

(Optional) Do you have any comments?

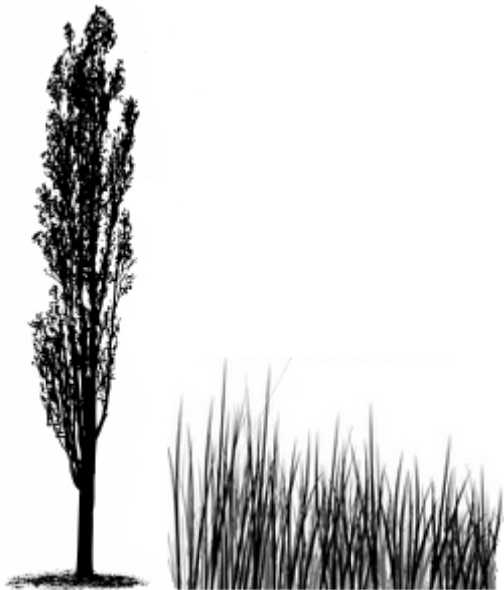
THANK YOU

If you have questions about the research or any part of the questionnaire, contact Dr. Scott M. Swinton at 1-517-353-7218, by e-mail at swintons@msu.edu, or by postal mail at Department of Agricultural, Food, and Resource Economics, Michigan State University, East Lansing, MI 48824-1039.

MICHIGAN STATE
UNIVERSITY

BIOENERGY AND LAND USE

WE NEED YOUR HELP!



The purpose of this survey is to understand your views about bioenergy. There are no right or wrong answers because people have different attitudes and uses for their land.

YOUR OPINIONS MATTER

By completing this questionnaire you are helping to inform the design of future policies that better reflect the views and concerns of Michigan landowners.

WHO SHOULD FILL OUT THIS SURVEY

1. Do you own over 10 acres of rural land, land that is grassland, forest, or farmland?
- ☐ No

⇒ If you answered NO, please stop filling out the survey now and mail it in the provided prepaid envelope. Thank you for your response!
- ☐ Yes
2. Are you the main decision maker for land management for your rural land?
- ☐ No

⇒ If you answered NO, please give this questionnaire directly to the person who makes the land management decisions for your rural land.
- ☐ Yes

SECTION A: YOUR CURRENT LAND MANAGEMENT PRACTICES

- A1. Do you own rural land in more than one location?
- ☐ No
- ☐ Yes
- A2. What is the county where most of your rural land is located? _____
- A3. Do you currently rent out any of your rural land to others?
- ☐ No *(please go to A7)*
- ☐ Yes
- IF YOU ANSWERED YES:**
- A4. How many acres of your rural land did you rent out in 2011? _____ACRES
- A5. What was the most common rental rate for your land? \$ _____PER ACRE
- A6. Not including land that you may have rented out to others, did you grow any commercial crops on the rural land you own in 2011?
- ☐ Yes
- ☐ No
- A7. How much longer do you plan to own the majority of your rural land?
- ☐ Less than 1 year
- ☐ 1 to 5 years
- ☐ 5 to 10 years
- ☐ More than 10 years
- ☐ For the rest of my life
- A8. How would you describe what is on the rural land you own?

SECTION E: BACKGROUND INFORMATION

This last section asks for background information to help identify patterns among different kinds of landowners. Your answers here are very important and will be kept completely confidential.

