

*HumanDimensions*  
Research Program



Illinois Natural History Survey  
Prairie Research Institute  
University of Illinois at  
Urbana-Champaign

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# Illinois

## Overview of Agriculture, Land Use & Conservation Practices

### Final Report 2021-2022



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## INTRODUCTION

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Debate regarding how to fortify the farm and food system in East Central Illinois has been on-going among public and private stakeholders in the region (Gunderson et al. 2017). Associated with this discussion is whether the adoption of conservation-based approaches to agriculture can provide rural communities with the tools they need to build thriving local and regional economies while meeting sustainability goals and initiatives.

Encompassing some of the world's most fertile soil, roughly 80 percent of Illinois is farmland (IDNR, 2020). As such, the state's agricultural industry is a leader in the delivery of vast quantities of low-cost commodities into the global food system. However, with an average of 77,000 farmland acres in Illinois lost to development or adapted for other uses each year, dependence on marginal land for production is climbing (IDA, 2022). Climate variability, loss of crop diversity and native habitat, consolidation of farmland ownership, as well as declines in the projected profitability of corn and soybean production, have furthered interest toward ecosystem-based solutions to agriculture and food distribution in the region (Guither et al., 1994).

According to the United States Department of Agriculture (2019), 12.8 million consumers across Illinois spend \$48 billion a year on fresh, prepared, and processed food from supermarkets, restaurants, and other sources. Despite increasing demand for local produce, few of these food dollars are spent on products grown, processed, and distributed in-state (CMAP, 2022). The decline of rural towns and communities parallels the decline of the farmers' share of the food consumer dollar from over 40 percent to less than 20 percent (USDA, 2020). With 28 million acres of productive farmland, communities in Eastern Illinois have the capacity to meet the demand from global, national, and local markets through investing in innovative and collaborative approaches. Aligning farmer interests with sustainability goals, as well as providing resources for integrating these approaches, are critical for the long-term success of Illinois' food and agriculture system.

## **PURPOSE OF STUDY**

The purpose of this study is to develop a deeper understanding of the current reality facing farmers in East Central Illinois and statewide. Informed by local partners and stakeholders, the focus of this study is to provide an assessment of the region's food and farm system in order to enhance the vision, focus and efficacy of the Lumpkin Family Foundation's primary grant program: Land, Health, Community. Specifically, we investigated:

- Regional trends and farming practices in the agriculture industry
- Preferences for management actions regarding agriculture-related operations and support
- Attitudes toward the region's farm and food supply system

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## **SURVEY OF LANDOWNERS & AGRICULTURAL PRODUCERS**

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### **1. OBJECTIVES**

To survey landowners and agricultural producers in the state and in East Central Illinois to understand attitudes toward the region's farm and food supply system, preferences for management actions regarding environmental/agricultural related support, and perceptions toward farming trends or practices.

### **2. METHODS**

A random sample of 2,973 residents (1,500 rural landowners and 1,473 agricultural producers) in both East Central Illinois and across the remainder of the state was selected to receive questionnaires regarding land use and agriculture in Illinois during the 2019-20 harvest season. The sample was stratified by the number of acres owned or operated to ensure a representative sample of stakeholders (see Tables 2.1-2.2). Agricultural producers were defined by those engaging in the business of producing and marketing agricultural products, landowners were defined by those responsible for the payment of real estate taxes imposed on farm property in the state and region. A map of the counties within the East Central Illinois region can be found in Appendix D.

Table 2.1. Stratification of selected sample (Statewide)

	Statewide Agricultural Producers			Statewide Rural Landowners		
	PLANTED ACRES			PASTURE/RANGE/GRASS/FORESTRY		
# Acres	1-49	50-499	500+	1-49	50-499	500+
Sample Size	360	430	210	360	430	210
<b>Total</b>	<b>1,000</b>			<b>1,000</b>		

Table 2.2. Stratification of selected sample (East Central Illinois)

	ECI Agricultural Producers			ECI Rural Landowners		
	PLANTED ACRES			PASTURE/RANGE/GRASS/FORESTRY		
# Acres	1-49	50-499	500+	1-49	50-499	500+
Sample Size	180	215	105	180	215	78
<b>Total</b>	<b>500</b>			<b>493</b>		

Methods for survey questionnaire mailings and follow-up reminders followed those of Dillman (2009). We mailed recipients a self-administered, 8-page questionnaire (Appendix A), cover letter (Appendix B), and postage-paid return envelope (hereafter referred to as survey packet) on 20 February 2021. This mailing was followed with a thank you/reminder postcard (Appendix C) 11 March 2021. On 31 March 2021, a survey packet was mailed to non-respondents, and a second thank you/reminder postcard was mailed 22 April 2021. A final survey packet was mailed 21 May 2021. Data were coded, entered, and analyzed using SPSS 25.0 (SPSS Inc. 2018).

### 3. RESULTS

#### 3.1. Respondent Demographics

We sampled 2,973 Illinois resident landowners and agricultural producers and received 693 questionnaires for a 23.1% response rate. Approximately half of the survey respondents reported they were landowners (51%), whereas agricultural producers made up 49% of respondents (Figure 3.1). Approximately one-third (n=993) of the sample (n=2,993) consisted of residents in East Central Illinois, the focus population. Correspondingly, one-third of respondents (33%) reported living in counties within the East Central Illinois region and 67% reported living in counties throughout the remainder of the state (Figure 3.2).

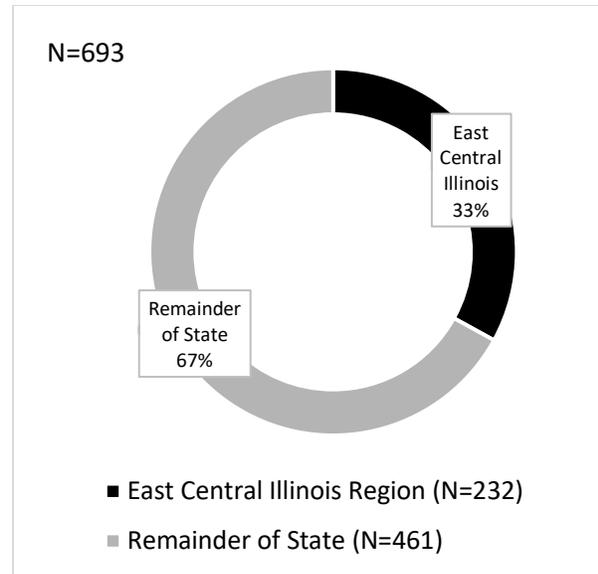
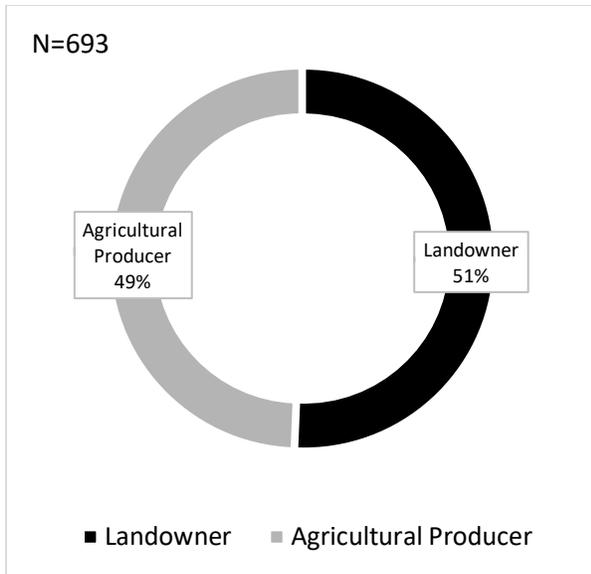


Figure 3.1. Percentage of respondents who identified as landowners and agricultural producers  
 Figure 3.2. Percentage of respondents living in the East Central Illinois region

A large majority (88%) of respondents identified as male (Figure 3.3), and 96% of respondents identified as White or Caucasian (Figure 3.4). Of the 4% who did not identify as White, 2% identified as Native American and 1% identified as African American or Hispanic/Latino, respectively.

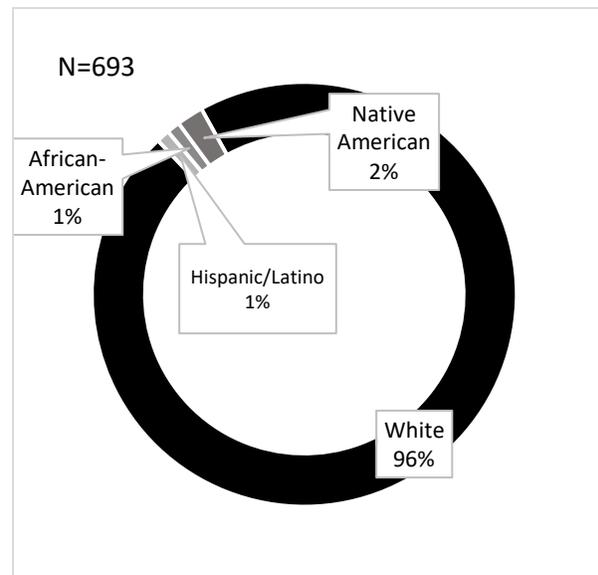
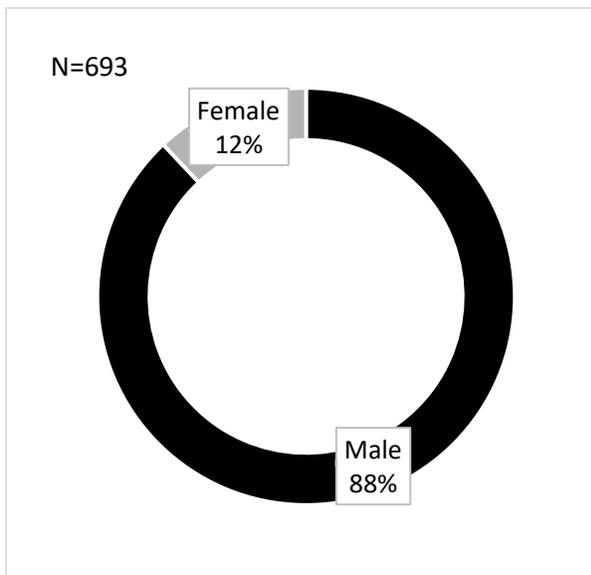


Figure 3.3. Respondent gender  
 Figure 3.4. Respondent race/ethnicity

The overall age of respondents ranged from 25-97 years old at the time of the survey. One-third of respondents (33%) ranged from 61-70 years old, whereas only 5% reported being between 25-40 years old at the time of the survey (Figure 3.5).

For the most part, landowners and agricultural producer respondents were equally distributed across the age groups (Figure 3.6). Landowners (18%) were slightly more concentrated than agricultural producers (15%) among respondents between 61-70 years old.

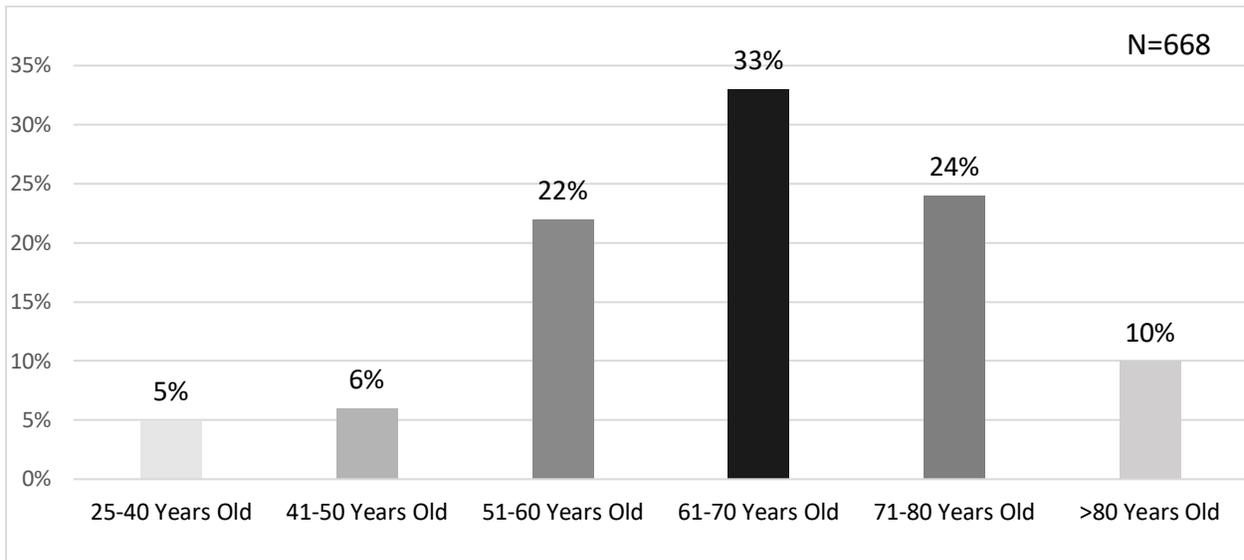


Figure 3.5. Age of respondents

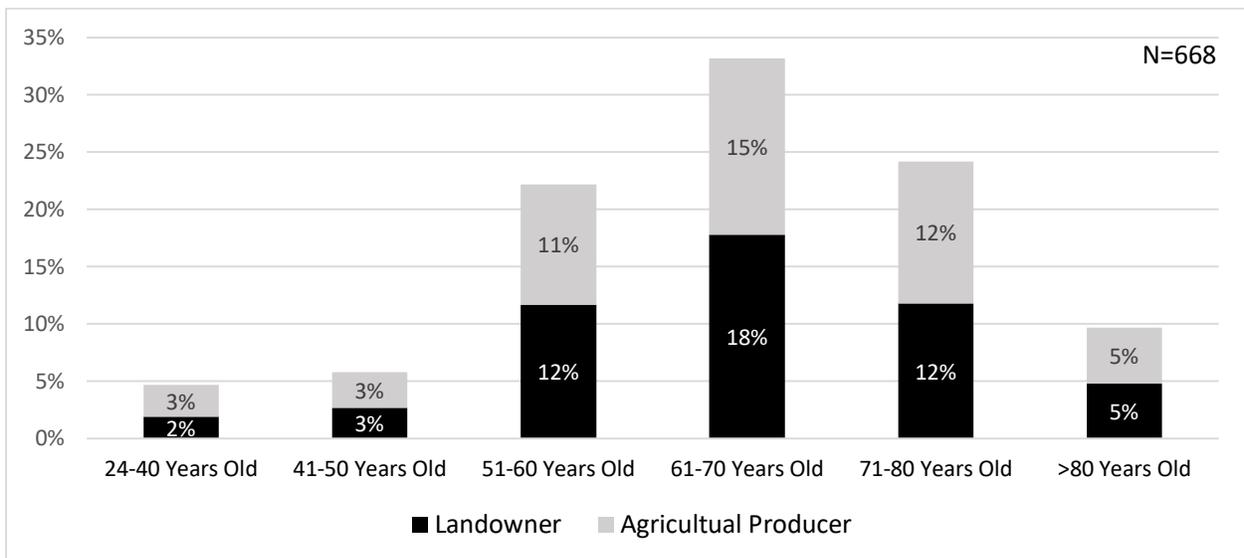


Figure 3.6. Survey type by age group

Slightly less than half of respondents (48%) reported never having taken a course in agriculture (Figure 3.7). Fewer than one-third (28%) of respondents cited having a degree in Agriculture or a related field, whereas twenty-seven percent reported having taken at least one workshop through an extension program (Figure 3.7).

