

Ridge Administration Preserves Record 40 Farms

HARRISBURG (Dauphin Co.) — On behalf of Gov. Tom Ridge, Agriculture Secretary Sam Hayes announced the preservation of 40 farms with 4,192 acres in 21 counties.

This is the highest number of farms preserved at one meeting under the Ridge Administration, furthering Pennsylvania's role as a leader in preservation. A record number of easements were approved with township funding, and the first farm under the

Long-Term Installment Purchase Program was approved.

"This unprecedented preservation activity is made possible by the continued support of Gov. Ridge's Growing Greener investment. Through this investment and the commitment of the state lawmakers and county governments, Pennsylvania has taken the lead nationally in maintaining our agricultural heritage," said Hayes.

The secretary also noted that

Pennsylvania is providing two new options to farm owners to preserve their farmland: the Long-Term Installment Program and Land Trust Reimbursement Program.

The Long-Term Installment Program provides tax relief to farms entering into the farmland preservation program with an extension of payments over several years rather than one lump sum. While the farm is under the Long Term Payment plan, they can

defer capital gains taxes for the term of the plan. The benefit of this program is that it helps the county farmland preservation board purchase more farmland easements in one year.

In addition, the Land Trust Reimbursement Grant Program assists private land trusts with land preservation by providing grants to help defray the costs of acquiring agricultural conservation easements. Ten land trusts across Pennsylvania participate

in this valuable program. Under this program, 855 acres of farmland have been preserved.

"Gov. Ridge has supported farmland preservation and has been an advocate for the preservation of open space. Through support of the Governor and residents of the commonwealth, we continue to preserve farmland in a record-setting pace," Hayes said.

During the June meeting, Hayes noted that through the hard work of county farmland preservation boards a record 313 farms have been preserved since July, 2000. To date 1,640 farms and 198,811 acres have been preserved. This process was completed through purchase of development rights or easements.

For more information on the Farmland Preservation Program, contact the Bureau of Farmland Preservation at (717) 783-3167, or access the Department of Agriculture's homepage through the PA PowerPort at www.state.pa.us or directly at www.pda.state.pa.us.

AMS Selects Plant Variety Protection Office Commissioner

WASHINGTON, D.C. — On Monday, the USDA's Agricultural Marketing Service announced the selection of Paul Zankowski as the new commissioner of the Plant Variety Protection Office.

Zankowski comes to AMS from a position with the Harris Moran Vegetable Seed Company

in Modesto, Calif., where he held the title of director of biotechnology. While with Harris Moran, Zankowski developed commercial biotechnology products, administered the molecular biology program, and conducted extensive plant breeding research.

As commissioner, Zankowski

will head the USDA staff that administers the provisions of the Plant Variety Protection Act.

The act extends intellectual property right protection to developers of new varieties of seed-reproduced and tuber-propagated plants. This protection encourages development of new va-

rieties of plants, benefitting agriculture, home gardeners, and consumers.

Zankowski received his master's and doctorate degrees in plant physiology from the University of California and a bachelor's degree in biology from Penn State.

Technology May Turn Stover Into Ethanol Source

James Hettenhaus
Fermentation Expert
And Consultant
Department Of Energy

Renewable fuels are becoming an essential part of our country's energy future. Ethanol from corn and diesel fuel from soybeans are finally capturing the public's attention as oil supplies dwindle and gasoline prices rise.

Legislation has been introduced in the U.S. Senate that would significantly increase the use of biofuels. Today, U.S. ethanol production is about 2 billion gallons, or 1.5 percent of our nation's fuel. Almost all of this is made from corn, consuming over 700 million bushels or 7 percent of the corn crop.

If Congress passes the recently introduced Renewable Fuels for Energy Security Act, industry capacity would jump to 9 billion gallons by 2011 and 16 billion gallons by 2016. That level of production would displace oil imports by 300,000 barrels daily by 2011 and 610,000 barrels a day five years later.

Which raises an obvious question: How are we going to produce enough crops for all our current food, feed and industrial needs if we start using corn and soybeans to produce fuel?

There are two answers: One, we will need to increase grain yields, and two; we must find a way to use excess stover (stalks, leaves and cobs) for fuel production. The good news is that progress is being made on both fronts through research in biotechnology.

Already biotechnology is helping to protect yields from pests and diseases. And extensive research is being conducted to identify and utilize the genes that will make today's high-yielding hybrids produce even more grain. There have also been significant advances in biotech research to make corn stover a usable source for ethanol. The Department of Energy Office of Transportation Technologies has awarded a total of \$30 million to help fund this effort by two lead-

ing enzyme companies, Genencor and Novozyme. A third enzyme company, Iogen, already has a small plant that processes 40 tons per day of stover to help finalize the design for one 50 times larger. It will use 2,000 tons of stover per day, and produce 60 million gallons per year of ethanol.

Ethanol is produced when sugars in corn are put through a fermentation process. Corn stover can produce as much sugar as corn grain, but stover is not readily broken down into sugars that can be converted into ethanol. Much of the stover (38 percent) is cellulose, a tough substance that does not easily break down. Wood for example contains cellulose. Enzymes produced by fungi or bacteria can break down the corn cellulose into the sugar glucose, but the process is very time consuming and therefore expensive. Genencor and Novozyme are using biotechnology to modify the fungi and bacteria so they produce an enzyme with improved activity on cellulose so it more readily yields glucose. Another component of stover (32 percent) is hemicellulose, which readily produces four different sugars. Unfortunately, microbes cannot digest those sugars; thus they cannot be converted into fuel alcohol. Breakthroughs in biotechnology, however, can produce genetically enhanced mi-

crobes capable of digesting the sugars.

All this work to cost-effectively produce sugars from stover could mean a really sweet deal for corn producers, because their fields currently produce as much stover as they do corn. With the help of genetically improved enzymes and microbes, it should be possible to get as much sugar from a

pound of stover as from a pound of corn grain. It has been estimated that growers can realize an additional \$20 net per acre by selling stover to ethanol producers, depending on how much is harvested from the field and other factors, such as transportation distance. Many industry leaders expect that 50 to 100 biorefineries may be in operation by 2010.

Not all of the stover in a field should be converted to ethanol production. Universities and agriculture have been working together over the past few years to define the amount of stover that should be left so as not to have a negative impact on soil organic material and erosion. Even if only half of it is harvested and converted to ethanol production, there would be a meaningful contribution to

unflattering term of trash. We can expect that term to go out of popular use when the "trash" starts producing cash.

Editor's Note: The author is a consultant who works with the U.S. Department of Energy and private companies to commercialize the technology.

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