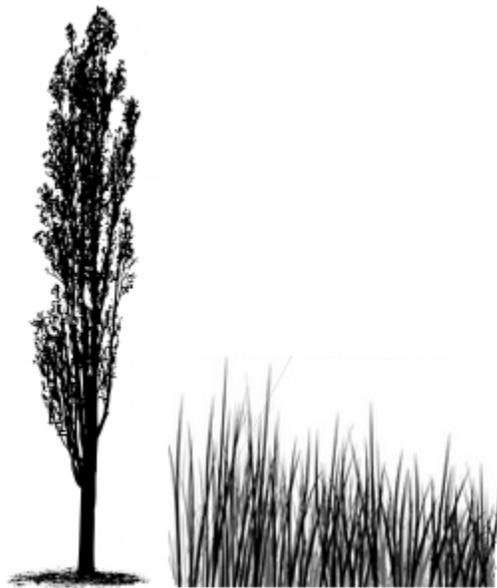


BIOENERGY AND LAND USE

WE NEED YOUR HELP!



The purpose of this study is to understand your views about bioenergy and rural land use. 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 and Wisconsin landowners.

WHO SHOULD FILL OUT THIS SURVEY?

1. Did you own 10 or more acres of undeveloped rural land (forest, grassland, or farmland) in 2013?

No \implies *If NO, please do not fill out the questionnaire and return it to us in the provided prepaid envelope. Thank you for your time!*

Yes \implies *If YES, please continue with the questionnaire.*

2. Are you the main decision maker with respect to how your undeveloped rural land is managed and used? (*Note: If decision making is shared by more than one person either may complete this survey.*)

No \implies *If NO, please give this questionnaire directly to the person who makes the land management decisions for your rural land.*

Yes \implies *If YES, please continue with the questionnaire.*

SECTION A: CURRENT LAND MANAGEMENT PRACTICES

A1. In 2013, in what county was most of your rural land located? _____

A2. Did you own rural land in more than one county in 2013? No Yes

A3. How many acres of rural land did you own in 2013? _____ ACRES

A4. Did you rent out any of your rural land to others in 2013?

Yes No \implies *If NO, please skip to question A5 below.*

IF YOU ANSWERED YES:

a. How many acres of your rural land did you rent out in 2013? _____ ACRES

A5. Did you rent in any rural land from others in 2013?

Yes No \implies *If NO, please skip to question A6 below.*

IF YOU ANSWERED YES:

a. How many acres of rural land did you rent in from others in 2013? _____ ACRES

A6. Did you farm any of the rural land you owned in 2013? (*Note: Do not include land you rented out to others*)

Yes No

A7. Have you ever grown corn on your land or rented it out for corn production? Yes No

A8. Have you ever had timber harvested from the rural land you own?

Yes No \implies *If NO, please skip to question A9 below.*

IF YOU ANSWERED YES:

a. What was the year of the last timber harvest? _____

A9. How would you describe the rural land you owned in 2013?

<u>Description</u>	<u>Acres of Rural Land</u>
Agricultural Cropland	
Corn	_____ ACRES
Soybeans	_____ ACRES
Wheat	_____ ACRES
Other row crops or vegetables (small grains, beans, melons, etc)	_____ ACRES
Hay or alfalfa (in rotation with other crops)	_____ ACRES
Fruit trees or berries	_____ ACRES
Fallow or idled cropland (including set-aside, easements, etc)	_____ ACRES
Other (please explain): _____	_____ ACRES
Farmable Non-Crop Land	
Hay or alfalfa (continuous; not in rotation with other crops)	_____ ACRES
Livestock pasture	_____ ACRES
Open grasslands (mixed grassland, native prairie, etc)	_____ ACRES
Shrub or Scrub (low growth bushes or trees, abandoned cropland, etc)	_____ ACRES
Other farmable non-crop land (land that could be farmed if cleared)	_____ ACRES
Forest and Woodland	
Mixed natural forest (e.g., pine, oak, beech, maple)	_____ ACRES
Single species tree plantations (e.g., pine, poplar, willow)	_____ ACRES
Other (please explain): _____	_____ ACRES
Other	
Any other rural land (e.g., wetlands, lawn and garden)	_____ ACRES
Other (please explain): _____	_____ ACRES

A10. Was any of your land enrolled in a public land conservation program in 2013? (*check all that apply*)

- | | |
|-------------------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Conservation Reserve Program (CRP) | <input type="checkbox"/> Managed Forest Law (MFL) |
| <input type="checkbox"/> Conservation Stewardship Program (CSP) | <input type="checkbox"/> Commercial Forest Program (CF) |
| <input type="checkbox"/> Environmental Quality Incentive Program (EQIP) | <input type="checkbox"/> Qualified Forest Program (QF) |
| <input type="checkbox"/> Other (please explain): _____ | |

A11. Was livestock raised on your rural land in 2013?