- E1. What is your age? _____ (YEARS)
- E2. What is your gender?
- ☐ Male
- ☐ Female
- E3. Including yourself, how many members are in your household? _____
- E4.Are you a farmer or do you do farm work?
- ☐ Yes
- ☐ No
- E6. How much is the annual pretax income of your household in 2010? Include net income from all sources (salary, wages, social security, rental properties, and investment income).
- ☐ Less than \$25,000

☐ \$100,000 to \$149,999
- ☐ \$25,000 to \$49,999

☐ \$150,000 to \$199,999
- ☐ \$50,000 to \$99,999

☐ \$200,000 and above
- E8. What is the highest level of education you have completed?
- ☐ Less than 12 years
- ☐ Completed high school or GED
- ☐ Technical training beyond High School
- ☐ Some College (including AA, AS degrees)
- ☐ 4-year college degree
- ☐ Some graduate work
- ☐ Graduate degree
- E9. Is any part of your rural land restricted by zoning in any way? *(Check all that apply.)*
- ☐ Zoned for agricultural use
- ☐ Zoned for residential use
- ☐ Zoned for industrial use
- ☐ Not restricted by zoning
- ☐ I am uncertain

D2. Please check the box that best represents your agreement with the following statements related to potential concerns with renting.

When I think about renting my land for bioenergy crops I am concerned with:	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The potential smell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise from harvesting, planting, or other activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dust in the air	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potential legal costs of contracting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The length of the contract	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The possible need for insurance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having other people on my land	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The land changing so that I can no longer use it as I have	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The use of pesticide and fertilizer on my land	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Description	Acres of Rural Land
CROPLAND	
Corn	_____ ACRES
Soybeans	_____ ACRES
Wheat	_____ ACRES
Other row crops	_____ ACRES
Fruit trees or plants	_____ ACRES
Vegetables	_____ ACRES
HAY AND PASTURE LAND	
Grassland or Pasture	_____ ACRES
Hay or Alfalfa	_____ ACRES
FARMABLE NON-CROP LAND (Could be farmed if cleared)	
Forest	_____ ACRES
Shrub or Scrub (low growth with bushes or few trees)	_____ ACRES
Other potentially farmable land	_____ ACRES
OTHER	
Any other rural land (Wetlands, lawn and garden, not farmable land.)	_____ ACRES
Other (please specify): _____	_____ ACRES
Other (please specify): _____	_____ ACRES
A9. Total number of acres of rural land that you own:	_____ ACRES

A10. How do you or other family members use the different types of rural land that you own?

	I use my rural land for this purpose: (Check all that apply)
As scenery or for a desired view	<input type="checkbox"/>
Physical activities (walking, <i>running</i> , or <i>sports</i>)	<input type="checkbox"/>
Recreational vehicle use (4x4, quads, or dirt bikes)	<input type="checkbox"/>
Hunting and Fishing	<input type="checkbox"/>
For grazing livestock (Cattle, sheep, horses, pigs, etc.)	<input type="checkbox"/>
Commercial crops or garden income	<input type="checkbox"/>
For conservation program income	<input type="checkbox"/>
For a home or second home	<input type="checkbox"/>
For firewood	<input type="checkbox"/>
Food plots for deer or other game	<input type="checkbox"/>
Other use (please specify):	<input type="checkbox"/>
Other use (please specify):	<input type="checkbox"/>
Other use (please specify):	<input type="checkbox"/>

SECTION D: YOUR OPINIONS ON BIOENERGY, THE ENVIRONMENT,
AND RENTING LAND.

D1. Please check the box that best represents your agreement with the following statements related to bioenergy and the environment.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Growing crops for renewable automotive fuel is necessary for our nation’s future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Burning renewable plant-based resources for electricity instead of burning non-renewable resources such as coal is worth the extra cost.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Humans have the right to modify the natural environment to suit their needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Humankind is severely abusing the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The so-called "ecological crisis" facing humankind has been greatly exaggerated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The balance of nature is very delicate and easily upset.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Renewable energy is <u>not</u> urgently needed right now.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MIXED PRAIRIE

Planted: Spring of the first year
Harvested: Every Fall after year 1 or 2
Fertilized: Yearly
Average number of farmer visits: 3 per year
Maximum height: 1 to 5 feet
Production: Bioenergy
Soil erosion: Low compared to other bioenergy crops
Greenhouse gas emissions: Average compared to other bioenergy crops
Water contamination: Low compared to other bioenergy crops
Crop as a wildlife habitat: Excellent compared to other bioenergy crops
Rental rate paid to you by farmer : \$300 DOLLARS PER ACRE PER YEAR
Length of contract: 5 YEARS IN MIXED PRAIRIE



C7. If somebody wanted to rent your existing cropland to grow mixed prairie for \$300 an acre per year for 5 years, would you rent any of it out?