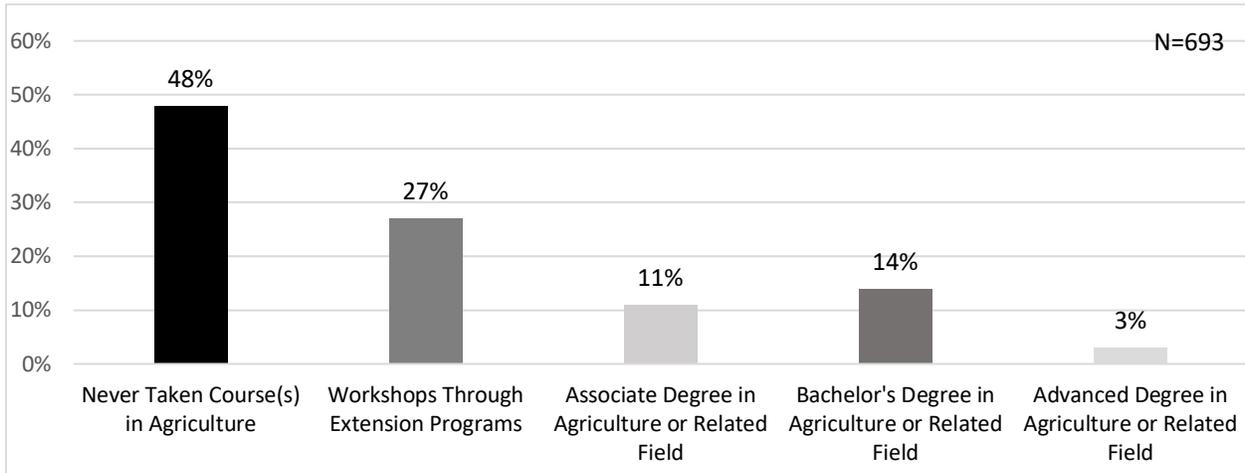


Figure 3.7. Education level of respondents

### 3.2. Land-Use and Farming Operations

During the 2019-2020 harvest season, twenty-seven percent of respondents reported either earning more than 75% of their total net income or less than 10% of their total net income from agricultural activities, respectively (Figure 3.8). Approximately 14% of respondents earned between 26-50% of their net income from agriculture-related activities.

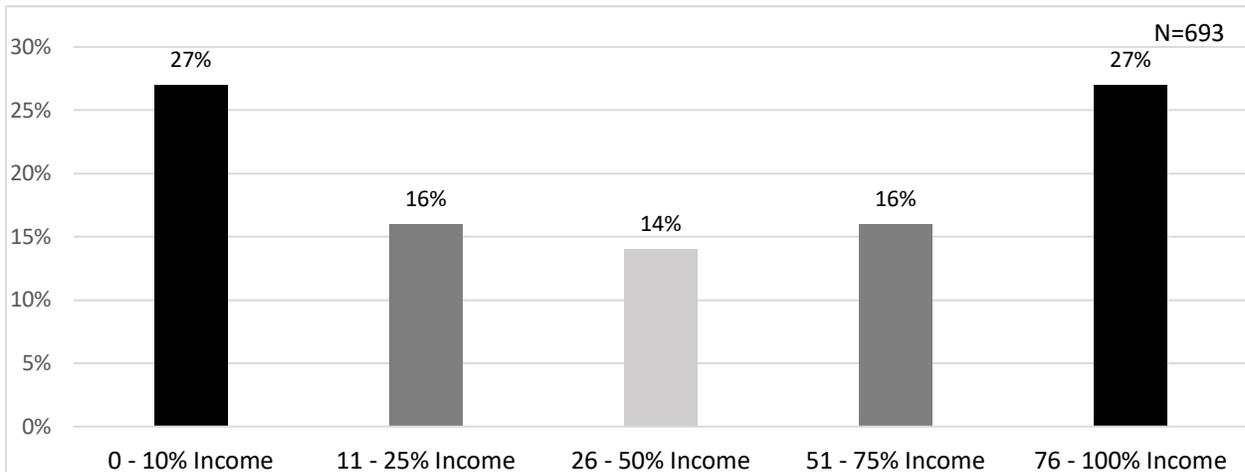


Figure 3.8. Net income from agriculture

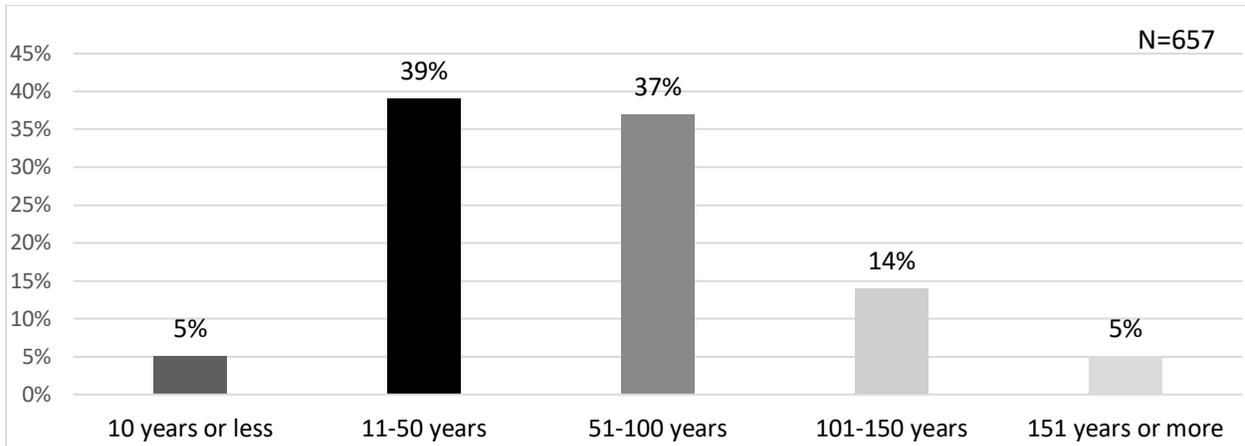


Figure 3.9. Year's property has been in the family

For thirty-nine percent of respondents, the current property has been owned or operated by family between 11-50 years (Figure 3.9). Another 37% of respondents reported having owned or operated the property between 51-100 years; 5% of respondents reported having owned their property for less than 10 years or more than 150 year, respectively.

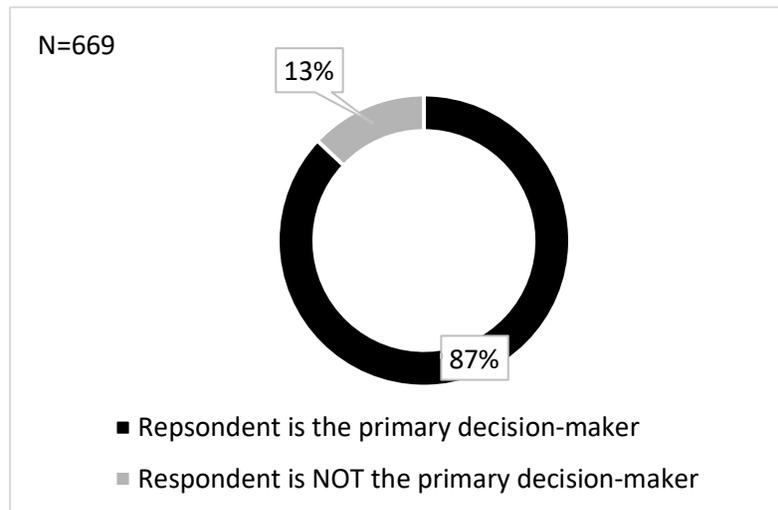


Figure 3.10. Decision-making on land operation

Eighty-seven percent of respondents reported being the primary decision maker with regard to property operations and land management (Figure 3.10). Respondents were asked to distinguish between the numbers of acres they own and the number of acres they lease (if applicable). Slightly more than a quarter (27%) of respondents reported owning between 201 and 500 acres (Figure 3.11). Respondents in this category were split evenly between landowners and

agricultural producers (Figure 3.12). Only 11% percent of respondents reported owning more than 500 acres, whereas a slightly greater proportion of landowner respondents (6%) than agricultural producer respondents (5%) reported owning more than 500 acres (Figure 3.12).

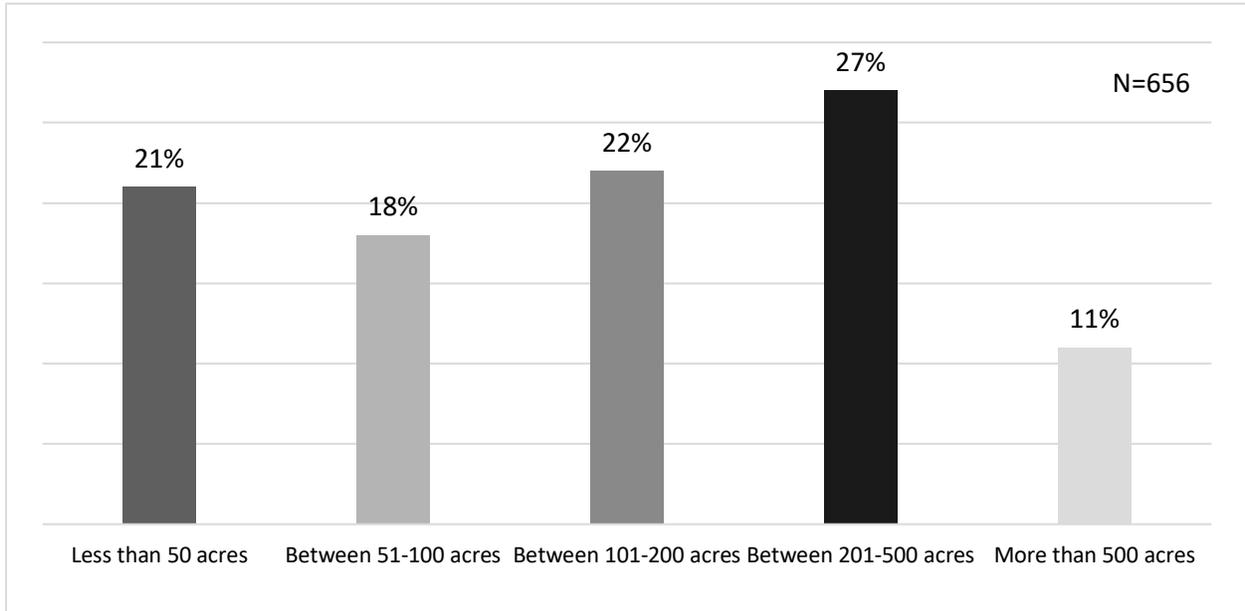


Figure 3.11. Acreage owned

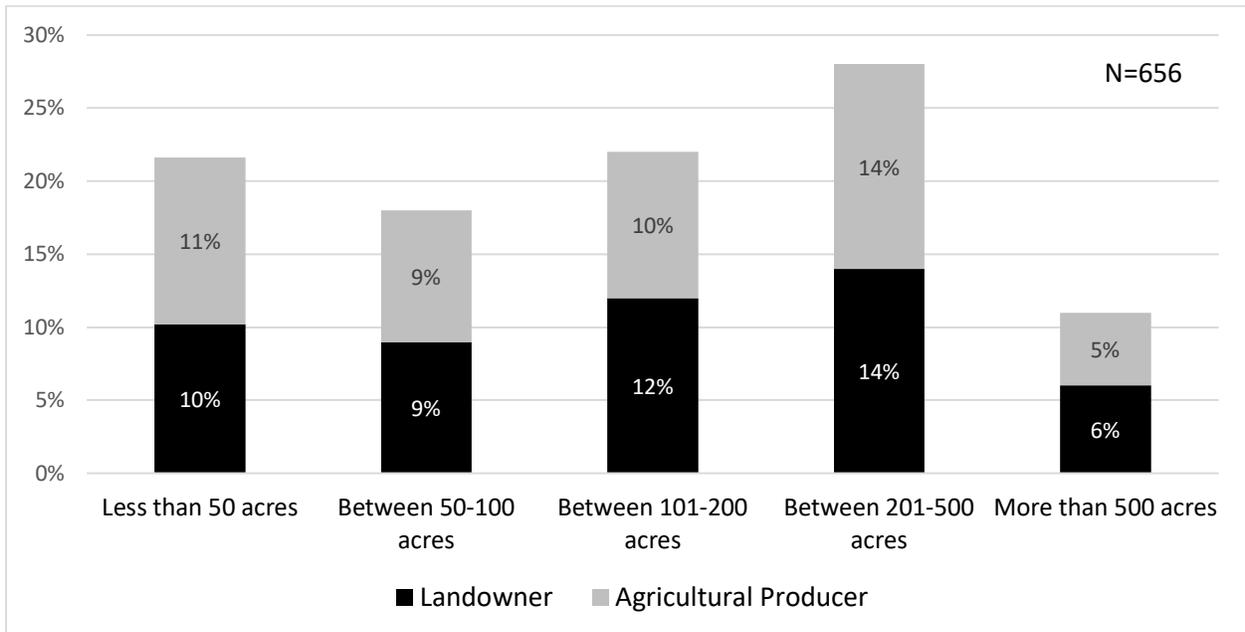


Figure 3.12. Acreage owned by respondent type

Approximately 42% of the respondents (n=306) reported leasing more than 500 acres during the 2019-2020 harvest season (Figure 3.13). Slightly more landowners (24%) than agricultural producers (18%) reported leasing more than 500 acres. Landowners contributed to over half (5%) of the total eight percent of respondents who reported leasing between 50-100 acres (Figure 3.14).

