

PENNSTATE



Cooperative Extension Renewable and Alternative Energy



Renewable & Alternative Energy

ENERGY UPDATE

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UPCOMING EVENTS

Fuels for Schools Public Meeting
29 July, Tunkhannock PA.
<http://extension.psu.edu/energy/events/upcoming>

Fuels for Schools Workshop
05 August, Meadville PA.
<http://extension.psu.edu/energy/events/upcoming>

Ag Progress Days
17-19 August, Rock Springs Agricultural
Research Center
<http://agsci.psu.edu/apd>

Community Wind Conference
November 30- December 1, 2010 at Penn State
Conference Center and Hotel, State College, PA
<http://www.windustry.org/cwaa>

LINKS

[PSU Renewable & Alternative Energy](#)
[Coping with High Energy Prices](#)
[Biomass Energy Center](#)

WELCOME!

The banner at the head of this newsletter features Don Rill, research assoc at Penn State, inspecting a field of Winter Canola at the university. The p by Penn State staffer Steve Williams, captures some of the beauty and excitement of working on developing new energy sources and solutions for Pennsylvania.

Whether your interest is in public policy, crops, forests, or fuels, you will find a great deal is happening this summer at Penn State. This month's newsletter features just a few of the exciting things that we are doing.

Be sure to come out to Ag Progress Days this year (<http://agsci.psu.edu/a>) the many outstanding displays and events, including several renewable energy displays from Penn State.

Hope you're having a great summer!

Sincerely,

Dan Ciolkosz
Newsletter Editor
Renewable and Alternative Energy
Penn State Cooperative Extension

Biomass Energy Public Controversy Penn State scientist weighs in on the issue

A recent study was conducted in Massachusetts (the "Manomet Report") addressed the opportunities and constraints for the growth of a biomass energy industry in that state. And while the findings of that report were consistent with generally available knowledge concerning biomass, portions of the report extrapolated to a more general context, and in the process, cast a negative light on biomass energy generally in comparison to fossil fuels.

For instance, the AP ran a story with this headline: "Mass. Study: Wood Power Worse Polluter than Coal." Headlines like these led in turn to action by citizen groups to stop the progress of projects already underway. On July 7, another AP story entitled "Mass. Moves to Limit Wood Burning Power Plants" revealing that "Activists have pulled a threatened ballot question targeting wood-burning power plants after Massachusetts officials moved to place new limits on the so-called 'biomass' energy facilities" due to "the release last month of a study that found that power plants using trees from New England forests would end up releasing more greenhouse gases than coal-fired electric plants over a 40-year period."

Unfortunately, the findings of the Manomet study were largely misinterpreted by ignoring the fact that the findings applied only to situations where the biomass feedstock was entirely roundwood harvested from natural forests expressly for use in inefficient power-only plants. However, most energy experts agree that smaller scale wood-fired district heating projects and combined heat and power facilities that deliver more energy efficiency and utilize wood primarily from thinnings, by-product and/or urban wood waste streams deliver energy at far better carbon and other greenhouse gas emission rates than fossil fuels.

The Manomet Center itself attempted to correct the erroneous reporting on June 21st with a follow-up statement that re-stated the specific conditions for which the study was developed and how most other situations could and would differ from the results projected in the Massachusetts study. Unfortunately, the mass media flooded the public mind with negative perceptions of wood-based bioenergy before this clarification could be made. This incident, and others not so well-intentioned, create the ongoing need for Extension to ensure that a well-balanced and scientifically correct message about biomass energy opportunities is disseminated throughout Pennsylvania.

[Chuck Ray, Associate Professor, School of Forest Resources](#)

Energy on the Farm at Landisville Field Day

Penn State Helping Farmers Save Energy

Energy on the Farm: Grain dryers, tractors and electricity were topics of interest addressed by Dennis Buffington at the 2010 Farming for Success Field Day at the The Penn State Southeast Agricultural Research and Extension Center (SAREC) in Manheim, Lancaster County June 30th, 2010. Over 200 area farmers and agricultural industry representatives attended the field day which focused on practices farmers can implement to improve their farming enterprise.

Buffington stressed the importance of keeping tractors well maintained and monitor the air cleaner for dust and dirt build up. A dirty air filter will rob the engine of power and reduce its efficiency. Other tractor efficiency tips include: proper ballast to reduce slip in the field, adequate tread on the tires, and using the appropriate size tractor for the operation.

Drying grain is a significant energy use on grain farms; this is not news to farmers who last year harvest corn at higher moisture content than other years due to the cooler and damp growing conditions. Buffington suggested considering planting short season corn to reduce the moisture content at harvest. By reducing the moisture of corn to 20 or 25% a significant savings can be realized.

Electricity was the third topic Buffington talked about. Deregulation of electric companies has come for some farmers in the region and is coming next year for everyone else. This will give farmers the option to purchase their electricity from a provider of their choice. He also explained how electric rates are calculated and simple things farmers can do to reduce their peak demand for power. One example he used was a poultry farmer that had his seven layer houses programmed to feed at the same time, causing a spike in his demand for electricity. By reprogramming his feeders to feed one house at a time the farmer reduced his electric bill by \$4,000 in one year.