- Yes No \implies *If NO, please skip to question A12 below.*

IF YOU ANSWERED YES:

- a. What type of livestock did you raise (dairy cows, beef cattle, goats, etc)? _____
- b. How many head of this type did you raise? _____ HEAD

A12. How did you or other family members use the rural land that you owned in 2013?

Agricultural Cropland (*Check all that apply*)

- Income from land rented out to agricultural or forest product growers or the sale of these products
- Income from land rented out for recreation purposes (e.g., hunting, fishing, motorized recreation)
- Personal use for recreation (hunting, fishing, motorized recreation, hiking, solitude)
- Other (please explain): _____

Farmable Non-Crop Land (Pasture, grassland, other open space) (*Check all that apply*)

- Income from land rented out to agricultural or forest product growers or the sale of these products
- Income from land rented out for recreation purposes (e.g., hunting, fishing, motorized recreation)
- Personal use for recreation (hunting, fishing, motorized recreation, hiking, solitude)
- Other (please explain): _____

Forested Land (*Check all that apply*)

- Income from land rented out to agricultural or forest product growers or the sale of these products
- Income from land rented out for recreation purposes (e.g., hunting, fishing, motorized recreation)
- Personal use for recreation (hunting, fishing, motorized recreation, hiking, solitude)
- Other (please explain): _____

A13. In 2013, was any of your rural land in a conservation easement? No Yes

A14. In 2013, was any of your rural land located within a forest reserve such that timber production was restricted due to legislation or other administrative regulation?

No Yes

A15. Did you have a written forest management plan in 2013? No Yes

A16. Was any of your forested land used to graze livestock in 2013? No Yes

A17. If applicable, what is the approximate age of your largest tract of mixed forest?

Less than 5 years (young) 6-10 years (medium) More than 10 years (older)

A18. If applicable, what is the approximate age of your largest tract of single species tree plantation?

Less than 5 years (young) 6-10 years (medium) More than 10 years (older)

A19. Please check the box that best represents your agreement with each of the following statements about your rural land.

	Yes	No	Uncertain
I would rent out land for agricultural production if offered a satisfactory economic return.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would rent out land for the establishment of a tree plantation if offered a satisfactory economic return.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My family or friends would dislike it if I rented out land to grow crops or harvest timber.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would be willing to sell my land if were to be used for growing crops or timber harvesting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would be willing to sell my land if it were to be used for recreation (e.g., hunting, fishing).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would be willing to sell my land if it were to be used for development (e.g., built structures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would never sell the rural land that I own.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I plan to sell most of my land within the next 10 years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I plan to pass most of my land onto an heir or other family member within the next 10 years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I plan to subdivide part or all of my land within the next 10 years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I plan to reforest part or all of my land within the next 10 years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I plan to convert most of my land to another use within the next 10 years.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Within the <u>past</u> 10 years, I converted land from cropland into grassland or forest.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Within the <u>past</u> 10 years, I converted land from grassland into forest.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION B: BIOENERGY

BIOENERGY is energy that comes from a biological source such as crops, grasses, or trees. These materials are often called bioenergy feedstocks. They can be burned to generate heat or electricity or 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 and materials.

