

### the Small Scale Biomass Pellet Production Project

#### What's The Challenge?

Many farmers and entrepreneurs are interested in producing biomass fuel pellets from crops like switchgrass, miscanthus, or other biomass. Not only is this a valuable market opportunity, it also allows producers to be more energy independent by growing and processing their own pellet fuel. Small scale pelletize machines are available on the market today that are intended to produce “biomass pellets” that are ready for use. These pellets can be used as a combustion fuel or as a feedstock to be converted to biofuel. However, successful operation of these pelletizer machines has proved to be somewhat problematic, i.e. with operations being characterized by poor pellet quality and/or chronic plugging of the device's extrusion die.

#### What We're Doing:

Creating high quality pellets is more of an art form at this point rather than an exact science. At Penn State, we are working to help farmers and small operators to understand how to

successfully produce high quality pellets from crop residues, perennial grasses, and other readily available biomass



feedstocks. We are doing this by testing small scale pelletizers using a variety of feedstocks and operating conditions, and looking for the key characteristics that control pellet quality. In this way, we will be able to take some of the guess work out of the process and make it a little more of a “science” than an art.

We're also working to develop estimates of labor and energy budgets to run a pelletizer for these small scale operations. Our results will help to make pelletizing readily available to those who are looking to make the switch and go green by using alternative and renewable energy to effectively heat their homes and other needs. This project is supported by a grant from the Northeast Sun Grant Initiative.

#### About The Pelletizing Process:

Pelletizing biomass is a multi-step process. Each of these steps must be done properly if you want a high quality final product.

- Feed Stock Grinding
- Moisture Control
- Extrusion
- Cooling
- Packaging



#### Where Do We Go From Here?

As we continue to test and develop recommendations for creating ideal pellets we will publish them on the project website. This information will be available in January of 2012 so be sure to check back for the most up to date information.

Penn State Pelletizing Biomass:  
[extension.psu.edu/energy/field-crops/pelletizing-biomass](http://extension.psu.edu/energy/field-crops/pelletizing-biomass)

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