



## FOCUS ON...

### Talking to America's Farmers— 3 out of 4 Eager for Chance to Make Ethanol from Corn Stover

*"But you've got to get a broad-based support [for ethanol] all together, not just a few people, not just the farmers because they want more money for their corn. You've got to get the whole economy, the whole society geared up to that direction." –Illinois corn farmer*



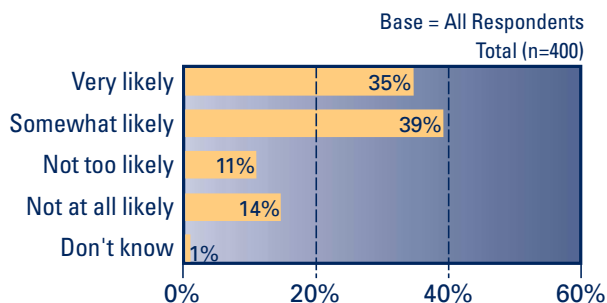
Corel Stock Photo/Barns & Farms

Do farmers like the idea of fueling as well as feeding America? Would they like to sell corn stover (corn husks and stalks) as well as grain for ethanol production? Should the Department of Energy (DOE) Biofuels Program plan on stover being a primary feedstock for cellulosic ethanol? A recent survey says yes. In July and August of this year, the Biofuels Program talked to 400 American farmers to see how they'd feel about selling their stover for ethanol. This issue of *Biofuels News* discusses some of the results.

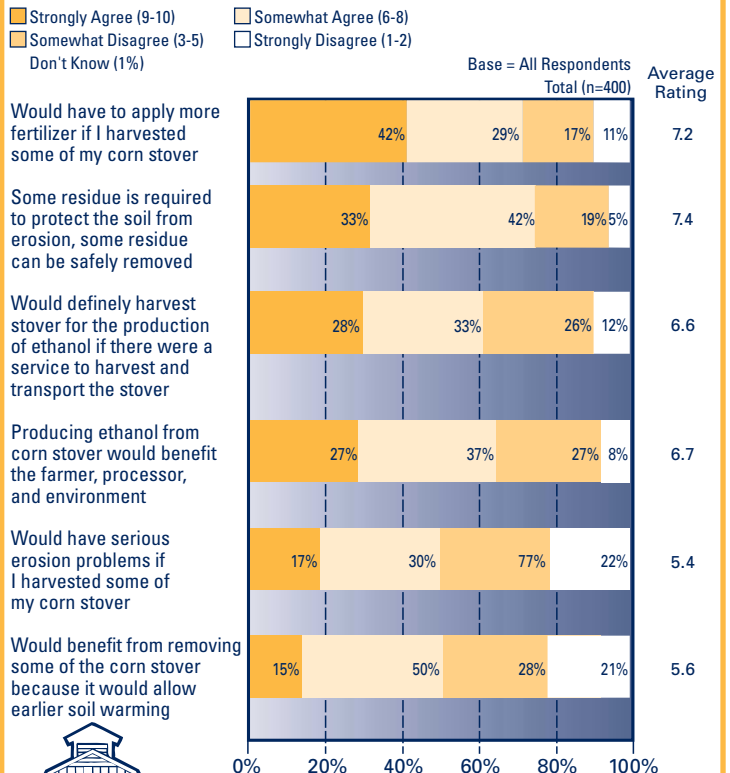
Of the farmers we talked to, 74% would be likely to sell at least some of their stover for producing ethanol—25% said they, in fact, already sold corn grain for ethanol production. The opportunity for additional revenue was clearly the main motivation as 70% of the farmers said that the chance to make money was the number one reason for their interest.

*continued on page 2*

### Likelihood of Selling at Least Some Corn Stover for the Production of Ethanol if Harvested at a Reasonable Profit



### Level of Agreement with Various Statements Regarding the Harvest of Corn Stover




## Talking to America's Farmers...continued from page 1

An additional 8% said that they would want to harvest their stover for ethanol production because it helps us decrease our dependence on foreign oil, and 7% were interested in selling their stover because it would provide a new market for corn.