B1. Prior to this survey, had you heard of bioenergy? (*check one*)

No Yes

B2. Prior to this survey, did you know that ethanol could be produced from other plant-based materials such as grasses or trees in addition to corn grain? (*check one*)

No Yes

B3. Prior to receiving this survey, were you aware that the following materials could be used for bioenergy feedstock? (*check one for each option*)

a. Corn residues (stalks, cobs, leaves) No Yes

b. Switchgrass No Yes

c. Hybrid poplar trees No Yes

d. Forest slash (tree tops, branches) No Yes

B4. Prior to receiving this survey, have you seen any of the following materials in person? (*check one for each option*)

a. A pile or bale of corn residues No Yes

b. A field of switchgrass No Yes

c. A row of hybrid poplar trees No Yes

d. A pile of forest slash No Yes

SECTION C: BIOENERGY FEEDSTOCKS

In the following pages, we ask about your willingness to rent out land for the production and harvesting of different bioenergy feedstocks. Please start by reading the descriptions below and consider what it might be like to rent out different land types (cropland, farmable non-cropland, forest land, etc.) for each feedstock. There are many types of feedstocks but we only ask about four of them. They are:

- (1) **CORN.** An annual crop that is typically grown for grain. Most grain is used as animal feed, food or converted into ethanol. The crop residues (stalk, leaf, husk, cob, etc.) are often left in the field following grain harvest but could also be collected and used as bioenergy feedstock.
- (2) **SWITCHGRASS.** A native, warm-season perennial grass. At present, switchgrass is not widely cultivated. It is occasionally planted for conservation purposes (riparian buffers, wildlife cover, etc.) but most often appears as one component in mixed-species grasslands. For production as a bioenergy feedstock it would be grown in monoculture as a single-species plantation.
- (3) **HYBRID POPLAR.** Fast-growing trees that are closely related to cottonwoods and aspens. Production takes the form of a dedicated, single-species tree plantation. The stand is managed in a way that makes them more like an agricultural crop than a forest.
- (4) **WOODY BIOMASS.** Forest residues that are generated from management activities such as timber harvesting or stand improvement practices (forest thinning, junk wood removal, habitat restoration). These residues include low-value forest products such as slash (downed tree tops, branches) or small diameter, non-merchantable trees. This biomass can be chipped and sold as bioenergy feedstock.

Each bioenergy feedstock can be grown on cropland, farmable non-crop land (pasture, grassland, shrub land) or forest land. The exception is woody biomass which can only be harvested from forested land.

Questions start on the next page: While these scenarios are hypothetical, please respond as if you are faced with an actual decision. You may respond ‘yes’ to as many scenarios as you want, or none at all.

CORN

Planted:	Every spring
Harvested:	Every fall
Fertilized:	Yearly
Growth height:	6–10 feet
Number of visits by renter:	5–7 per year
End use of harvested materials:	Corn for grain & residues for bioenergy feedstock
Soil erosion:	<u>High</u> compared to other bioenergy crops
Greenhouse gas emissions:	<u>High</u> compared to other bioenergy crops
Nutrient and chemical runoff:	<u>High</u> compared to other bioenergy crops
Biodiversity:	<u>Low</u> compared to other bioenergy crops
Rental rate paid to you:	See below



Instructions: When responding, please consider each scenario separately. In other words, when you respond to the offer for cropland, imagine that the options for non-crop land or forest land do not exist.

C1. If somebody offered to rent your cropland to grow corn for \$15 an acre per year, 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 cropland.

I would rent out cropland to grow corn if the rent were higher.

I would never rent out cropland to grow corn.

C2. If somebody offered to rent your farmable non-crop land (pasture, grassland, shrub land, etc) to grow corn for \$15 an acre per year, 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 farmable non-crop land.

I would rent out farmable non-crop land to grow corn if the rent were higher.

I would never rent out farmable non-crop land to grow corn.

C3. If somebody offered to rent your forested land to grow corn for \$15 an acre per year, 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 forested land.

I would rent out forested land to grow corn if the rent were higher.

I would never rent out forested land to grow corn.

SWITCHGRASS

Planted:	Spring of the first year
Harvested:	Every fall starting in second year
Fertilized:	Yearly
Growth height:	4–6 feet
Number of visits by renter:	2–3 per year
End use of harvested materials:	Bioenergy
Soil erosion:	<u>Low</u> compared to other bioenergy crops
Greenhouse gas emissions:	<u>Average</u> compared to other bioenergy crops
Nutrient and chemical runoff:	<u>Low</u> compared to other bioenergy crops
Biodiversity:	<u>High</u> compared to other bioenergy crops
Rental rate paid to you :	See below



Instructions: When responding, please consider each scenario separately. In other words, when you respond to the offer for cropland, imagine that the options for non-crop land or forest land do not exist.