- Yes, I would be willing to rent out _____ ACRES
- No (Choose one explanation)
 - I do not own any existing cropland.
 - I would not rent any of this type of land for this use no matter how high the rent was.
 - I would rent out this type of land for this use if the rent were higher.

C8. If somebody wanted to rent your existing hay and pasture land to grow mixed prairie for \$300 an acre per year for 5 years, would you rent any of it out?

- Yes, I would be willing to rent out _____ ACRES
- No (Choose one explanation)
 - I do not own any existing hay and pasture land.
 - I would not rent any of this type of land for this use no matter how high the rent was.
 - I would rent out this type of land for this use if the rent were higher.

C9. If somebody wanted to rent your existing farmable non-crop land to grow mixed prairie for \$300 an acre per year for 5 years, would you rent any of it out? (The renter would be responsible for clearing costs. You would get any timber sales.)

- Yes, I would be willing to rent out _____ ACRES
- No (Choose one explanation)
 - I do not own any existing farmable non-crop land.
 - I would not rent any of this type of land for this use no matter how high the rent was.
 - I would rent out this type of land for this use if the rent were higher.

A11. Please check the box that best represents your agreement with the following statements related to your land and land use.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I would never sell the rural land that I own.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would be willing to sell my land if I knew it was going to be used for agriculture.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would consider renting the rural land that I own.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would allow someone renting my rural land to store bales of hay or straw on it for a few months each year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My family or friends would prefer that I not rent my rural land to grow crops.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sometime in the next 10 years I plan to change the way I use my rural land.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PART B: BIOENERGY AND BIOENERGY CROPS

BIOENERGY is energy that comes from a biological source, such as crops, grasses, or trees. These sources are often called bioenergy crops. These crops can be burned to generate heat or electricity. They can also be refined to make a liquid fuel, such as ethanol. Today, the most common form of ethanol in the United States comes from corn grain. It is possible, however, to make ethanol from other plants as well.

B1. Had you heard of bioenergy before?

- ☐ Yes
☐ No

B2. Did you know that ethanol can be produced from other sources besides corn grain?

- ☐ Yes
☐ No

B3. Did you know that many bioenergy crops can be grown on less fertile soil such as farmable non-crop land that may be currently in forest or shrubs?

- ☐ Yes
☐ No

CORN is the most common crop grown in the United States. Corn has a variety of uses from food and animal feed to corn syrup and ethanol. The non-grain parts of the corn plant (e.g., stalk, leaf, husk, and cob) are often left in the field following grain harvest. About half of these corn scraps need to be left on the field to provide nutrients and organic matter to the soil, while the other half can be used for bioenergy by either being burned or transformed into ethanol.

B4. Have you ever grown corn before?

- ☐ Yes
☐ No

B5. Were you aware that corn scraps could be used for bioenergy?

- ☐ Yes
☐ No



HYBRID POPLAR TREES

Planted:	Spring of the first year
Harvested:	5-10 years after planting
Fertilized:	Every few years
Average number of farmer visits:	1 per year
Maximum height:	20 to 30 feet
Production:	Bioenergy
Soil erosion:	<u>Average</u> compared to other bioenergy crops
Greenhouse gas emissions:	<u>Low</u> compared to other bioenergy crops
Water contamination:	<u>Average</u> compared to other bioenergy crops
Crop as a wildlife habitat:	<u>Average</u> compared to other bioenergy crops
Rental rate paid to you by farmer :	\$200 DOLLARS PER ACRE PER YEAR
Length of contract:	10 YEARS IN POPLAR TREES



C4. If somebody wanted to rent your existing cropland to grow hybrid poplar for \$200 an acre per year for 10 years, would you rent any of it out?