Stewardship of the soil was the biggest reason for farmers' hesitancy to harvest stover. One in four farmers surveyed told us they didn't think they would sell their stover for ethanol production. When asked to explain why, 35% said they were concerned about losing nutrients and 34% were afraid of increased soil erosion.

Of the farmers in the study who thought that they would probably harvest their stover if the selling price was right, the number one concern was that there wouldn't be an easy way to transport it (20%). An additional 18% were afraid that harvesting would take too much time and effort and 17% were worried about losing nutrients. DOE and the U.S. Department of Agriculture are working to address these issues by examining agricultural practices that would help farmers avoid these problems.

29% of the farmers in the study were planning to harvest their corn stover this year. Of those farmers, 62% were planning to use it for animal feed and 36% were planning to use it as a bedding material. An additional 15% intended

to use their stover for silage (a livestock feed that's made by fermenting crop, forage, or agricultural byproduct materials). As you might expect, the farmers that were already harvesting their stover had the most positive initial reaction to the idea of producing ethanol from corn stover. Of the farmers that expected to harvest their stover this year, 69% had very positive or somewhat positive initial reactions. Of the farmers that did not expect to harvest their stover, 57% had a very positive or somewhat positive response. 

### Problems Associated with Harvesting Corn Stover

(Base = Respondents who would be "very/somewhat likely" to sell corn stover for ethanol production)  
- Mentions of 3% or more -

	Total (n=298)	Plan to Harvest Corn Stover in 2001 (n=82)	Do Not Plan to Harvest Corn Stover in 2001 (n=116)
No way to transport	20%	21%	19%
Too much work/labor/time	18%	16%	19%
Lose nutrients/fertilizer	17%	11%	19%
Don't have the equipment	16%	13%	17%
Soil erosion	12%	9%	13%
Weather	9%	17%	6%
Too expensive to harvest	5%	5%	6%
No storage	3%	4%	3%
None	20%	23%	19%
Don't know	4%	4%	4%

### Reasons for Being Likely to Harvest at Least Some Corn Stover for the Production of Ethanol

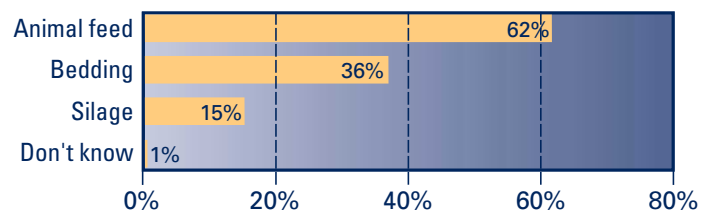
(Base = Respondents who would be "very/somewhat likely" to sell corn stover for ethanol production)  
- Mentions of 3% or more -

	Total (n=298)	Plan to Harvest Corn Stover in 2001 (n=82)	Do Not Plan to Harvest Corn Stover in 2001 (n=116)
Make money/added income	70%	77%	68%
Depends on the price	8%	9%	8%
Independence from foreign oil	8%	5%	9%
It is another use for corn	7%	4%	9%
No need for corn stover on farm	5%	4%	5%
Concerned about soil erosion*	3%	4%	2%

\* Explains "somewhat likely" response

### Corn Stover Use Intentions

(Base = Respondents who plan to harvest at least some corn stover in 2001, n=115)  
- All mentions -



## CHECK IT OUT

**Biofuels Publications Offer Information about Farming and Ethanol from Stover**

To learn more about the Biofuels Program's survey of 400 American farmers, see the complete *Bioethanol Fuel Production Concept Study Topline Report* at [www.ott.doe.gov/biofuels/pdfs/5993.pdf](http://www.ott.doe.gov/biofuels/pdfs/5993.pdf).

For more information about making ethanol from corn stover, see the Biofuels Program publication:

*"Corn Stover for Bioethanol—Your New Cash Crop?"*  
[www.afdc.doe.gov/pdfs/5199.pdf](http://www.afdc.doe.gov/pdfs/5199.pdf).

