

Burning Grass Pellets as a Biofuel is Economical, Energy-Efficient, Environmentally Friendly and Sustainable

By Susan S. Lang

Grow grass, not for fun but for fuel. Burning grass for energy has been a well-accepted technology in Europe for decades. But not in the United States.

Yet burning grass pellets as a biofuel is economical, energy-efficient, environmentally friendly and sustainable, says a Cornell forage crop expert.

This alternative fuel easily could be produced and pelleted by farmers and burned in modified stoves built to burn wood pellets or corn, said Jerry Cherney, the E.V. Baker Professor of Agriculture. Burning grass pellets hasn't caught on in the United States, however, Cherney said, primarily because Washington, D.C., agencies have made no effort to support the technology with subsidies or research dollars.



"Burning grass pellets makes sense; after all, it takes 70 days to grow a crop of grass for pellets, but it takes 70 million years to make fossil fuels," said Cherney, who noted that a grass-for-fuel crop could help supplement farmers' incomes. Cherney presented the case for grass biofuel at a U.S. Department of Agriculture-sponsored conference, Greenhouse Gases and Carbon Sequestration in Agriculture and Forestry, held March 21-24 in Baltimore.

Jerry Cherney, the E.V. Baker Professor of Agriculture, sits in front of one of three pellet stoves at Cornell's Mt. Pleasant Research Farm, where he tests different pellets made from grasses as an alternative fuel. Nicola Kountoupes /University Photography

"Grass pellets have great potential as a low-tech, small-scale, renewable energy system that can be locally produced, locally processed and locally consumed, while having a positive impact on rural communities," Cherney told those at the conference.

The downside? "Unfortunately grass has no political lobby, which makes the startup of any new alternative energy industry problematic," Cherney said. He noted that a pellet-fuel industry was successfully established in Europe by providing subsidies to the industry. And even though the ratio of the amount of energy needed to produce grass pellets to the amount of energy they produce is much more favorable than for other biomass crops, the lack of government support prevents the industry from going forward, he said.

Cherney has made a comparison of wood pellets with various mixes of grasses and the BTUs (British Thermal Units) produced per pound. He has found that grass pellets can be burned without emissions problems, and they have 96 percent of the BTUs of wood pellets. He also noted that grass produces more ash than wood — meaning more frequent cleaning of stoves. Currently, he is testing the burning of pellets made from grasses, such as timothy and orchardgrass, as well as weeds, such as goldenrod, in pellet stoves at Cornell's Mt. Pleasant Research Farm. This demonstration project is funded by Cornell's Agricultural

Experiment Station.

Cherney pointed out that grass biofuel pellets are much better for the environment because they emit up to 90 percent less greenhouse gases than do oil, coal and natural gas. Furthermore, he said, grass is perennial, does not require fertilization and can be grown on marginal farmland.

"Any mixture of grasses can be used, cut in mid- to late summer, left in the field to leach out minerals, then baled and pelleted. Drying of the hay is not required for pelleting, making the cost of processing less than with wood pelleting," Cherney said. "The bottom line is that pelletized grass has the potential to be a major affordable, unsubsidized fuel source capable of meeting home and small business heating requirements at less cost than all available alternatives."