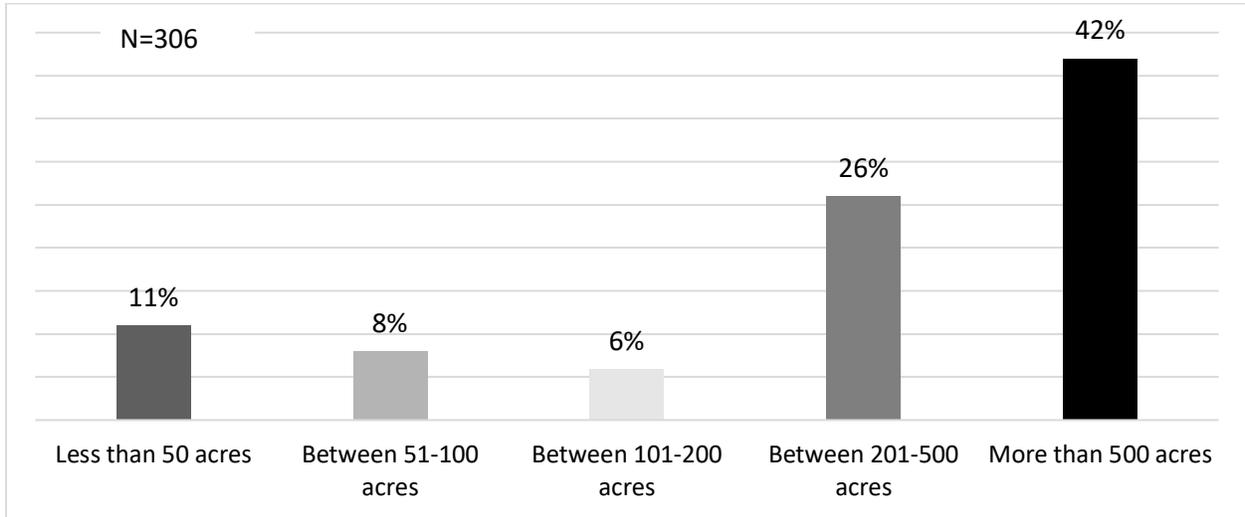


Figure 3.13. Acreage Leased

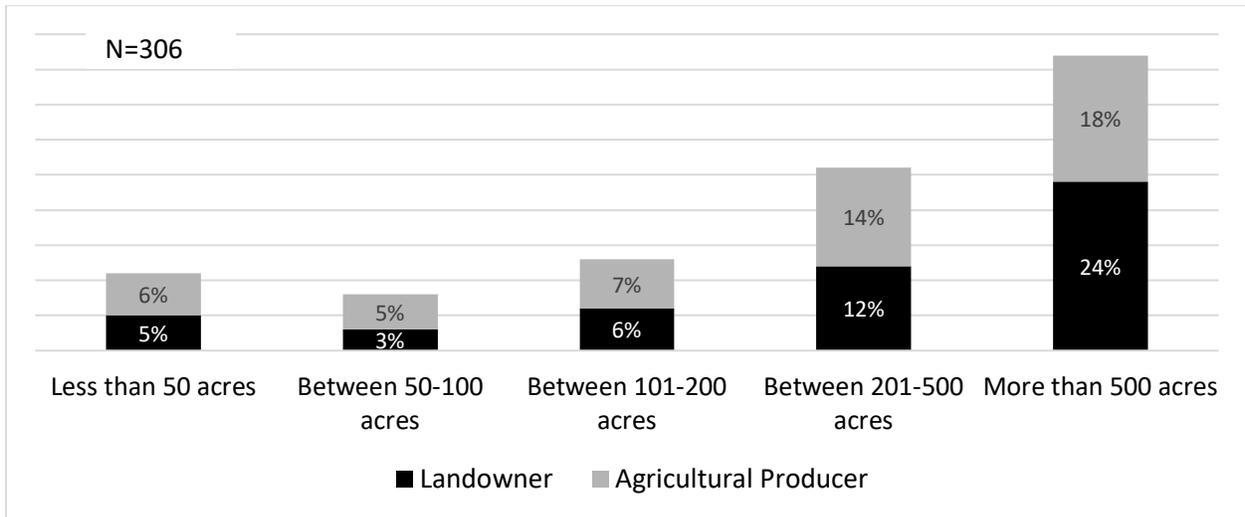


Figure 3.12. Acreage leased by respondent type

During the 2019-2020 harvest season, seventeen percent of respondents (n=414) reported owning less than 50 acres of land for the production of corn, whereas 3% of respondents

reported owning more than 500 acres for the production of corn (Figure 3.15). Approximately 13% of corn-producing respondents (n=294) leased between 201-500 acres, followed by 7% percent leasing more than 500 acres, between 101-200 acres, or between 51-100 acres for the production of corn, respectively (Figure 3.15).

Thirty-six percent of respondents (n=378) reported owning less than 50 acres of land for the production of soybeans, whereas four percent of respondents reported owning more than 500 acres for soybean production (Figure 3.16). Approximately 25% of respondents (n=283) leased between 201-500 acres, followed by twenty-one percent leasing more than 500 acres for the production of soybeans (Figure 3.16).

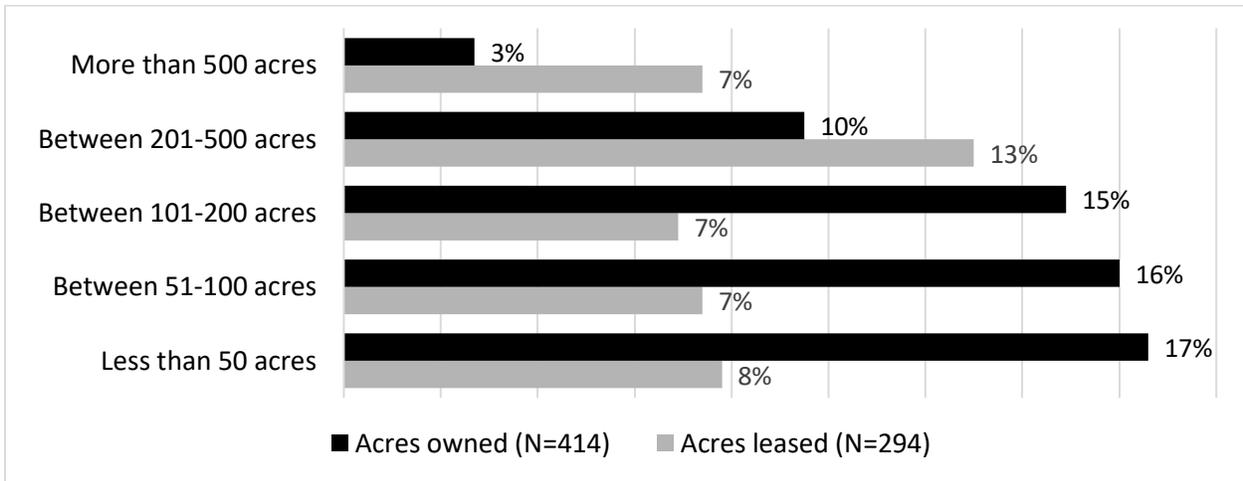


Figure 3.15. Corn - Acreage leased vs. owned

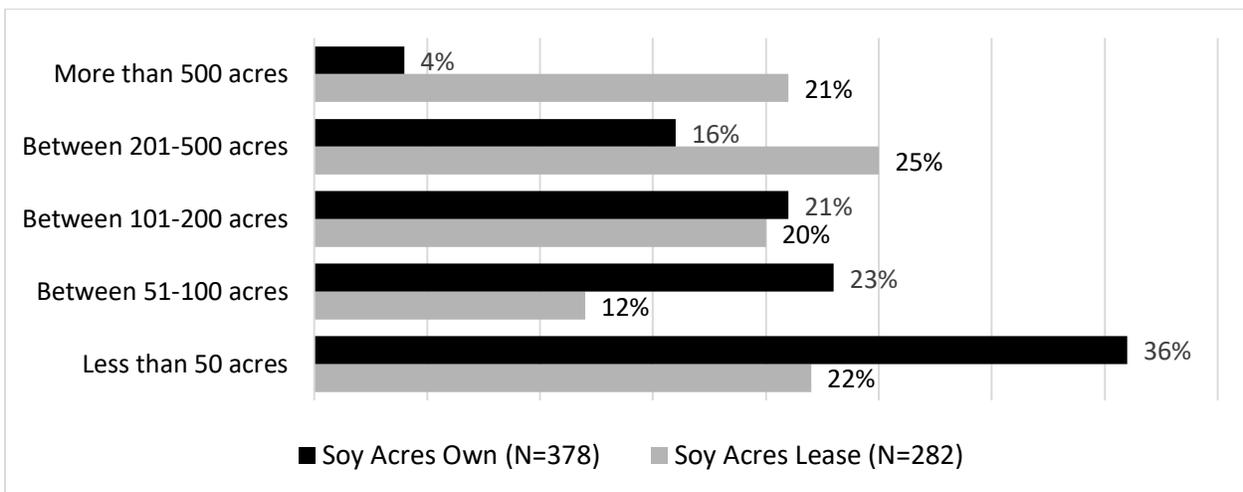


Figure 3.16. Soybean – Acreage leased vs owned

Eighty-four percent of respondents (n=127) owning land for production of hay reported owning less than 50 acres, whereas 79% percent of respondents (n=47) leasing land for the production of hay reported leasing less than 50 acres (Figure 3.17). Approximately 2% of respondents reported leasing or owning more than 500 acres of land for the production of hay, respectively.

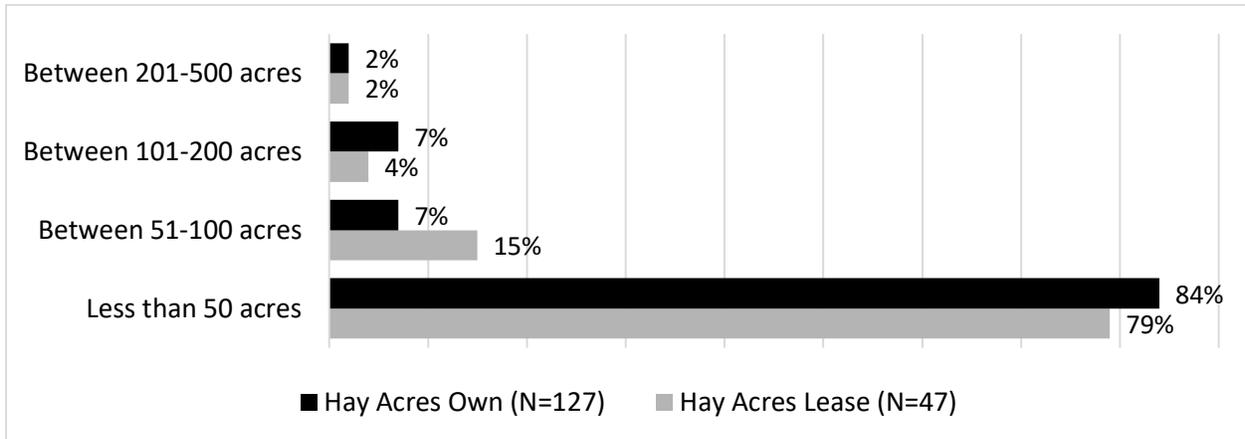


Figure 3.17. Hay – Acreage leased vs owned

Seventy-eight percent of respondents (n=60) producing grain or other crops reported owning less than 50 acres dedicated to the practice, whereas 56% percent of grain-producing respondents (N=47) reported leasing less than 50 acres. (Figure 3.18). Approximately 3% reported leasing more than 500 acres for the production of grain or other crops, no respondents reported owning more than 500 acres for the production of grain or other crops.

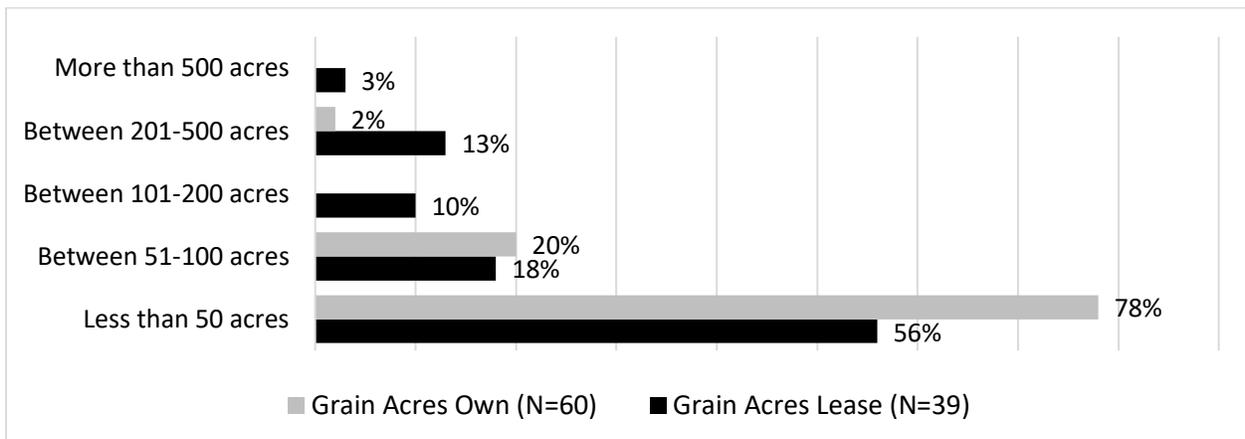


Figure 3.18. Grain/Other – Acreage leased vs owned

Seventy-two percent of respondents (n=109) with cattle operations reported owning less than 50 acres of land for the practice; 55% percent of respondents (n=33) in this category leased less than 50 acres (Figure 3.19). Approximately 4% of respondents reported owning more than 500 acres for the production of cattle, while 3% of respondents in this category leased between 200 and 500 acres. No respondents reported owning or leasing more than 500 acres for the production of cattle during the 2019-2020 harvest seasons.

In open-ended inquiries, respondents (n=12) reported owning less than 50 acres for the production of produce, followed by respondents (n=10) owning less than 50 acres for the production of poultry (Figure 3.20).

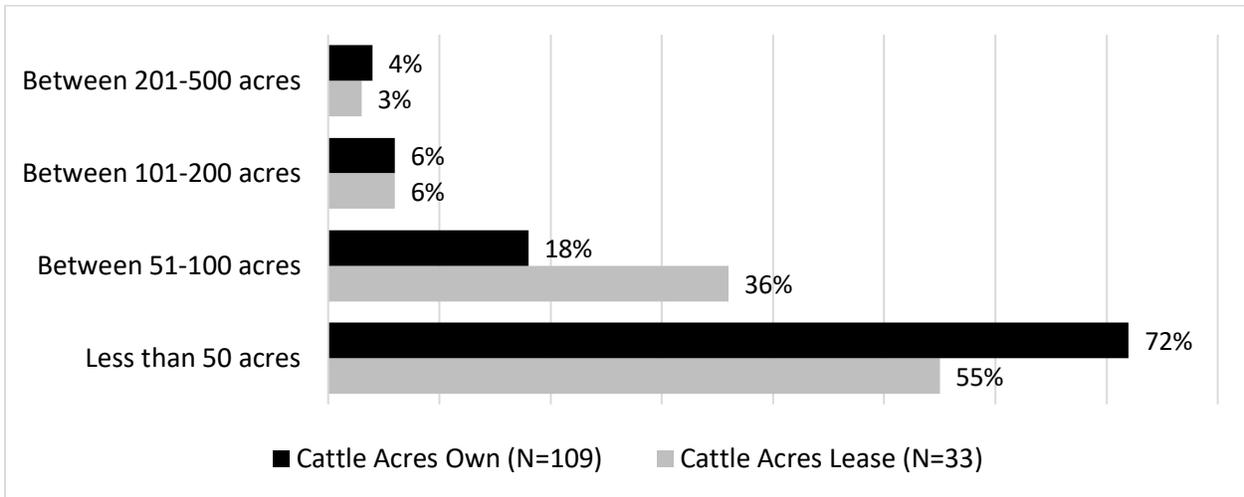


Figure 3.19. Cattle – Acres Leased vs owned

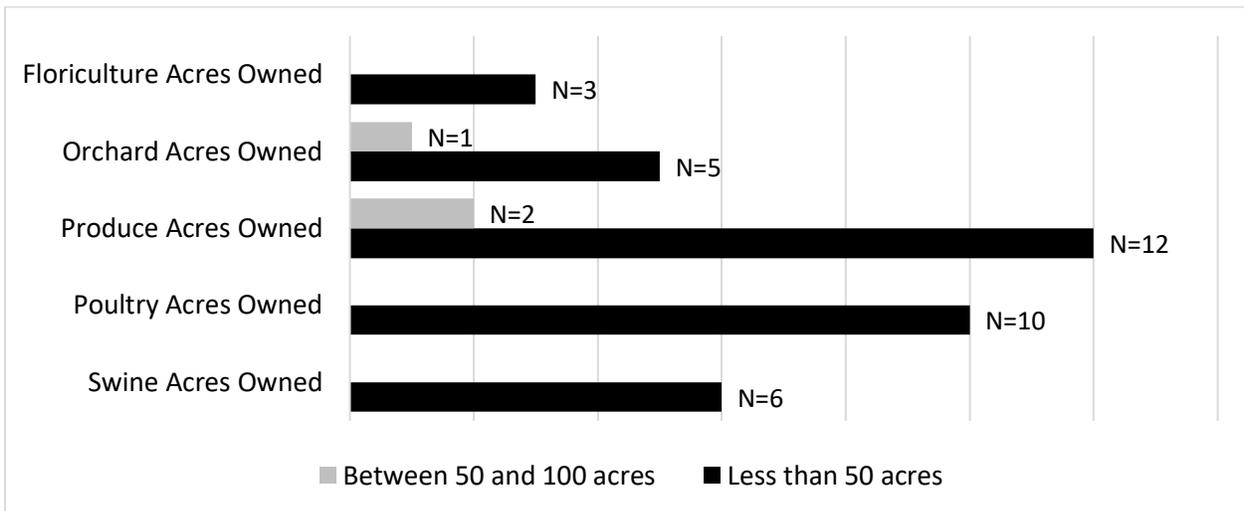


Figure 3.20. Acres Owned – Other

### 3.3. Conservation Practices

Comparative analyses between respondent demographics and responses to the questionnaire help to identify patterns in motivations and behaviors associated with the adoption of conservation practices in East Central Illinois and statewide. Similarly, recognizing challenges and opportunities related to best practices can help inform stakeholders how to better meet society's production and export needs in the present, as well as manage healthy farm practices in the future.