For more information about how biofuels can affect agriculture, see the fact sheet *"Biofuels and Agriculture—A Fact Sheet for Farmers"* at <http://bioenergy.ornl.gov/papers/misc/farmerfactsheet.pdf>.

To learn more about bioethanol production, see the publication *"Bioethanol—Moving into the Marketplace"* at [www.afdc.doe.gov/pdfs/4836.pdf](http://www.afdc.doe.gov/pdfs/4836.pdf).



Jim Yost, NREL/PIX 10347





## MEET THE BIOFUELS STAFF

### *New Face at DOE Headquarters* **Nohemi Zerbi – Renewable Diesel Program Manager**

*In this new column, Biofuels News will introduce you to one of the Biofuels Program's staff each issue.*

Nohemi Zerbi joined the Office of Fuels Development (OFD) in February as Renewable Diesel Program Manager. A division of the Office of Transportation Technologies, OFD manages the Biofuels Program, including ethanol technology, feedstock development, and the Regional Biomass Energy Program, as well as renewable diesel.

As Renewable Diesel Program Manager, Zerbi will develop, plan, and manage the research and development program for renewable diesel; coordinate collaboration with government and nongovernment organizations; and facilitate technology transfer. Prior to joining DOE, Zerbi was the Deputy Team Leader for the U.S. Agency for International Development's Energy and Environmental Training Program. She holds a B.S. in chemical engineering and a B.A. in Spanish, with minors in chemistry and biology. Zerbi is also a licensed professional planner and engineer-in-training.



### **Why Stover?**

The primary focus of the DOE National Biofuels Program is developing technology to produce fuel ethanol from the fibrous sugar polymers—cellulose and hemicellulose—that make up the bulk of plant matter. Because this technology makes virtually any biomass material a possible feedstock, it could greatly expand potential bioethanol production. Conventional fermentation relies on starches or sugars, such as the starch in kernels of field corn that is the main feedstock for U.S. fuel ethanol production.

With this advanced bioethanol technology, liquid transportation fuel can be made from a wide range of materials, from municipal or industrial wastes in the near term to specially grown energy crops of fast-growing trees or grasses in the long term. Of perhaps the greatest interest, though, are agricultural and forestry residues, particularly corn stover—the largely unused stalks and husks of the corn plant. Corn is this country's largest crop and per-acre production of stover roughly equals the amount of grain. Some stover is harvested for animal feed or bedding but most is either left on the ground or plowed under—probably more than is needed for erosion control or soil nutrient value in either case. A stover “crop” requires no additional land or planting expense and could be easily harvested after—or eventually jointly with—the grain crop. And it just happens to be grown in the same places as current ethanol feedstock, so it's ideally located for expansion of existing ethanol plants.



## PUBLIC FORUMS

### *Renewable Fuels Workshops Increase Public Involvement*

#### **Ethanol Workshops**

Overwhelming public interest in ethanol marked the 2001 DOE Ethanol Workshop Series. The workshops, held this year in Idaho, Iowa, Maryland, Michigan, North Carolina, Utah, and Puerto Rico, work to increase public involvement in ethanol by facilitating discussions between representatives from federal and local government, industry, and consumer groups. For more information about the DOE Ethanol Workshop Series, visit [www.bb ethanol.com/doe](http://www.bb ethanol.com/doe).

#### **Renewable Diesel Workshops**

A series of DOE Renewable Diesel Workshops are raising public awareness of the fuel throughout the country. Speakers at the one-day workshops, held this year in Iowa, California, and Washington, address subjects that range from renewable diesel basics and emissions, to production and success stories. To learn more about the DOE Renewable Diesel Workshops, please visit [www.bb ethanol.com/doe](http://www.bb ethanol.com/doe).