- ☐ Yes, I would be willing to rent out \implies _____ACRES
- ☐ No (Choose one explanation)
- ☐ I do not own any existing cropland.
- ☐ I would not rent any of this type of land for this use no matter how high the rent was.
- ☐ I would rent out this type of land for this use if the rent were higher.

C5. If somebody wanted to rent your existing hay and pasture land to grow hybrid poplar for \$200 an acre per year for 10 years, would you rent any of it out?


- ☐ Yes, I would be willing to rent out \implies _____ACRES
- ☐ No (Choose one explanation)
- ☐ I do not own any existing hay and pasture land.
- ☐ I would not rent any of this type of land for this use no matter how high the rent was.
- ☐ I would rent out this type of land for this use if the rent were higher.

C6. If somebody wanted to rent your existing farmable non-crop land to grow hybrid poplar for \$200 an acre per year for 10 years, would you rent any of it out? (The renter would be responsible for clearing costs. You would get any timber sales.)

- ☐ Yes, I would be willing to rent out \implies _____ACRES
- ☐ No (Choose one explanation)
- ☐ I do not own any existing farmable non-crop land.
- ☐ I would not rent any of this type of land for this use no matter how high the rent was.
- ☐ I would rent out this type of land for this use if the rent were higher.

SWITCHGRASS

Planted:	Spring of the first year
Harvested:	Every fall after year 1 or 2
Fertilized:	Yearly
Average number of farmer visits:	3 per year
Maximum height:	4 to 6 feet
Production:	Bioenergy
Soil erosion:	<u>Low</u> compared to other bioenergy crops
Greenhouse gas emissions:	<u>Average</u> compared to other bioenergy crops
Water contamination:	<u>Low</u> compared to other bioenergy crops
Crop as a wildlife habitat:	<u>Good</u> compared to other bioenergy crops
Rental rate paid to you by farmer :	\$50 DOLLARS PER ACRE PER YEAR
Length of contract:	5 YEARS IN SWITCHGRASS



C4. If somebody wanted to rent your existing cropland to grow switchgrass for \$50 an acre per year for 5 years, would you rent any of it out?

- ☐ Yes, I would be willing to rent out \implies _____ACRES
- ☐ No (Choose one explanation)

☐ I do not own any existing cropland.

☐ I would not rent any of this type of land for this use no matter how high the rent was.

☐ I would rent out this type of land for this use if the rent were higher.

C5. If somebody wanted to rent your existing hay and pasture land to grow switchgrass for \$50 an acre per year for 5 years, would you rent any of it out?

- ☐ Yes, I would be willing to rent out \implies _____ACRES
- ☐ No (Choose one explanation)

☐ I do not own any existing hay and pasture land.

☐ I would not rent any of this type of land for this use no matter how high the rent was.

☐ I would rent out this type of land for this use if the rent were higher.

C6. If somebody wanted to rent your existing farmable non-crop land to grow switchgrass for \$50 an acre per year for 5 years, would you rent any of it out? (The renter would be responsible for clearing costs. You would get any timber sales.)

- ☐ Yes, I would be willing to rent out \implies _____ACRES
- ☐ No (Choose one explanation)

☐ I do not own any existing farmable non-crop land.

☐ I would not rent any of this type of land for this use no matter how high the rent was.

☐ I would rent out this type of land for this use if the rent were higher.

SWITCHGRASS is a native, warm-season perennial grass. It is known for high yields that make it attractive for fuel production or heat and electricity generation. Because switchgrass is a perennial, there is no need to disturb the soil each year for planting and it requires less fertilizer than other bioenergy crops. Also, perennial switchgrass fields may provide habitat for birds, mammals and beneficial insects.

B6. Have you ever seen switchgrass before?