A large majority (98%) of respondents reported that they do not grow or process USA certified organic foods (Figure 3.21). Conversely, forty-two percent of respondents reported that they do not grow or process genetically modified organisms (Figure 3.22).

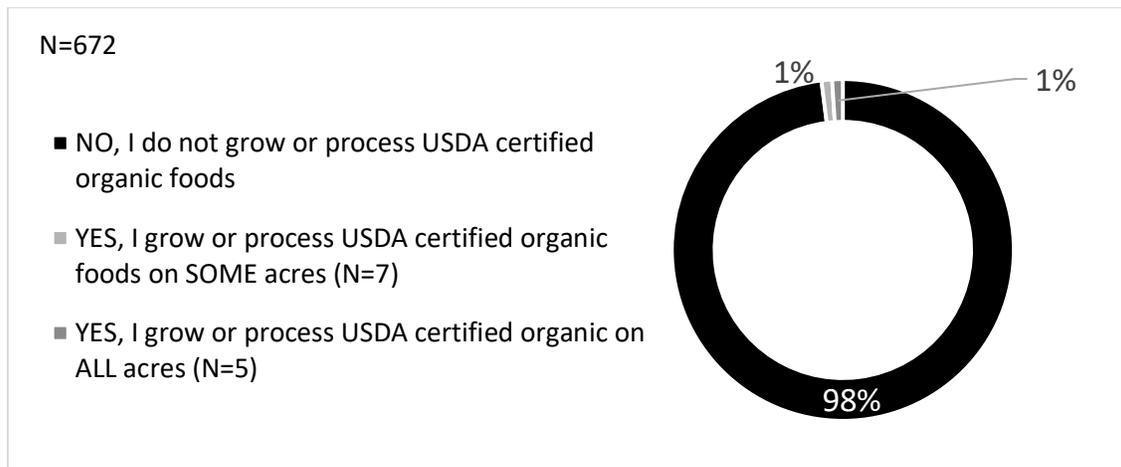


Figure 3.21. Percent growing USDA certified organic crops

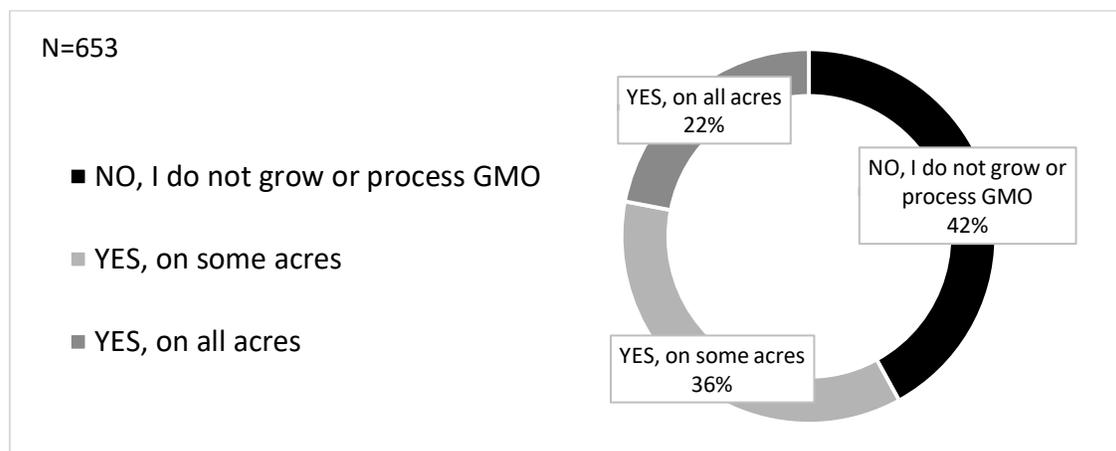


Figure 3.22. Percent growing genetically modified organisms (GMO)

Respondents were asked if precision farming practices or techniques were used during the 2019-2020 harvest season. Also known as ‘regenerative’ or ‘sustainable agriculture,’ precision farming refers to the integration of a series of strategies and tools aimed at increasing crop yield and soil properties as well as improving natural biodiversity. As such, the term ‘precision farming’ was adopted in this study in order to support the wide range of applications and uses.

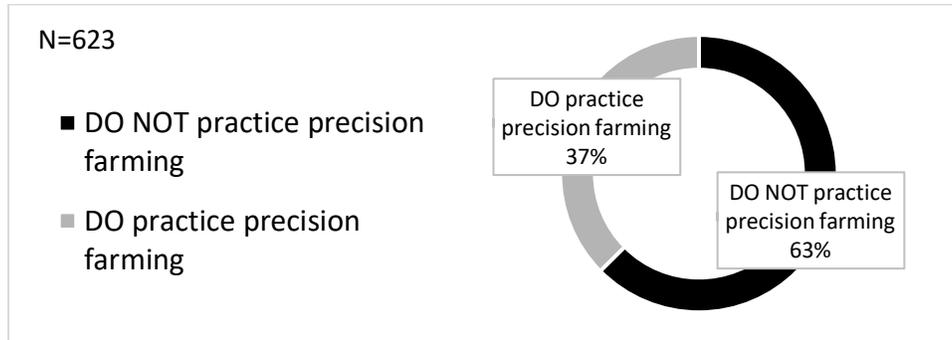


Figure 3.23. Percent Practicing Precision Farming

Almost two-thirds (63%) reported they did not practice precision farming (Figure 3.23). Of the thirty-seven percent with precision farming practices in place, 8% of respondents owned more than 500 acres (Figure 3.24). For those owning less than 50 acres, 18% did not practice precision farming, whereas 16% of those owning between 201-500 acres did not practice precision farming (Figure 3.24).

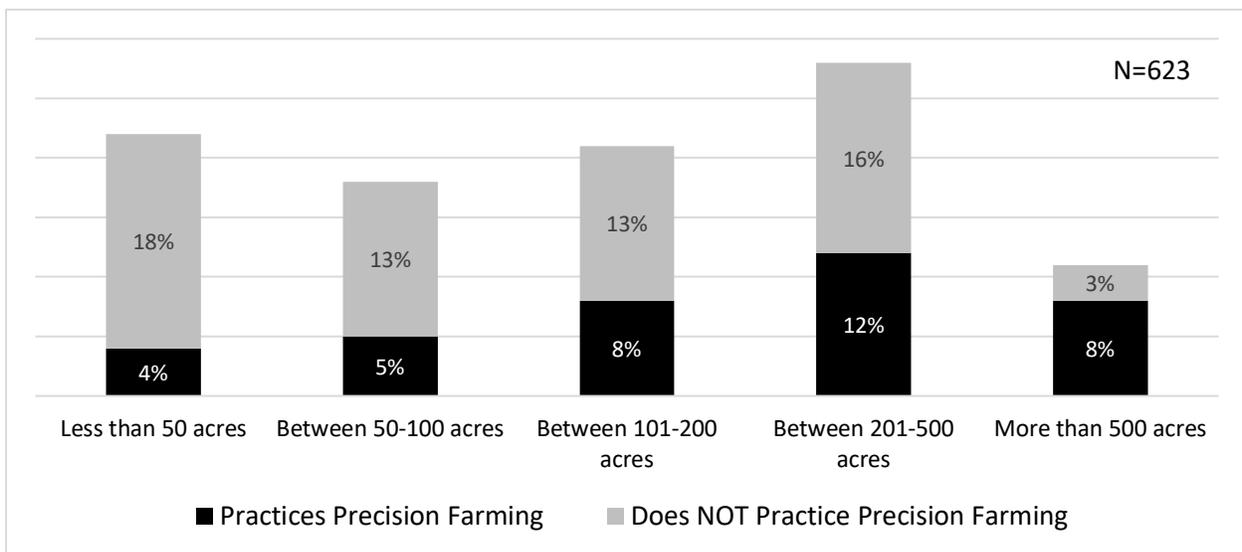


Figure 3.24. Precision farming practices by acres owned

Overall, respondents who leased land were more likely than those who owned land to implement precision farming practices (Figure 3.25). Thirty-one percent of respondents (n=623) leasing more than 500 acres reported dedication to the practice, conversely 13% of those owning more than 500 acres stated they did not practice precision farming. Of those leasing less than 50 acres (11%), two percent reported practicing precision farming (Figure 3.25).

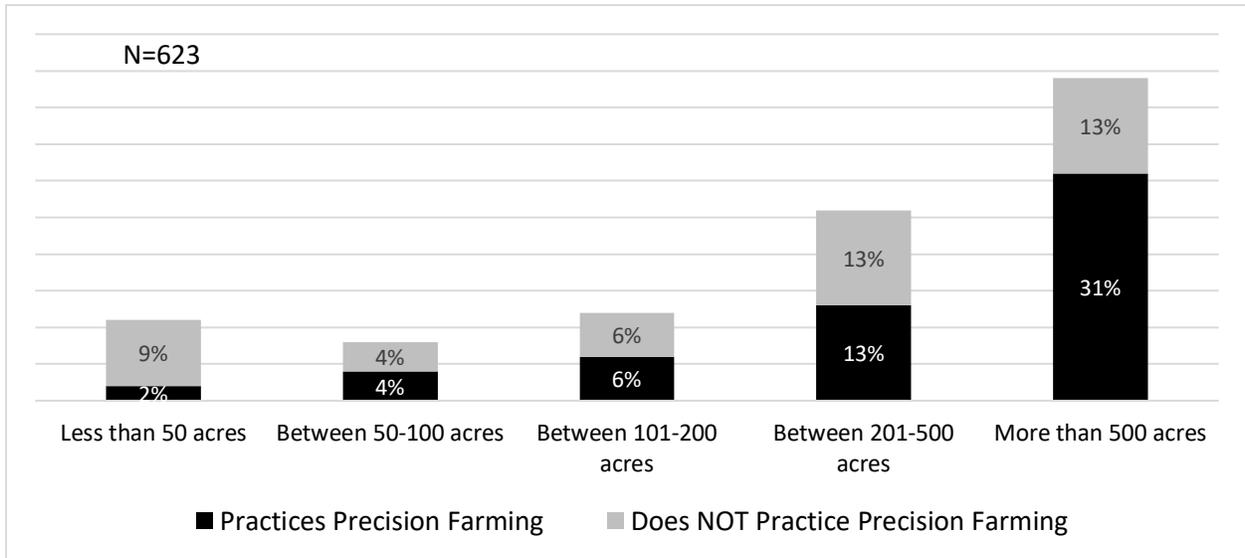


Figure 3.25. Precision farming practices by acres leased

Respondents that did not practice precision farming during the 2019-2020 harvest season were asked to identify the reason(s). Most frequently cited was investment in equipment (16%), followed by don't know enough (12%), costs too much (10%), or other (8%) (Figure 3.26).

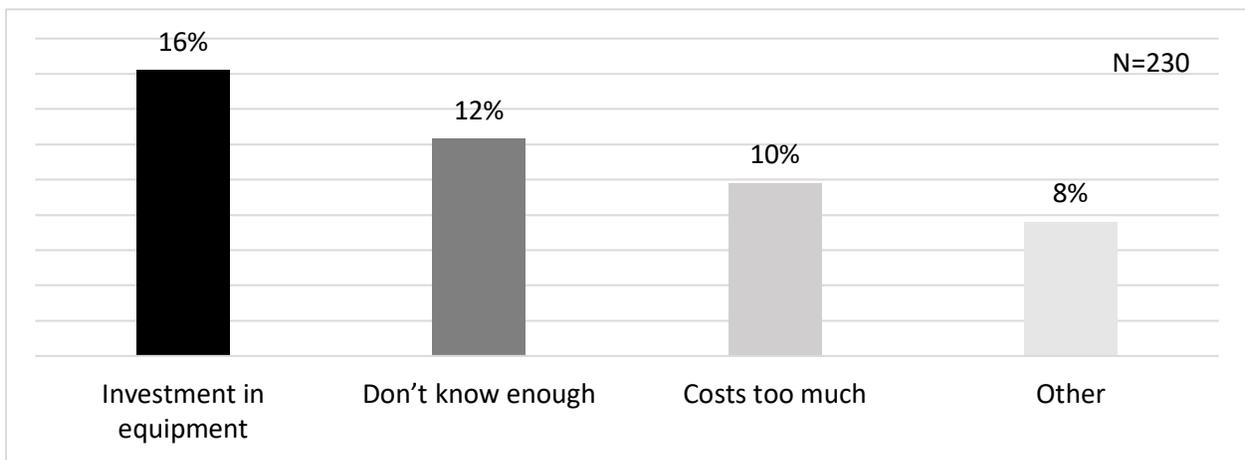


Figure 3.26. Reasons for not practicing precision farming

Cover crops are a suitable in-field management strategy used to reduce the loss of both nitrate-nitrogen and total phosphorus, though less than 6% of Illinois cropland is planted in cover crops annually (Illinois Extension, 2021). To achieve the water quality goals of the Illinois Nutrient Loss Reduction Strategy, 35% to 75% of Illinois’ cropland will need to be sheltered by cover crops, depending on the effectiveness of the conservation practices that are integrated.

Seventy-seven percent of respondents in this study did not grow cover crops during the 2019-2020 harvest season (Figure 3.27). Of the respondents (n=123) growing cover crops, 42% percent operated less than 50 acres, followed by respondents (29%) operating between 51-100 acres (Figure 3.28). Four percent of respondents growing cover crops during the 2019-2020 winter season operating more than 500 acres (Figure 3.28).