Waren Grez, NREL/PIX 10421

The Biofuels Program emphasizes stover in its research efforts, anticipating that it will be a key feedstock for future technology development work. But before we commit more research efforts to stover, we needed to know if farmers want to sell stover for ethanol production. DOE and the U.S. Department of Agriculture are currently conducting a major life-cycle study to determine appropriate stover harvest levels from erosion, soil quality, and carbon sequestration perspectives. However, they also needed to know if there could be some economic or cultural reasons why farmers would not want to sell their stover. To do its homework and to make sure that there were no “showstoppers”—which there do not appear to be—and to identify key areas for research, the Biofuels Program commissioned the survey reported in this newsletter.



# IN THE SPOTLIGHT

## Who Did We Talk To?

Earlier this year, DOE used Morgan & Myers, a public relations firm with strong ties to the agricultural community, to interview 400 corn growers in the top 12 corn-producing states. The researchers wanted to know how farmers feel about ethanol as a fuel source, what they think about producing ethanol from corn stover, and how they perceive DOE and the Biofuels Program.

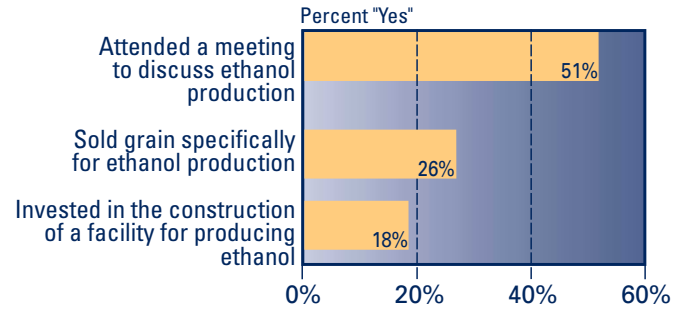
Only active farmers who planted at least 300 acres of corn during 2001 were included in the survey, and the participants said they planted an average of 653 acres in corn in 2001. They reported getting an average of 145 bushels of corn per acre. All of the farmers were between 25 and 65 years old.

Although the farmers in the survey primarily work flat land, many (71%) have some rolling land, and some (43%) are growing part of their crop on highly erodible land. These farmers are more concerned about run-off erosion than they are about wind erosion (70% verses 27%). Most (85%) are on a crop rotation schedule of corn followed by another crop and many (45%) practice reduced tillage. An additional 30% of the farmers surveyed practice conventional-till methods and 25% practice no-till methods.

When it comes to biofuels use, it seems that farmers are at the head of the class. When questioned about their ethanol use, 77% of the farmers in our survey said that they currently use ethanol blend gasoline in their vehicles, and 26% reported using E85 or higher blends. Renewable diesel was also relatively popular with our survey participants,

### Grower Involvement in the Production of Ethanol

(Base = All respondents, n=400)



with 10% saying that they used soy diesel blends in their vehicles.

Many of the farmers also report being active in ethanol-from-grain production. According to our survey, 51% had attended a meeting to discuss ethanol production, 26% had sold grain for ethanol production, and a surprising 18% had actually invested in the construction of an ethanol plant.

The Biofuels Program's survey showed that the growers overwhelmingly supported ethanol production and recognized its environmental and energy security benefits. On the other hand, they felt that public information about ethanol is inadequate. In fact, 26% strongly disagreed and 57% somewhat disagreed with the statement "the public is well informed about the benefits of using ethanol as a fuel blend."

When asked about the benefits of using ethanol, 68% of the farmers said that the major benefit was cleaner air and less pollution, 38% mentioned increased demand for corn, 34% cited independence from foreign oil, and 34% said it helped the farm economy.

DOE/GO-102001-1483 Past issues and other related information are available on the Biofuels Program Web site [www.oft.doe.gov/biofuels/](http://www.oft.doe.gov/biofuels/) Register your e-mail address to receive electronic notification of future issues at: [www.oft.doe.gov/biofuels/subscribe.html](http://www.oft.doe.gov/biofuels/subscribe.html). Produced for the National Biofuels Program, Office of Fuels Development, U.S. Department of Energy, 1000 Independence Ave., S.W., Washington, D.C. 20585-1121.



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