

## Switchgrass Project:

### Non-technical summary:

The purpose of this project was originally to research and develop simple, low-cost, small-scale pelletization of switch grass for direct combustion (e.g., heat and/or hot water). However, the scope of the project has expanded to include other grasses (for example locally obtained hay) and other plant biomass such as deciduous leaves. The original proposal also focused on the application of a simple auger-type extrusion process; a second process referred to as “flat die” is now being tested. In addition, simple briquetting techniques are also being examined as alternatives to pelleting. Since the project was initiated, overall interest in biofuel “pellets” has greatly increased due to increased energy costs, and recent market shortages in biofuel pellets. Thus, the research underway is particularly relevant, and of great interest to wide sector of stakeholders.

### Objectives:

The objectives, as stated above, will surely be partially met by the award deadline. However, as modifications of the process occur, design, fabrication, and subsequent testing all take time. It is envisioned that two significant outcomes will result from the project—(i) a review of existing low-cost small-scale pelleting options (including equipment and techniques) currently available, and (ii) recommendation for improved equipment designs and process technologies.

### Approach:

The approach is collaborative. The project is based at BMCC’s Renewable Energy Lab, under the direction of the project P.I. (Dr. Michael Doyle) where the bulk of the research is taking place. Student Research Assistants are assigned specific project goals and participate in both research and development. Biomass is obtained from local sources, as well as remote site/species specific field trials, in collaboration with an agronomist (H. C. Min) at MSU-E (Chatham, MI), and a plant geneticist (M. Casler) at USDA-ARS. In addition, two private companies—Colorado Milling Company and Seraph Industries are collaborating on pelletization equipment design and pellet stove technology, respectively.