Dennis Buffington Giving a Hands-on Demo

There are numerous ways to reduce energy use on the farm without costing the farmer loss of production or increased production costs. By evaluating electricity use, tractors and grain drying, farmers can realize lower production costs and increase profit from their farm.

[Andrew Frankenfield, Extension Educator, Montgomery County](#)

Rail and Biomass Logistics

New Project Underway at Penn State

A group of researchers on campus has obtained a seed grant to evaluate the logistical needs of biomass industry. While many people envision biomass logistics dominated by trucks, rail could play an important role as well. Rail already plays an important role in many commodities in Pennsylvania: coal, limestone, rock salt and ethanol are all good examples. Recently we participated in a seminar with a few colleagues from the Supply Chain and Information Systems group in the Smeal College of Business that was presented by representatives from CSX.



Several key principles are important for rail transport of biomass. First, rail is energy efficient and can provide benefits in life cycle carbon analysis in some systems. Second, there is already a considerable transloading network

in place across the country and this could be expanded- these are terminals where commodities are efficiently transferred from truck to rail or rail to truck. Third, Pennsylvania has a number of "short line" or local rail lines that could be used to accumulate or deliver commodities from rural areas to the major rail lines for long distance transport. Fourth, CSX and other rail companies have projects underway to deliver wood chips to paper mills or export facilities and are gaining experience in this arena.

There are several challenges, however. One potential challenge is the relatively low value of the commodity. Another is creating uniform and appropriate handling infrastructure for wood chips, raw logs or grass biomass. Wood chips, for example, are not hydrophobic like coal and need covered cars for transport. One potential would be to do some pre-processing, such as torrefaction, near the site of origination and then rail the processed material to the final processing site. This would provide economic opportunities for the rural communities add value to the commodity and reduce some of the issues associated with infrastructure needs.

Rail can play an important role in the development of a biomass handling chain and deliver biomass to or from export or remote production sites to processing centers near key biofuel markets in the northeast where it could be supplemented with local production. These concepts should be considered as we move forward in considering the potential of biomass based industries in the future.
Greg Roth, Department of Crop and Soil Sciences

[Greg Roth, Department of Crop and Soil Sciences](#)

New Varieties Featured in Bioenergy Crops Site

Field Display Open to Public



This year's Bioenergy Crops Display Area at Penn State features several unusual crops that are being tested for their suitability as energy crops in Pennsylvania. Glen Cauffman, head of Penn State Farm Services has worked with research associate Don Rill to select several unusual crops that may have potential for farms in this area.

The display site features field-scale trials of several annual and perennial crops, and is located on Fox Hollow Road less than a mile north of the university's football stadium. For directions and additional information, visit the website at <http://extension.psu.edu/energy/field-crops/CropsDemo>

Of special interest is a trial of several varieties of sugar beet, that we are carrying out in partnership with a seed company. While beets have not been a common crop in the area for many years, the new market for biofuels may make this a valuable plant as a high yield feedstock for advanced biofuels in the future. Another interesting crop this year is Low Lin Soy - a soybean that is bred for low linoleic acid content. Oil from these beans is reported to have health benefits compared to traditional soy, which is important if you are looking to

simultaneously meet needs for food AND fuel.

The bioenergy field crop site is open to visitors from dawn to dusk, and an informational brochure is available at the site.

[Dan Ciolkosz, Department of Agricultural and Biological Engineering](#)

Penn State Awarded Wood Energy Extension Grant

Project to educate landowners and foresters

Penn State's woody biomass extension team recently received a grant from the Northeast Sun Grant Initiative to develop extension programs. The overall goal of this project to create fact-based up-to-date information about woody biomass production and markets that is easily accessible to stakeholders across the supply chain.

The demand for woody biomass markets for energy production and other bioproducts is growing rapidly. In the Northeast region, and specifically in Pennsylvania, there is a lack of information on the subject, and what is available is largely disintegrated (not easily accessible or synthesized for the average stakeholder). Stakeholders, be they company executives, landowners, loggers, or rural extension agents must search in numerous places for information which is often scientifically difficult to understand. In very few instances are there summary fact sheets or case studies about woody bioenergy in a centralized easy to find source or website.

Our project will include:

- a website devoted to wood biomass information, collaborating with other websites such as eXtension and use a variety of social networking tools;
- a woody biomass webinar series;
- fact sheets and case studies summarizing pertinent information and latest technologies in area of woody biomass development;
- and a series of workshops and demonstrations on woody biomass production, economics, and technologies.

This project will help build the state program in forest bioenergy with a focus on being the prime source of support for stakeholders interested in woody biomass information and programs in the Northeast.

[Mike Jacobsen, School of Forest Resources, Penn State](#)

About Renewable & Alternative Energy

For more information on Cooperative Extension's Renewable and Alternative Energy Resources at Penn State visit our home page at <http://energy.extension.psu.edu/>

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