- ☐ Yes
- ☐ No

B7. Did you know that switchgrass is a perennial, so it only needs to be planted once every decade or so?

- ☐ Yes
- ☐ No



HYBRID POPLARS are fast-growing trees that are closely related to cottonwoods and aspens. They are grown in a way that makes them look more like row crops than a typical forest. Hybrid poplars need very little maintenance and fertilizer. As perennial trees they create relatively little greenhouse gas emissions. Also, hybrid poplars may offer a good habitat for birds, mammals and beneficial insects.

B8. Have you ever seen hybrid poplar trees planted in rows?

- ☐ Yes
- ☐ No

B9. Were you aware that perennials like poplar cause less greenhouse gases because the soil is not tilled every year?

- ☐ Yes
- ☐ No



MIXED PRAIRIE is a combination of different types of prairie grasses. Similar to switchgrass, it is a perennial so it does not need to be replanted. Because of this it requires less fertilizer than other bioenergy crops. Also, prairie grasses may offer a good habitat for birds, mammals and beneficial insects.

B10. Do you currently have any prairie grasses on your land?

- ☐ Yes
- ☐ No

B11. Did you know that mixed prairie offer what is called “functional diversity”, which means that even though there are only a couple different species of grass they provide the benefits of a bio-diverse landscape?

- ☐ Yes
- ☐ No



PART C: FOUR SPECIFIC BIOENERGY CROPPING SYSTEMS

The following four pages each show a specific bioenergy cropping system.

Please start by reading the description of the crop, considering what it might be like to rent out your rural land to grow the crop. Then mark the number of acres you would be willing to commit for the length of the contract at the given price. The different types of land you are asked about renting refers back to the land you described in Question A8 (Cropland, Hay and Pasture Land, and Farmable Non-Crop Land).

Think about the four different scenarios separately. In other words, when you are presented with a suggested offer to rent your land for a particular bioenergy crop, assume that that the other three offers do not exist as options.

We ask you to focus only on the scenarios we are proposing for each cropping system.

CORN

Planted:	Every spring
Harvested:	Every fall
Fertilized:	Yearly
Average number of farmer visits:	7 per year
Maximum height:	7 to 10 feet
Production:	Grain and residues for Bioenergy
Soil erosion:	High compared to other bioenergy crops
Greenhouse gas emissions:	High compared to other bioenergy crops
Water contamination:	High compared to other bioenergy crops
Crop as a wildlife habitat:	Average compared to other bioenergy crops
Rental rate paid to you by farmer :	\$200 DOLLARS PER ACRE PER YEAR
Length of contract:	5 YEARS IN CORN



C1. If somebody wanted to rent your existing cropland to grow corn for \$200 an acre per year for 5 years, would you rent any of it out?

- ☐ Yes, I would be willing to rent out ➡ _____ACRES
- ☐ No (Choose one explanation)

☐ I do not own any existing cropland.

☐ I would not rent any of this type of land for this use no matter how high the rent was.

☐ I would rent out this type of land for this use if the rent were higher.

C2. If somebody wanted to rent your existing hay and pasture land to grow corn for \$200 an acre per year for 5 years, would you rent any of it out?

- ☐ Yes, I would be willing to rent out ➡ _____ACRES
- ☐ No (Choose one explanation)

☐ I do not own any existing hay and pasture land.

☐ I would not rent any of this type of land for this use no matter how high the rent was.

☐ I would rent out this type of land for this use if the rent were higher.

C3. If somebody wanted to rent your existing farmable non-crop land to grow corn for \$200 an acre per year for 5 years, would you rent any of it out? (The renter would be responsible for clearing costs. You would get any timber sales.)

- ☐ Yes, I would be willing to rent out ➡ _____ACRES
- ☐ No (Choose one explanation)

☐ I do not own any existing farmable non-crop land.

☐ I would not rent any of this type of land for this use no matter how high the rent was.

☐ I would rent out this type of land for this use if the rent were higher.