

Small Farms and Gasification Energy

Clay Olson, Taylor County extension director

Energy is on the mind of every farmer these days, whether you produce vegetables, flowers or range chickens. The cost of fuel affects almost everything in your farming operation, including production, storage, refrigeration, irrigation and transportation.

Many farmers are scratching their heads, trying to figure out if any alternative means of generating energy could work for them and, if so, how to integrate it into their farming operation. Some of the choices include solar, wind, geothermal, hydrological, biogas, biomass and gasification.

Gasification is a technology that's not well known in the U.S. but was used extensively in Europe during World War II. When German forces confiscated liquid petroleum fuel in occupied countries, citizens built gasification systems to provide energy for transportation, farming and other needs. Estimates are that up to 100,000 vehicles were powered this way.

Gasification uses wood to power internal combustion engines. The engines themselves do not need modification, but the system requires a device called a downdraft wood gas generator. Commercial models are hard to find but plans are widely available and the device can be built by a knowledgeable mechanic.

Here are some things to consider in deciding if gasification might be a good choice:

On the plus side, gasification systems don't require petroleum fuel, they are relatively clean-burning, and they can be built fairly easily.

On the minus side, gasification systems provide less power to an engine than petroleum fuel would, they require frequent maintenance, and they produce carbon monoxide, a toxic gas.

If gasification is a good option, you can get started for as little as a couple of hundred dollars for small applications.

The first step is to determine what you want to use gasification for – plowing, irrigation, generating electricity, etc. – and how much horsepower is required. The more horsepower, the bigger the system has to be.

You'll also need to decide how you'll obtain fuel. Any farmer with a large supply of dry wood is at an advantage here, though you can also buy wood chips.

Finally, you'll need to educate yourself. Helpful information is available at the Taylor County Extension Office's Web site, <http://taylor.ifas.ufl.edu/renewable-energy.shtml>. There will also be a live demonstration at the Florida Small Farms and Alternative Enterprises Conference.

On Aug. 1-2, 2009, the first Florida Small Farms and Alternative Enterprises Conference will be held at Osceola Heritage Park in Kissimmee. The event will feature exhibitors, educational sessions and more. All Florida farmers are invited to attend. Visit the conference Web site at <http://smallfarms.ifas.ufl.edu>. For information on conference sponsorship or being an exhibitor, contact Bob Hochmuth, 386-362-1725 or bobhoch@ufl.edu.



Photo 1 - Farmers looking for ways to produce power without petroleum might benefit from gasification systems, which use wood as fuel. These systems require a device called a down-draft wood gas generator, like the one pictured here. There will be a live demonstration of gasification at the first Florida Small Farms and Alternative Enterprises Conference in Kissimmee, Aug. 1-2. Photo by Clay Olson