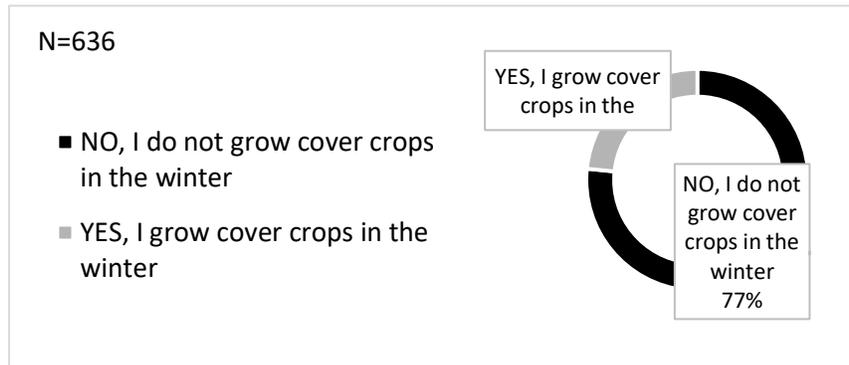


Figure 3.27. Percent growing cover crops

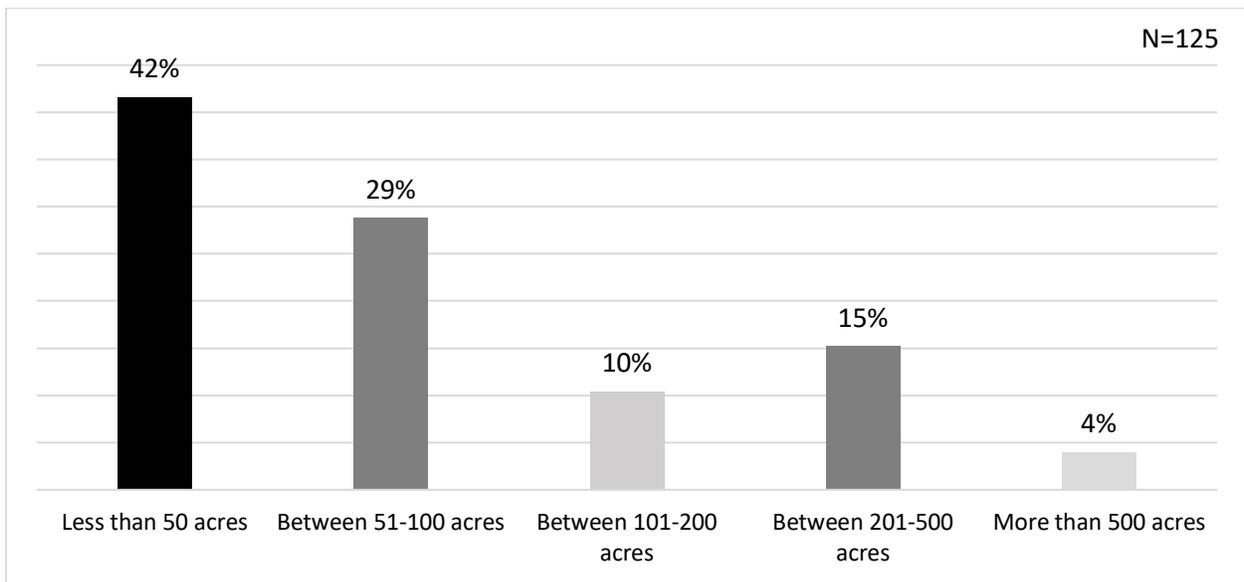


Figure 3.28. Respondents growing cover crops by number of acres operated

Those growing cover crops during the 2019-2020 season were asked to write the type(s) of cover crops grown (Figure 3.29). Rye (n=86) and wheat (n=29) were cited with the most frequency. Followed by radish (n=17), hay/grasses (n=14), clover (n=12), and oats (n=10) (Figure 3.29).

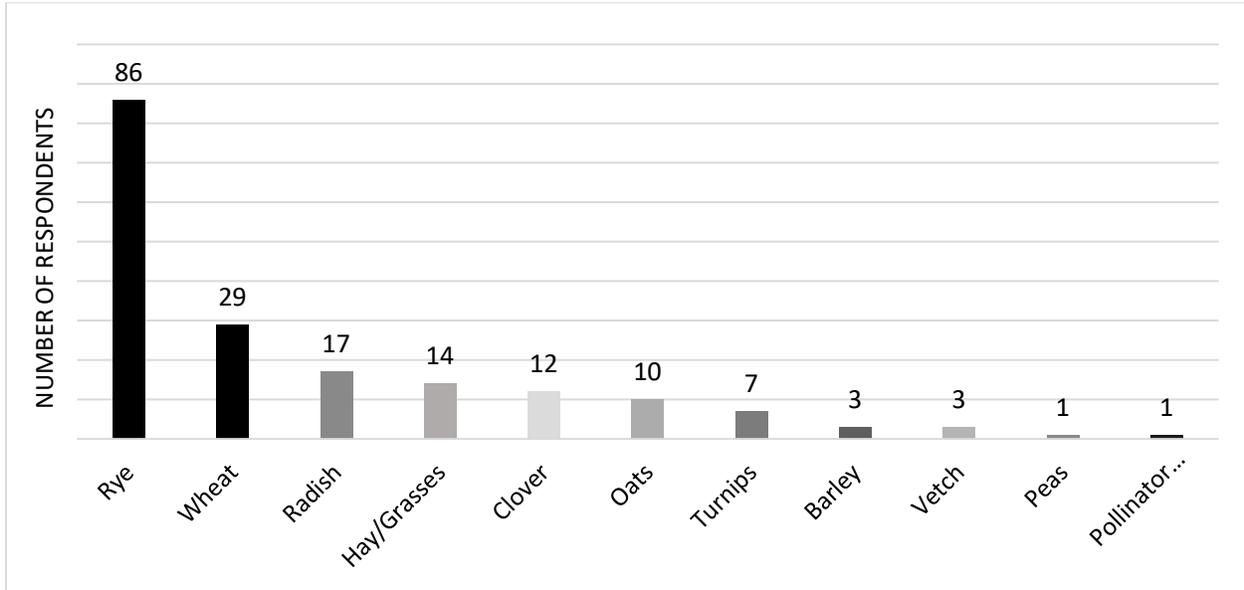


Figure 3.29. Type(s) of cover crops grown

A majority (60%) of respondents reported performing practices on their property for the specific benefit of wildlife (Figure 3.30). Wildlife habitat (31%), native grasses (28%), wildlife food plot (25%), and wetland/stream buffers (22%) were the most frequently cited practices (Figure 3.31).

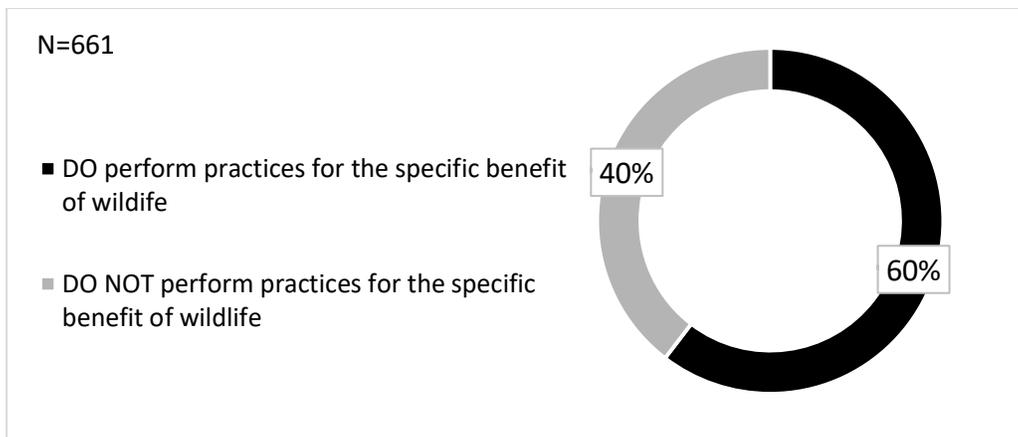


Figure 3.30. Percent performing practices for benefit of wildlife

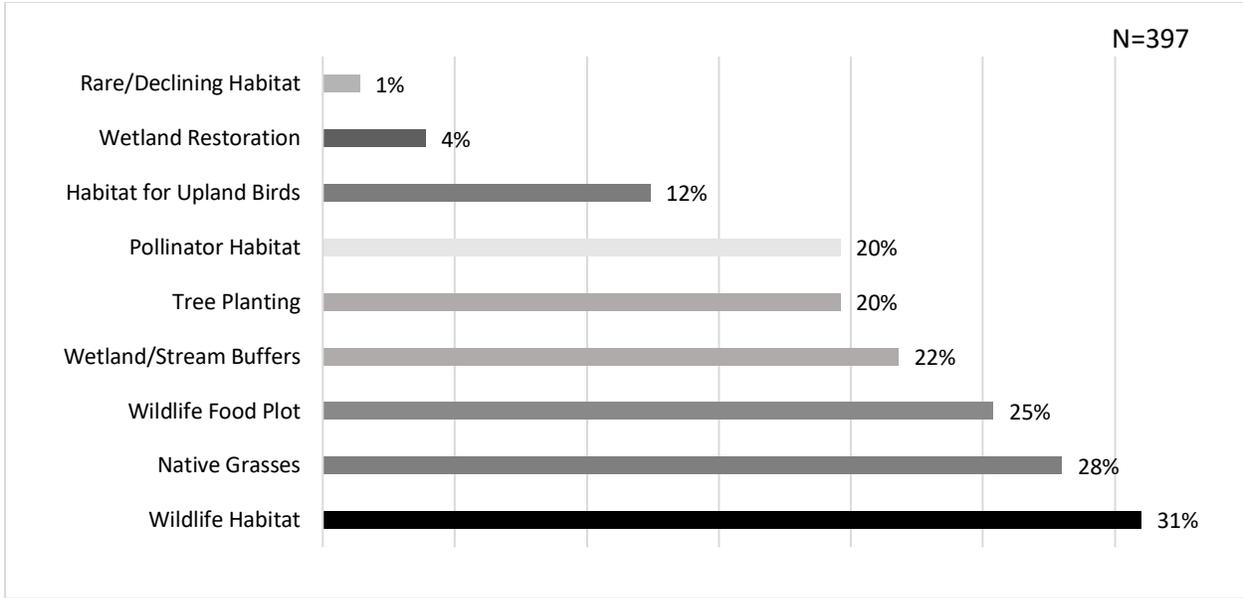


Figure 3.31. Type of wildlife practices performed

Forty-one percent of respondents reported conservation tillage (CT) was not used as a management approach to minimizing tillage operations during the 2019-2020 season (Figure 3.32). Of the majority (59%) practicing conservation tillage, 15% percent had operations less than 50 acres or more than 500 acres, respectively. Respondents with middle or median-size operations were less likely to practice conservation tillage compared to those with smaller or larger operations by acreage (Figure 3.32).

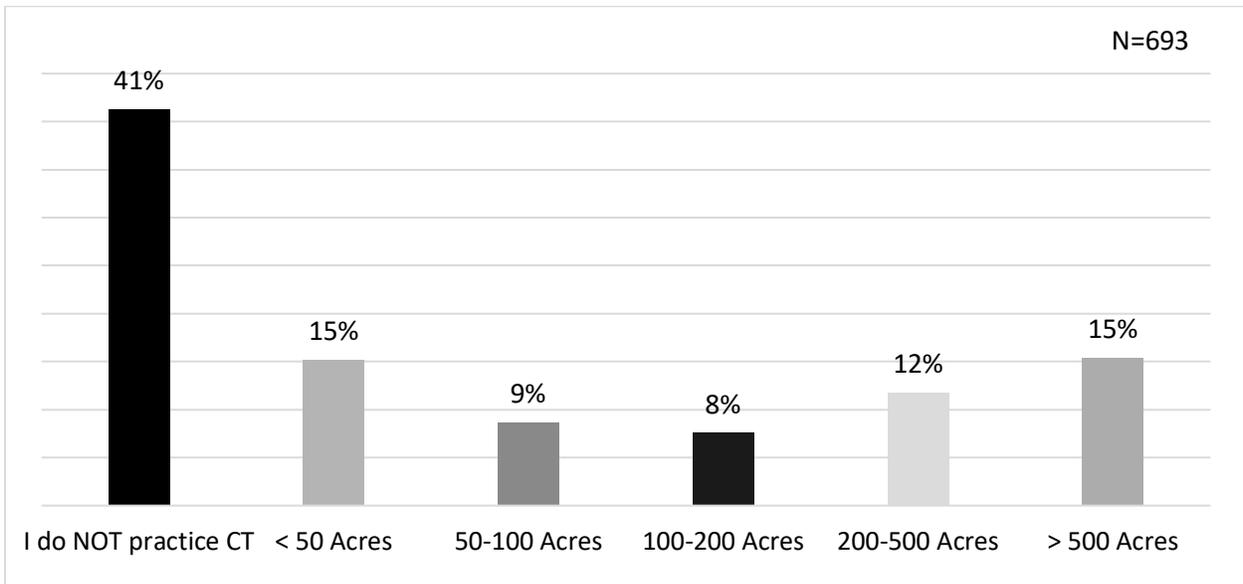


Figure 3.32. Respondent acres under conservation tillage

For respondents practicing conservation tillage, approximately half (48%) had less than 50 acres under conservation tillage bordering a ditch, stream, or wetland, whereas seven percent have more than 500 acres under conservation tillage bordering a ditch, stream, or wetland (Figure 3.33).

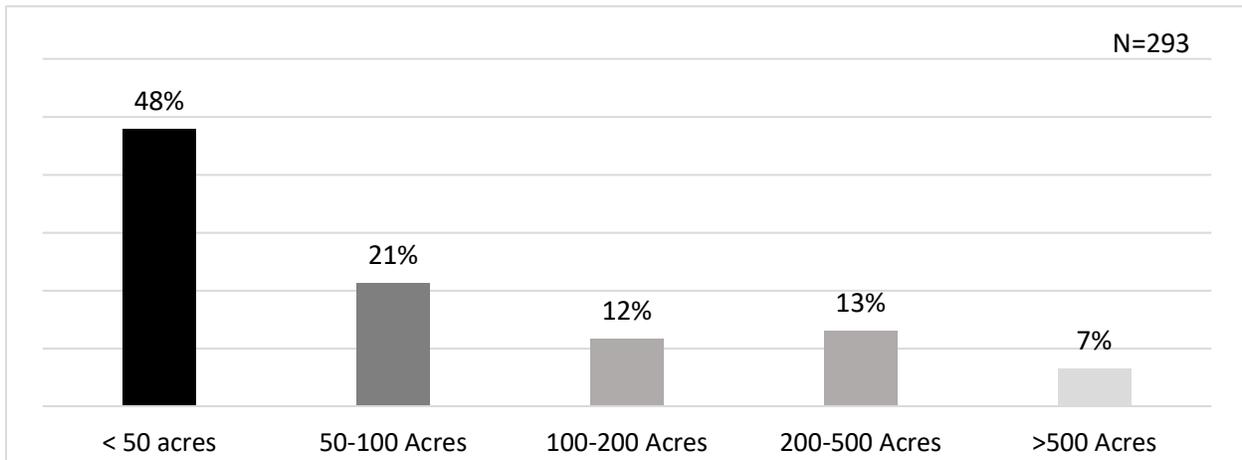


Figure 3.33. Acres under conservation tillage bordering ditch, stream, or wetland

Factors limiting respondents’ ability to practice conservation tillage are presented in Table 3.1. Not having enough property (12%), too much equipment required (10%) and cost (10%) associated were most frequently cited as moderate-extremely limiting factors. For the majority of respondents, these factors were either not at all limiting or somewhat-not at all limiting on their ability to practice conservation tillage.