C4. If somebody offered to rent your cropland to grow switchgrass for \$15 an acre per year, 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 cropland.

I would rent out cropland to grow switchgrass if the rent were higher.

I would never rent out cropland to grow switchgrass.

C5. If somebody offered to rent your farmable non-crop land (pasture, grassland, shrub land, etc) to grow switchgrass for \$15 an acre per year, 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 farmable non-crop land.

I would rent out farmable non-crop land to grow switchgrass if the rent were higher.

I would never rent out farmable non-crop land to grow switchgrass.

C6. If somebody offered to rent your forested land to grow switchgrass for \$15 an acre per year, 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 forested land.

I would rent out forested land to grow switchgrass if the rent were higher.

I would never rent out forested land to grow switchgrass.

HYBRID POPLAR TREES

Planted:	Spring of the first year
Harvested:	5–10 years after planting
Fertilized:	Every 2–4 years
Growth height:	20–30 feet
Number of visits by renter:	1–2 per year
End use of harvested materials:	Bioenergy
Soil erosion:	<u>Low</u> compared to other bioenergy crops
Greenhouse gas emissions:	<u>Low</u> compared to other bioenergy crops
Nutrient and chemical runoff:	<u>Average</u> compared to other bioenergy crops
Biodiversity:	<u>Average</u> compared to other bioenergy crops
Rental rate paid to you :	See below



Instructions: When responding, please consider each scenario separately. In other words, when you respond to the offer for cropland, imagine that the options for non-crop land or forest land do not exist.

C7. If somebody offered to rent your cropland to grow hybrid poplar for \$15 an acre per year, 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 cropland.

I would rent out cropland to grow hybrid poplar if the rent were higher.

I would never rent out cropland to grow hybrid poplar.

C8. If somebody offered to rent your farmable non-crop land (pasture, grassland, shrub land, etc) to grow hybrid poplar for \$15 an acre per year, 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 farmable non-crop land.

I would rent out farmable non-crop land to grow hybrid poplar if rent were higher.

I would never rent out farmable non-crop land to grow hybrid poplar.

C9. If somebody offered to rent your forested land to grow hybrid poplar for \$15 an acre per year, 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 forested land.

I would rent out forested land to grow hybrid poplar if the rent were higher.

I would never rent out forested land to grow hybrid poplar.

WOODY BIOMASS

Harvested:	Once every 15–20 years; at the same time as another forest activity
Number of visits by contractor:	8 – 10 visits in year of harvest
End use of harvested materials:	Bioenergy
Soil erosion:	<u>Very low</u> compared to other bioenergy crops
Greenhouse gas emissions:	<u>Very low</u> compared to other bioenergy crops
Nutrient and chemical runoff:	<u>None</u>
Biodiversity:	<u>High</u> compared to other bioenergy crops
Payment made to you :	See below



Instructions: Imagine you are planning a timber harvest or other stand improvement (forest thinning, junk wood removal, habitat restoration) on your forested land. A forestry company offers to pay you for the removal of woody biomass as part of the contract agreement. This would be a one-time payment.

Note: If you do not own any forested acres you may skip to Question D1 at the top of the next page.

C10. If the company offered you a contract for \$15 an acre to remove woody biomass from your forested land at the time of your next timber harvest, would you agree to this offer?

- Yes, I would be willing to sell my woody biomass
- No (*Choose one explanation*)
 - I do not have plans to harvest timber from my forested land.
 - I would sell woody biomass from a timber harvest if the payment were higher.
 - I would never sell woody biomass from a timber harvest.

C11. If the company offered you a contract for \$15 an acre to remove woody biomass from your forested land at the time of your next stand improvement activity (such as forest thinning, junk wood removal, or habitat restoration), would you agree to this offer?

- Yes, I would be willing to sell my woody biomass
- No (*Choose one explanation*)
 - I do not have plans for a stand improvement activity on my forested land.
 - I would sell woody biomass from stand improvement if the payment were higher.
 - I would never sell the woody biomass from a stand improvement activity.

SECTION D: BIOENERGY KNOWLEDGE AND OPINIONS

D1. Please check the box that best represents your agreement with the following statements related to bioenergy and the environment. There are no right or wrong answers.

