel crop for Idaho. Part of a multi-state trial by the Samuel Roberts Noble Foundation and energy crop company Ceres Inc., the three-year-old study includes nine varieties of upland and lowland grasses that are candidates for cellulosic ethanol.

Unlike producing corn for starch ethanol, growing switchgrass for its stems, stalks, and leaves doesn’t divert an edible crop from human food supplies. Also, the perennial warm-season grass sequesters generous amounts of carbon, prevents soil erosion, and supports wildlife populations.

Shewmaker meticulously measures each variety for its biomass and seed production, head numbers, and stand persistence—data that Ceres will use as it commercializes the first dedicated energy crops. Shewmaker and CALS agricultural engineer Howard Neibling also want to measure the amount and timing of the crop’s irrigation needs.

“We need local answers as to whether it would be a profitable crop for our growers,” Shewmaker says.

### DID YOU KNOW?

#### 335 GALLONS

AMOUNT OF ETHANOL THAT CAN BE PRODUCED FROM AN ACRE OF BIOENERGY CROPS. PERENNIAL GRASS AND WOODY CROPS HAVE AN AVERAGE YIELD OF 5 TONS PER ACRE. ONE TON YIELDS ABOUT 67 GALLONS OF ETHANOL.

Source: <http://genomicsgtl.energy.gov/biofuels/transportation.shtml/>