Table 3.1 Factors Limiting Ability to Practice CT

<i>Factors</i>	Not at all	Not at all-Somewhat	Somewhat	Somewhat-Moderately	Moderately	Moderately-Extremely	Extremely
Not enough property	55%	11%	10%	7%	7%	5%	7%
Too much equipment required	46%	10%	11%	14%	9%	5%	5%
Cost	44%	12%	14%	10%	10%	5%	5%
Increased damage by wildlife	48%	13%	14%	9%	8%	3%	4%
Not enough proof of benefits	47%	11%	15%	9%	8%	6%	4%
Don’t know enough	52%	13%	11%	8%	9%	4%	3%
Too much time required	50%	14%	14%	11%	7%	3%	2%

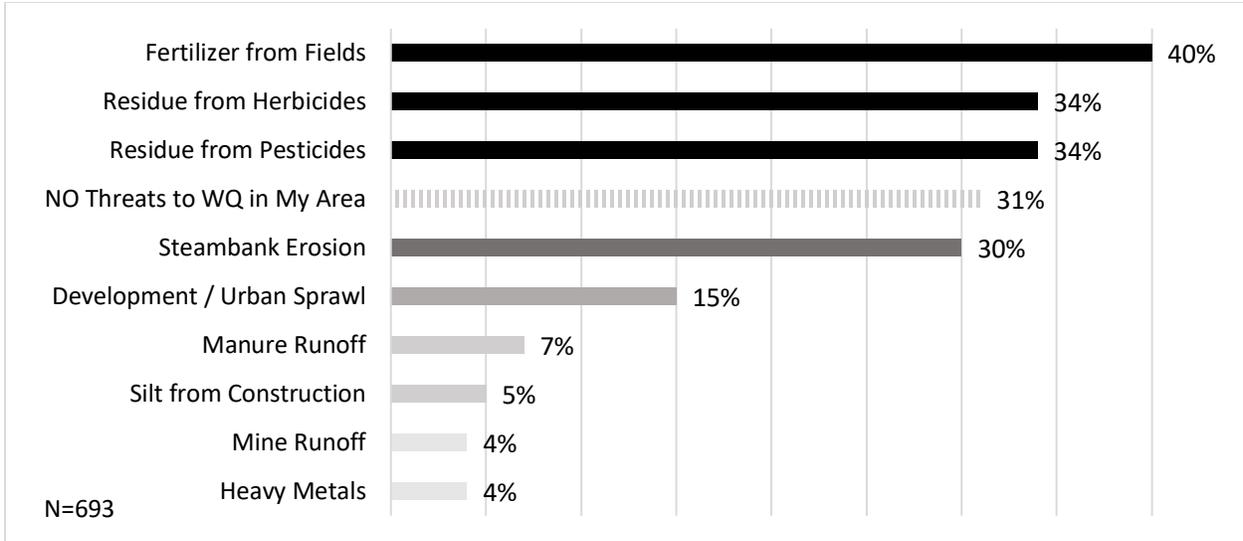


Figure 3.34. Threats to surface water where respondent lives

Fertilizer from fields was cited most frequently (40%) as a threat to surface water quality in the area where the respondent lives, followed by residue from herbicides and pesticides (34%), respectively (Figure 3.34). Thirty-one percent of respondents reported there were no threats to surface water quality in the area where they live. Approximately one-third (32%) of those citing “no threats to surface water quality in the area where I live” ranged in age from 71-80 years old, followed by respondents ranging in age from 61-70 (30%) (Figure 3.35). Slightly more than half (51%) of respondents reporting no threats to surface water quality in the area where they live (n=213) have taken workshops or have degrees in agriculture or a related field (Figure 3.36). Agricultural producers contributed to 46% of the respondents in this group (Figure 3.37).

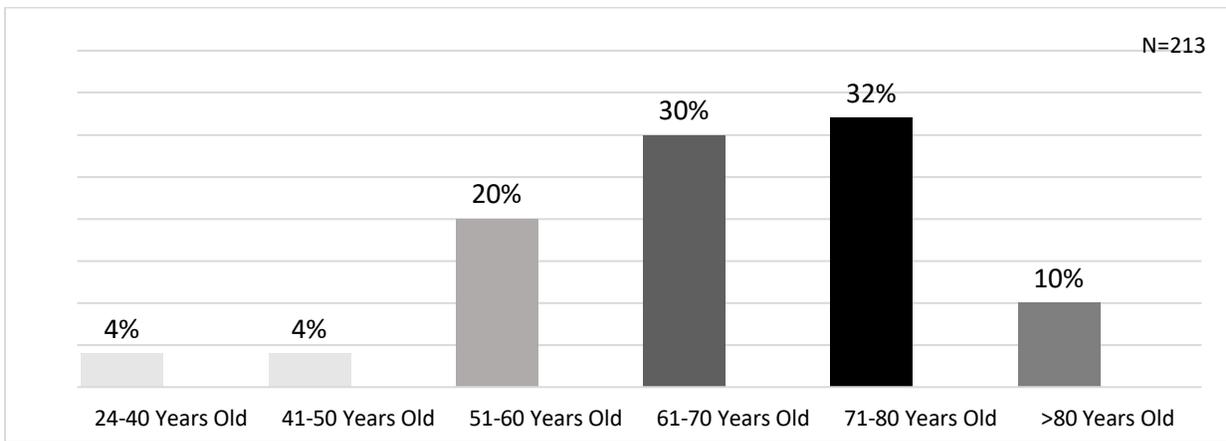


Figure 3.35. No threats to surface water quality where respondent lives by respondent age

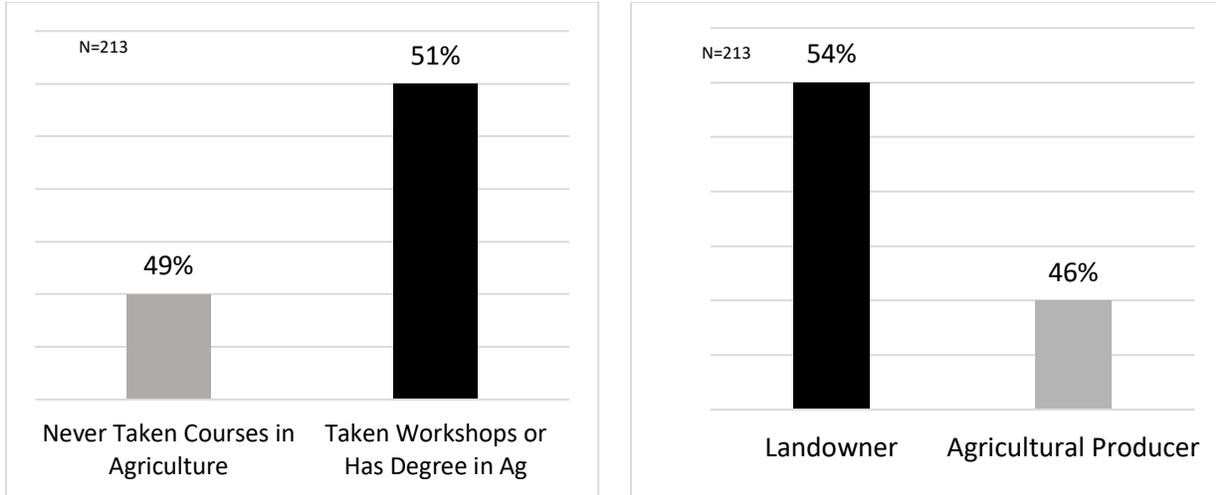


Figure 3.36. No threats to water quality where respondent lives by education  
 Figure 3.37. No threats to water quality where respondent lives by survey type

Development/urban sprawl (43%) and fertilizer from fields (43%) were reported most frequently by respondents as statewide threats to surface water quality, closely followed by residue from herbicides and pesticides (42%), respectively (Figure 3.38). Thirteen percent of respondents (n=87) reported there are no threats to surface water quality in Illinois.

Approximately one-third (31%) of those citing “no threats to surface water quality in Illinois” ranged in age from 71-80 years old, followed by respondents ranging in age from 61-70 (28%) (Figure 3.39). Just under half (47%) of the respondents in this category have taken workshops or have a degree in an agriculture-related field (Figure 3.40). Agricultural producers contributed to 45% of the respondents in this group (Figure 3.41).

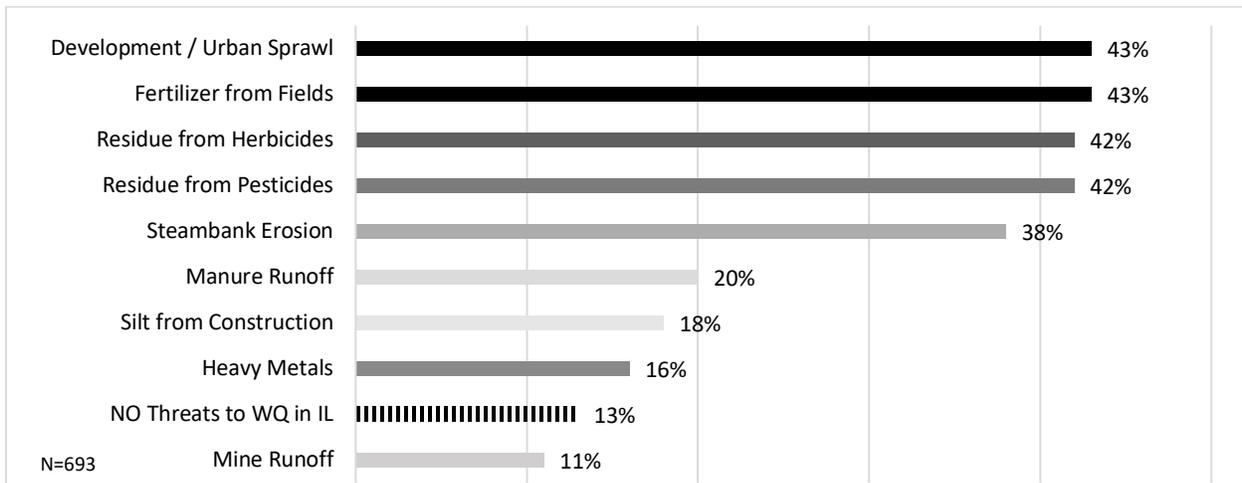


Figure 3.38. Threats to surface water in Illinois

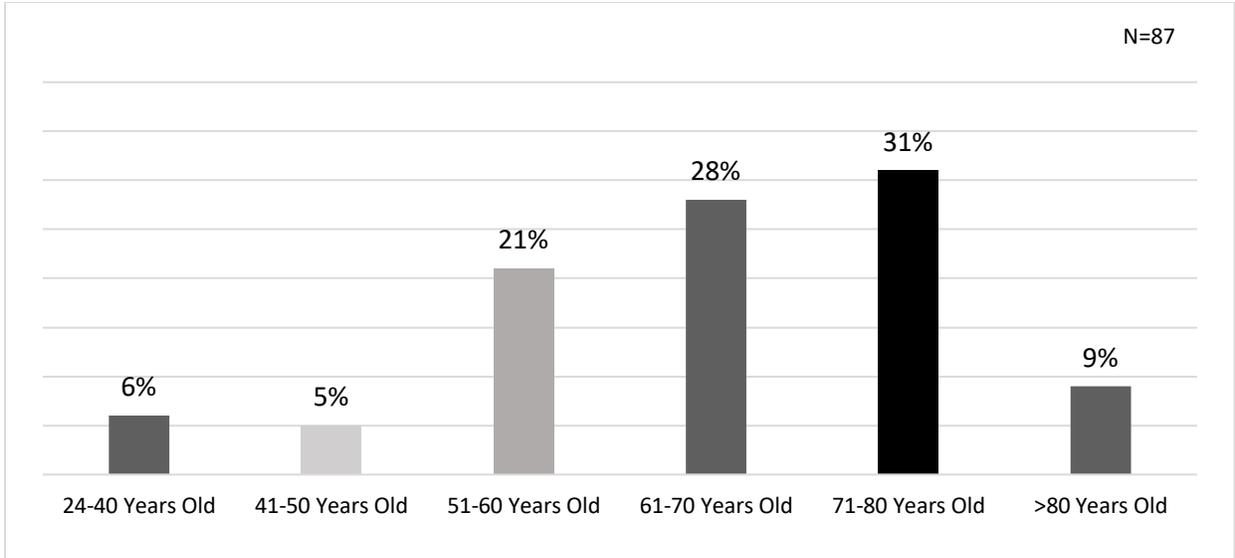


Figure 3.39. No threats to water quality in state of Illinois by respondent age

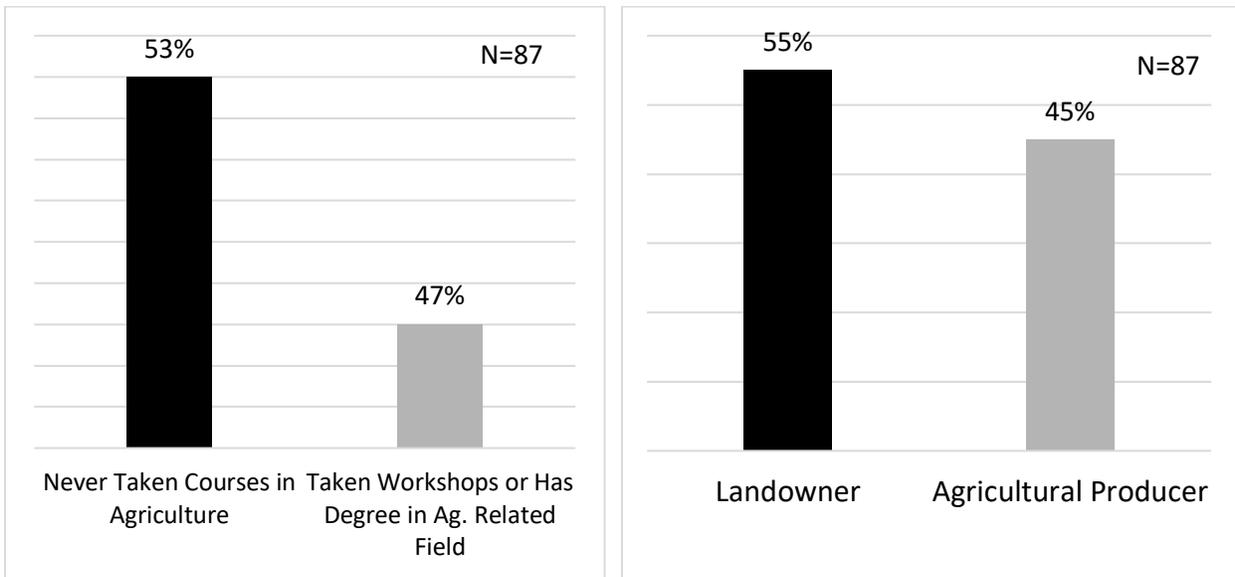


Figure 3.40. No threats to water quality in state of Illinois by education

Figure 3.41. No threats to water quality in state of Illinois by survey type

In a series of statements related to water quality and soil health, eighty-two percent of respondents moderately or strongly agreed with the statement “healthy soils increase productivity and drought resistance,” followed by 73% percent of respondents moderately or strongly agreeing with the statement “it is a waste of money to use excess fertilizer” (Table 3.2). Conversely, one-third (33%) of respondents moderately to strongly disagreed with the statement “there should be stricter oversight on fertilizer use.”

Table 3.2. Water Quality and Soil Health

<i>Statement</i>	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Healthy soils increase productivity and drought resistance.	2%	1%	1%	8%	7%	50%	32%
It is a waste of money to use excess fertilizer.	2%	3%	3%	9%	10%	44%	29%
Farmers have a responsibility to use soil resources, such as not to cause erosion.	1%	1%	2%	8%	18%	47%	23%
If more farmers used conservation tillage, water quality in IL would improve.	2%	3%	4%	20%	17%	35%	20%
It is important to help protect water quality even if it slows economic development.	2%	3%	5%	16%	22%	33%	20%
The quality of life in my community depends on good water quality in local streams, rivers, and lakes.	2%	4%	6%	14%	17%	37%	20%
Conservation program payments to farmers would increase incentives for storing more nutrients in soil.	2%	4%	3%	23%	13%	36%	19%
It is my responsibility to decrease fertilizer run-off into streams.	4%	3%	3%	11%	16%	45%	19%
My actions have minimal impact on water quality.	7%	16%	8%	15%	9%	28%	17%
I would be willing to change the way I manage my property to improve water quality.	4%	4%	5%	28%	22%	27%	9%
There should be stricter oversight on fertilizer use.	12%	21%	13%	24%	14%	9%	7%

Just over half (51%) of respondents reported currently participating and/or planning to reenroll in one or more conservation programs during the 2019-2020 harvest season (Figure 3.42). Conversely, just under one-third (31%) of respondents reported never having participated in a conservation program.