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Developing renewable energy (e.g., wind, solar, bioenergy, hydro-electrical) is important to our nation's future.	<input type="checkbox"/>				
Bioenergy should be prioritized over other forms of renewable energy such as wind or solar power.	<input type="checkbox"/>				
Burning bioenergy feedstocks to generate electricity instead of burning coal is worth the extra cost.	<input type="checkbox"/>				
Substituting bioenergy feedstocks for fossil fuels will help mitigate climate change.	<input type="checkbox"/>				
Growing bioenergy feedstocks on cropland will increase competition with food needs.	<input type="checkbox"/>				
Increased bioenergy feedstock production will result in significant forest loss.	<input type="checkbox"/>				
Government should allow regular harvesting of public forest land and CRP land for bioenergy purposes.	<input type="checkbox"/>				
Biodiversity should be maintained when land use is changed.	<input type="checkbox"/>				
Liquid biofuels are a promising alternative energy technology that will be successful in the future.	<input type="checkbox"/>				
The use of fossil fuels can be harmful to human health and the environment.	<input type="checkbox"/>				
The world will run out of fossil fuels (e.g., oil, natural gas) in the next 50 to 120 years.	<input type="checkbox"/>				

D2. Please check the box that best represents your agreement with the following statements related to potential concerns with renting land for bioenergy feedstocks. There are no right or wrong answers.

When I think about renting out my land for bioenergy feedstocks I am concerned about:	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
The potential smell	<input type="checkbox"/>				
Noise from harvesting, planting, or other activities	<input type="checkbox"/>				
Potential legal costs of contracting	<input type="checkbox"/>				
The length of the contract	<input type="checkbox"/>				
The possible need for insurance	<input type="checkbox"/>				
Having other people on my land	<input type="checkbox"/>				
The land changing in a way that I can no longer use it as I want	<input type="checkbox"/>				
How profitable it will be	<input type="checkbox"/>				
A lack of information about the potential feedstocks	<input type="checkbox"/>				
The use of pesticide and fertilizer on my land	<input type="checkbox"/>				
The loss of biodiversity on my land (e.g., insects, birds, mammals, plants, etc)	<input type="checkbox"/>				
The risk of lower soil and water quality	<input type="checkbox"/>				

SECTION E: BACKGROUND INFORMATION

This last section asks for background information to help identify patterns among different kinds of landowners. Your answers here are important and will be 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
- E5. What was your total household income in 2013?
- | | |
|-----------------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> Less than \$25,000 | <input type="checkbox"/> \$100,000 to \$149,999 |
| <input type="checkbox"/> \$25,000 to \$49,999 | <input type="checkbox"/> \$150,000 to \$199,999 |
| <input type="checkbox"/> \$50,000 to \$99,999 | <input type="checkbox"/> \$200,000 and above |
- E6. What is the highest level of education you have completed?
- | | |
|------------------------------------------------------------------|------------------------------------------------|
| <input type="checkbox"/> Less than 12 years | <input type="checkbox"/> 4-year college degree |
| <input type="checkbox"/> High school or GED degree | <input type="checkbox"/> Some graduate work |
| <input type="checkbox"/> Some college (including AA, AS degrees) | <input type="checkbox"/> Graduate degree |
- E7. Is any part of your rural land restricted by zoning in any way? (*Check all that apply*)
- | | |
|-----------------------------------------------------|---------------------------------------------------|
| <input type="checkbox"/> Zoned for agricultural use | <input type="checkbox"/> Zoned for forest use |
| <input type="checkbox"/> Zoned for residential use | <input type="checkbox"/> Not restricted by zoning |
| <input type="checkbox"/> Zoned for industrial use | <input type="checkbox"/> I am uncertain |
- E8. How long have you owned your rural land? _____ YEARS
- E9. Was any of your rural land controlled by another family member before you became owner?
- Yes No
- E10. Do you have a residence on your rural land? Yes No \implies *If NO, skip to E11*
- IF YOU ANSWERED YES:**
- a. How many weeks per year do you spend at this residence? _____ WEEKS PER YEAR
- E11. What is the ZIP code of your permanent residence? _____
- E12. If you rented out any of your rural land in the last 2 years, what was the most common rental rate?
- Cropland: \$ _____ per acre Pasture: \$ _____ per acre Forest: \$ _____ per acre

Do you have any comments? (Optional)

THANK YOU

If you have questions about the research or any part of the questionnaire, you may contact:

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