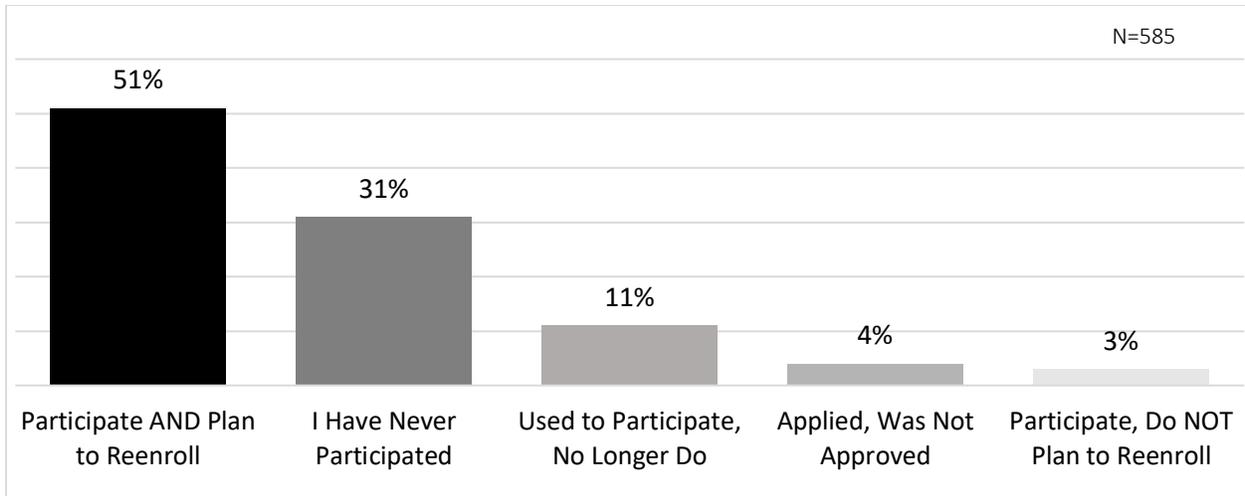


Figure 3.42. Participation in Conservation Programs

Half (50%) of respondents were participating in the Conservation Reserve Program (CRP) at the time of the survey (Table 3.3). Conversely, approximately half of respondents were unfamiliar with the remainder of the conservation programs listed. Seventy-one percent of respondents were unfamiliar with the Saving Tomorrow’s Agricultural Resources Program, followed by 66% unfamiliar with the Partners for Conservation Program, both of which are programs local to Illinois.

Table 3.3. Conservation Program Experience

<i>Program</i>	Not at All Familiar	Familiar, Not Participated	Participated, Not Now	Currently Participate
Conservation Reserve Program (CRP)	12%	28%	10%	50%
Environmental Quality Incentives Program (EQIP)	45%	37%	9%	9%
Conservation Stewardship Program (CSP)	48%	36%	7%	9%
Agricultural Conservation Easement Program (ACEP)	56%	34%	4%	6%
Fall Covers for Spring Savings Program	56%	34%	4%	6%
State Acres for Wildlife Enhancement	58%	35%	3%	4%
Farmable Wetlands Program	56%	35%	5%	4%
Partners for Conservation Program	66%	28%	3%	3%
Saving Tomorrow’s Agricultural Resources	71%	24%	2%	3%

Approximately one-third (31%) of respondents that had never participated in a conservation program at the time of the survey ranged in age from 61-70 years old, followed by respondents (25%) ranging from 71-80 years old or 61-70 years old, respectively (Figure 3.43). A majority (60%) of respondents in this category had never taken courses related to agriculture (Figure 3.44). Agricultural producers contributed to 57% of non-participating respondents (Figure 3.45).

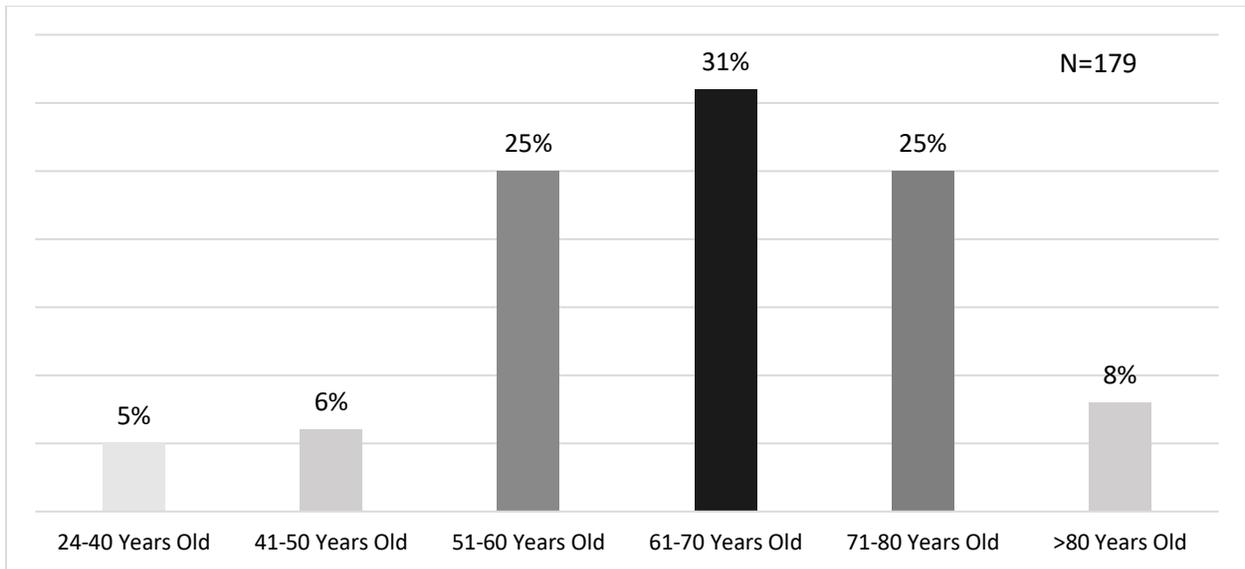


Figure 3.43. Respondent participation in conservation programs by age

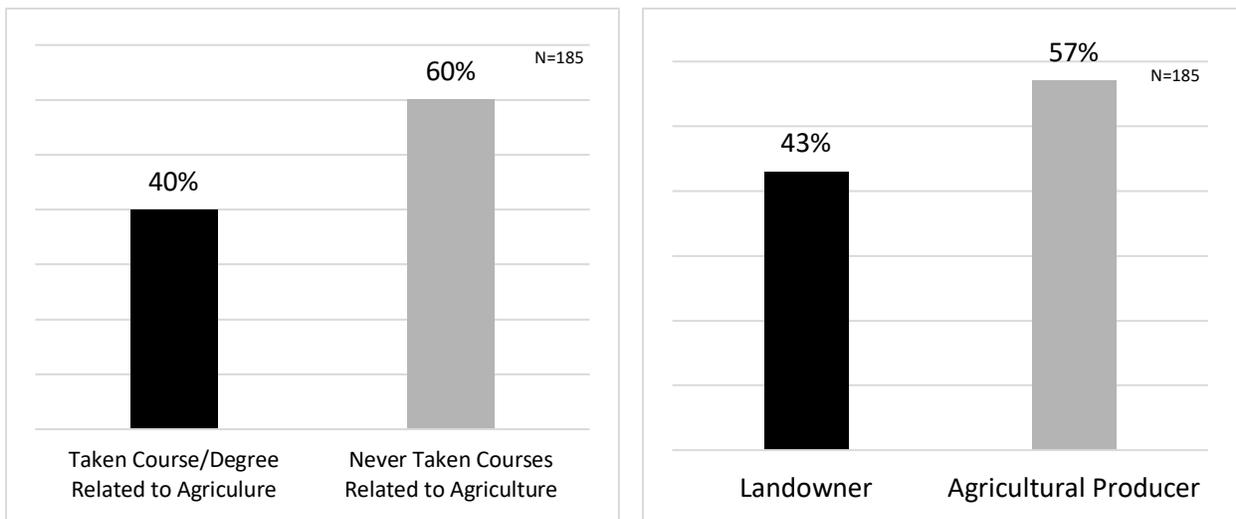


Figure 3.44. Respondent participation in conservation programs by education level  
 Figure 3.45. Respondent participation in conservation programs by survey type

Of the respondents that have never participated or do not plan to re-enroll in conservation programs, fifty-two percent cited “too much red tape” as being moderately to extremely important in their decision not to participate, whereas 51% cited “there is too much paperwork” (Table 3.4). The success of previous program experiences was unimportant for 53% of non-participating respondents.

Table 3.4. Reasons for Non-Participation Conservation Programs

<i>Statement</i>	Not Important		Slightly Important		Moderately Important		Extremely Important
Too much red tape.	17%	4%	12%	16%	16%	13%	23%
There is too much paperwork.	17%	6%	12%	15%	17%	12%	22%
Compensation is not enough.	18%	10%	13%	17%	17%	9%	16%
It reduces options for land-use.	18%	7%	13%	19%	17%	12%	15%
Need to increase income.	31%	9%	14%	14%	15%	9%	11%
The costs to participate are too high.	21%	10%	10%	24%	17%	10%	9%
Not enough technical assistance available.	25%	13%	14%	19%	14%	6%	8%
It is too labor intensive.	24%	13%	14%	21%	14%	7%	7%
Previous experience was not successful.	40%	13%	10%	22%	5%	3%	7%
I put more into land production.	32%	13%	14%	22%	8%	6%	5%
Not a typical practice in my community.	30%	14%	13%	21%	13%	5%	5%

Fifty-seven percent of respondents felt expectations from environmental organizations to implement conservation practices were moderately to extremely likely (Table 3.5). Conversely, 16% of respondents felt expectations from family or other farmers were moderately to extremely unlikely.

Table 3.5. Expectations for Implementing Conservation Projects

<i>People/Groups</i>	Extremely Unlikely	Moderately Unlikely	Slightly Neutral	Neutral	Slightly Likely	Moderately Likely	Extremely Likely
Environmental Organizations	5%	3%	4%	21%	11%	22%	35%
Government Agencies	5%	4%	3%	23%	13%	29%	24%
Family	10%	6%	3%	33%	14%	22%	14%
Neighbors	10%	5%	6%	39%	19%	17%	5%
Other Farmers	10%	6%	8%	38%	18%	15%	5%

### 3.4. Future Farming

Two-thirds (67%) of respondents would not want to change their farming practices in the future (Figure 3.46). The age of respondents was similarly distributed for those that would like change their practices in the future, and those that would not (Figure 3.47).

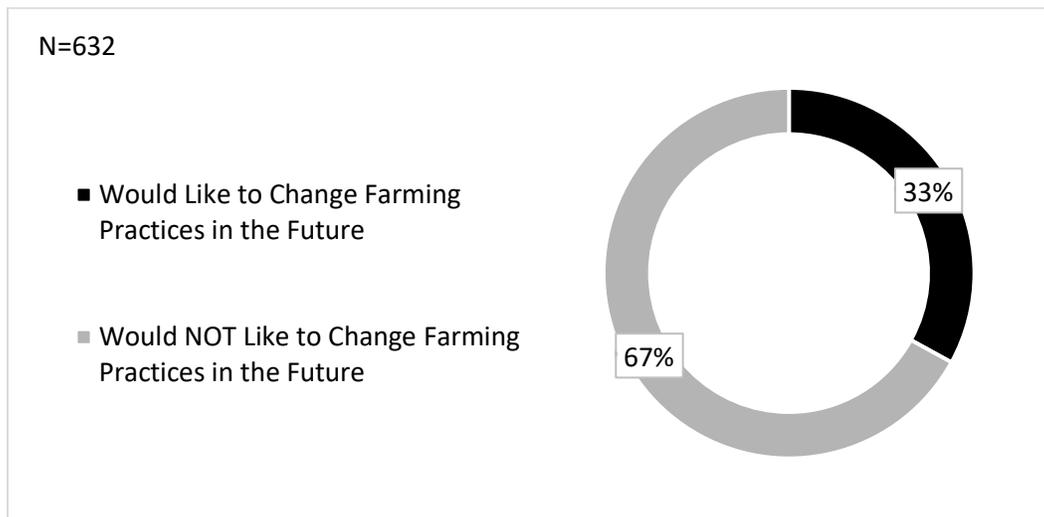


Figure 3.46. Changes in Future Farming Practices

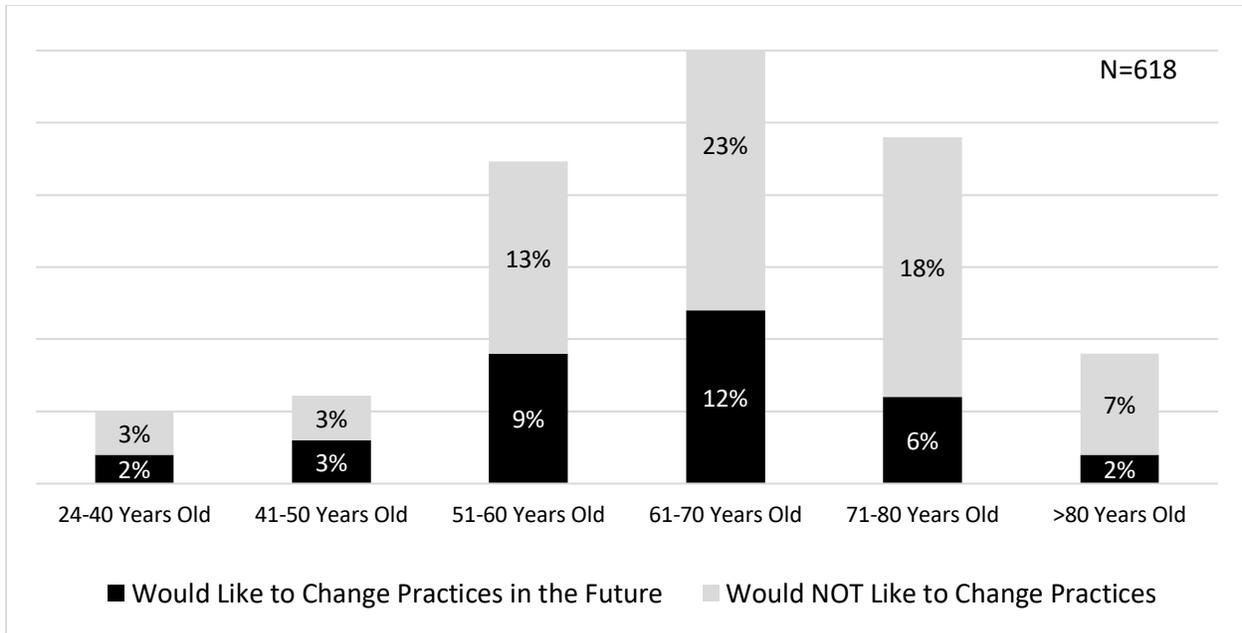


Figure 3.47. Future changes in farming practices by respondent age

For respondents interested in changing their farming practices in the future, increasing or slightly increasing (78%) soil conservation practices was reported most frequently, followed by cover crops (73%) and the adoption of precision farming technology (64%) (Table 3.6). Nineteen percent of respondents reported they would like to change their farming practices by decreasing industrial hemp production.

Table 3.6. Specific Changes in Future Farming Practices

<i>In the future I would like to change my farming practices by...</i>	Decrease	Slightly Decrease	No Change	Slightly Increase	Increase
Soil Conservation Practices	1%	2%	20%	53%	25%
Precision Farming (GPS, robotics, etc.)	2%	2%	32%	40%	24%
Wildlife Conservation Practices	4%	2%	37%	33%	24%
Cover Crops	1%	3%	23%	51%	22%
Crop Diversification	3%	1%	47%	38%	12%
Integrated Pest Management (IPM)	3%	4%	53%	31%	11%
Livestock Operations	12%	4%	57%	17%	11%
Organic Production	13%	3%	68%	10%	6%
Industrial Hemp Production	19%	2%	69%	5%	5%
Fertilizer Use	9%	28%	43%	18%	3%
Pesticide Use	10%	25%	47%	15%	3%

Respondents cited farm service agencies (65%), other farmers (59%), and government agencies (51%) as mostly or somewhat relied upon resources for information related to sustainable farming (Table 3.7). Conversely, on-farm consultations (41%), trade shows (41%), and non-profit organizations (40%) were the least relied upon for respondents.

Table 3.7. Information Resources Related to Sustainable Farming

<i>Information Resources</i>	Mostly Rely	Somewhat Rely	Slightly Rely	Do Not Rely	Not Aware Of
Farm Service Agencies	36%	29%	19%	10%	6%
Government Agencies	22%	29%	24%	18%	8%
Other Farmers	20%	39%	22%	15%	6%
Friends & Family	19%	34%	24%	18%	6%
Print Materials	17%	34%	27%	16%	6%
Internet, Webcasts, Podcasts	11%	29%	21%	29%	10%
Local Meetings	8%	25%	24%	32%	11%
Non-Profit Organizations	6%	15%	17%	40%	23%
On-Farm Consultations	5%	18%	18%	41%	17%
Trade Shows & Fairs	5%	19%	24%	41%	11%

A majority (54%) identified USDA Natural Resource Services as a trusted resource for information related to sustainable farming, followed by the Illinois Farm Bureau (52%) and Illinois AgriNews (Figure 3.48).

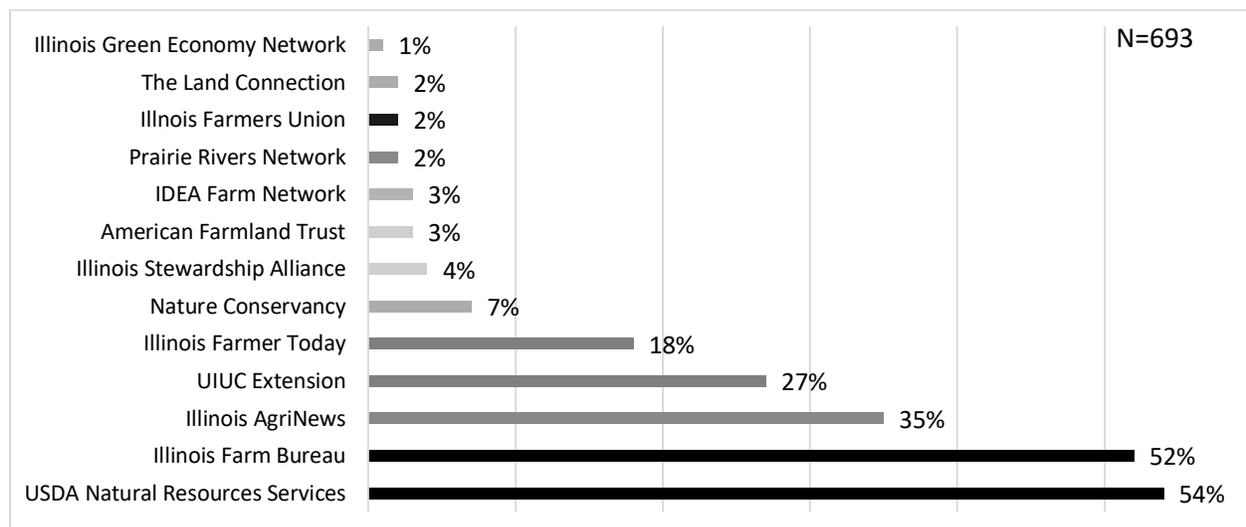


Figure 3.48. Trusted Resources for Information Related to Sustainable Farming

With regard to issues facing their operation over the next five years, respondents reported the most concern toward new mandates or regulations (77%) and rising costs of input (76%) (Table 3.8). Out of the potential issues listed, respondents were least concerned over the price of land for expansion (25%) and succession planning (25%).

Table 3.8. Concern For Potential Issues Facing Operation Over the Next 5 Years

<i>Potential Issues...</i>	Not Concerned	Slightly Concerned	Concerned	Extremely Concerned
New Mandates and Regulations	11%	12%	32%	45%
Rising Costs of Inputs (labor, seed, etc.)	10%	14%	34%	42%
Price of Land for Expansion	25%	15%	33%	27%
Fluctuations in Global Financial Markets	14%	19%	43%	25%
Severe Weather Problems	17%	31%	33%	20%
Farm Transition or Succession Planning	25%	27%	31%	17%
Pest or Disease Resistance	14%	31%	40%	15%

### 3.5. Attitudes toward Agriculture and the Environment

General attitudes were assessed through a series of statements related to the environment and agricultural operations in Illinois (Table 3.9). Eighty-three percent of respondents cited moderate or strong agreement with the statement “healthy rural communities are essential for future success of agriculture in Illinois.” Conversely, fifty-two percent of respondents expressed moderate or strong disagreement toward the statement “GMO crops are a threat to the environment.”

Overall attitudes toward organic food production were relatively neutral when compared to statements concerning the environment and/or long-term sustainability of agriculture in Illinois. As shown in Table 3.9, two statements received more than 50% of the responses reported: a majority (65%) of respondents felt neutral toward the statement “certified organic standards are too restrictive,” in addition to 56% neutral toward the statement “organic farming is more profitable per acre than conventional farming.”

Table 3.9. General Attitudes Toward Agriculture and Farming Practices in Illinois

<i>Statements</i>	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither	Slightly Agree	Moderately Agree	Strongly Agree
Healthy rural communities are essential for future success of agriculture in Illinois.	1%	1%	1%	5%	10%	48%	35%
Non-agricultural land development is a serious threat to Illinois agriculture.	2%	3%	4%	19%	21%	28%	23%
Small to medium-sized farms can best serve Illinois' agricultural needs.	1%	4%	6%	15%	18%	36%	21%
GMO technologies reduce pesticide use.	3%	3%	4%	29%	14%	31%	17%
Severe weather in Illinois is increasing.	3%	9%	9%	26%	18%	22%	13%
Certified organic production is too costly.	2%	4%	4%	42%	15%	21%	13%
Severe weather has increased the expenses of my operation.	10%	18%	11%	29%	17%	9%	7%
More local markets for organic produce need to be created.	6%	9%	4%	48%	15%	13%	6%
Increased production of organic food benefits rural communities by creating new jobs.	6%	9%	6%	47%	18%	10%	4%
My farm operations are changing as a result of severe weather in Illinois.	12%	20%	14%	26%	16%	9%	4%
Certified organic standards are too restrictive.	4%	8%	5%	62%	12%	6%	3%
Organic farming is more profitable per acre than conventional farming.	8%	15%	7%	56%	6%	5%	3%
GMO crops are a threat to environment.	28%	24%	7%	32%	4%	2%	3%
It is difficult to get information regarding organic farming.	8%	15%	14%	49%	8%	5%	1%

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## REGIONAL AND STATEWIDE HIGHLIGHTS

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### 1. DEMOGRAPHIC CHARACTERISTICS

Data from the United States Census of Agriculture were used in the overall examination of regional and statewide demographic characteristics. Four states comprise the majority of the Corn Belt region: Illinois, Ohio, Indiana, and Iowa. As such, comparisons between these states are incorporated throughout this assessment. Tables 4.1-4.3 compare data collected over three, fixed 5-year intervals to provide a detailed picture of agricultural operations in the region over recent decades:

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**2007-2008** Table 4.1. Producer Demographics

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	Illinois	Ohio	Indiana	Iowa
<b>Race</b>				
American Indian Or Alaska Native	311	153	152	146
Asian	164	134	48	171
Black or African American	147	238	49	42
Spanish, Hispanic, or Latino	553	468	362	551
Native Hawaiian or Other Pacific Islander	30	16	5	12
White	108,345	111,199	60,565	133,506
More than one race reported	276	-	-	-
<b>Gender</b>				
Male	84,372	81,555	66,256	101,072
Female	24,901	30,362	23,732	32,924
<b>Age Group</b>				
Under 25	1,818	2,277	1,886	1,989
25 to 34 years	7,397	8,312	7,624	9,838
35 to 44 years	15,799	17,815	15,192	19,983
45 to 54 years	30,109	31,967	25,206	36,961
55 to 64 years	27,834	26,720	30,867	32,107
65 to 74 years	12,114	16,476	12,704	20,976
75 years and over	9,202	8,350	6,509	12,142
Average Age	54.4	53.5	52.9	54.5

**2012-2013** Table 4.2. Producer Demographics

	Illinois	Ohio	Indiana	Iowa
<b>Race</b>				
American Indian Or Alaska Native	289	404	310	213
Asian	187	174	89	146
Black or African American	211	232	96	72
Spanish, Hispanic, or Latino	777	661	450	584
Native Hawaiian or Other Pacific Islander	44	-	-	-
White	106,744	113,095	87,652	129,359
More than one race reported	-	-	-	-
<b>Gender</b>				
Male	84,205	114,172	65,112	98,628
Female	24,918	31,277	24,706	32,907
<b>Age Group</b>				
Under 25	1,449	2,356	1,649	1,719
25 to 34 years	7,802	9,189	7,974	9,967
35 to 44 years	12,261	14,837	13,004	15,795
45 to 54 years	24,933	28,388	21,216	31,657
55 to 64 years	30,260	30,856	23,508	36,359
65 to 74 years	19,704	18,372	13,865	21,885
75 years and over	10,875	9,626	6,743	12,262
Average Age	56.3	54.6	53.9	55.6

**2016-2017** Table 4.3. Producer Demographics

	Illinois	Ohio	Indiana	Iowa
<b>Race/Ethnicity</b>				
American Indian Or Alaska Native	108	172	131	81
Asian	160	187	102	151
Black or African American	229	193	134	72
Spanish, Hispanic or Latino	934	954	753	737
Native Hawaiian or Other Pacific Islander	21	22	20	21
White	115,605	127,576	93,702	142,905
More than one race reported	294	536	217	217
<b>Gender</b>				
Male	83,222	85,430	63,125	94,382
Female	33,195	43,256	31,225	49,065
<b>Age Group</b>				
Under 25	1,406	2,473	1,734	1,832
25 to 34 years	8,452	10,760	8,604	11,426
35 to 44 years	12,764	17,023	13,526	16,676
45 to 54 years	19,959	24,303	17,710	23,998
55 to 64 years	32,986	36,416	24,858	41,950
65 to 74 years	26,087	24,707	18,300	30,101
75 years and over	14,763	13,004	9,618	17,464
Average Age	58.0	55.8	55.5	57.4

## 2. OPERATIONAL CHARACTERISTICS

Data from the United States Census of Agriculture were used for the overall examination of regional and statewide trends in operational characteristics. Four states comprise the majority of the Corn Belt region: Illinois, Ohio, Indiana, and Iowa. Therefore, comparisons between these states are incorporated throughout the assessment. Tables 4.4-4.6 compare data collected over three, fixed 5-year intervals to provide a detailed picture of agricultural operations in the region over recent decades:

**2007-2008**

Table 4.4. Agricultural Operations

<i>Item</i>	EC Illinois	Illinois	Ohio	Indiana	Iowa
Farms (number)	-	76,860	75,861	60,938	92,856
Land in farms (acres)	-	26,775,100	13,956,563	14,773,184	30,747,550
Average farm size (acres)	-	348	184	242	331
Estimated market value of land and buildings:					
Average per farm (dollars)	-	1,321,080	649,130	868,699	1,122,023
Average per acre (dollars)	-	3,792	3,528	3,583	3,388
Estimated market value of all machinery and equipment (\$1,000)	-	10,499,792	6,702,352	6,302,106	12,694,091
Average per farm (dollars)	-	136,609	88,352	103,427	136,771
1 to 9 acres	-	8,603	7,767	9,720	8,709
10 to 49 acres	-	20,592	24,361	19,533	17,824
50 to 179 acres	-	18,410	25,809	15,993	24,692
180 to 499 acres	-	13,116	11,190	8,012	22,354
500 to 999 acres	-	8,309	4,020	3,774	11,826
1,000 acres or more	-	8,830	2,714	3,906	7,451
<b>Total cropland (acres)</b>	<b>-</b>	<b>23,707,699</b>	<b>10,832,772</b>	<b>12,716,037</b>	<b>26,316,332</b>

**2012-2012**

Table 4.5. Agricultural Operations

<i>Item</i>	EC Illinois	Illinois	Ohio	Indiana	Iowa
Farms (number)	20,304	75,087	75,462	58,695	88,637
Land in farms (acres)	8,320,578	26,937,721	13,960,604	14,720,396	30,622,731
Average farm size (acres)	418	359	185	251	345
Estimated market value of land and buildings:					
Average per farm (dollars)	2,963,984	2,261,778	894,933	1,342,826	2,207,220
Average per acre (dollars)	6,912	6,305	4,837	5,354	6,389
Estimated market value of all machinery and equipment (\$1,000)	4,856,085	15,256,459	8,821,220	8,407,178	18,954,910
Average per farm (dollars)	242,646	203,192	116,899	143,252	213,856
1 to 9 acres	1,776	5,776	6,796	6,607	6,707
10 to 49 acres	5,074	19,801	24,220	20,770	20,665
50 to 179 acres	4,888	20,941	26,890	16,396	22,788
180 to 499 acres	3,585	13,216	11,291	7,420	18,654
500 to 999 acres	2,449	7,617	3,674	3,562	11,581
1,000 acres or more	2,568	7,736	2,591	3,940	8,242
<b>Total cropland (acres)</b>	<b>7,737,497</b>	<b>23,752,778</b>	<b>26,545,960</b>	<b>12,590,633</b>	<b>26,256,347</b>

**2016-2017**

Table 4.6. Agricultural Operations

<i>Item</i>	EC Illinois	Illinois	Ohio	Indiana	Iowa
Farms (number)	18,601	72,651	77,805	56,649	86,104
Land in farms (acres)	8,117,806	27,006,288	13,965,295	14,969,996	30,563,878
Average farm size (acres)	417	372	179	264	355
Estimated market value of land and buildings:					
Average per farm (dollars)	3,395,313	2,705,291	1,112,700	1,737,741	2,506,812
Average per acre (dollars)	7,956	7,278	6,199	6,576	7,062
Estimated market value of all machinery and equipment (\$1,000)	4,832,542	16,018,455	10,084,599	9,241,317	19,863,940
Average per farm (dollars)	244,880	220,485	129,614	163,136	230,716
1 to 9 acres	2,315	7,992	10,333	7,622	9,120
10 to 49 acres	4,836	17,901	26,533	18,665	18,183
50 to 179 acres	4,661	19,198	23,671	15,377	20,831
180 to 499 acres	3,197	12,264	10,574	7,419	19,172
500 to 999 acres	2,245	7,483	3,955	3,529	10,381
1,000 acres or more	2,510	5,155	2,739	4,037	7,417
<b>Total cropland (acres)</b>	<b>7,630,239</b>	<b>24,003,086</b>	<b>10,960,704</b>	<b>12,909,673</b>	<b>26,545,960</b>

**3. PRODUCTION CHARACTERISTICS**

Data from the United States Census of Agriculture were used for the overall examination of regional and statewide trends in production characteristics. Four states comprise the majority of the Corn Belt region: Illinois, Ohio, Indiana, and Iowa. Therefore, comparisons between these states are incorporated throughout the following assessment. Tables 4.7-4.9 compare data collected over three, fixed 5-year intervals to provide a detailed picture of agricultural production in the region over recent decades:

**2007-2008**

Table 4.7. Agricultural Production

<i>Item</i>	EC Illinois	Illinois	Ohio	Indiana	Iowa
Market value of agricultural products sold (\$1,000)	5,467,092	17,187,052	7,070,212	8,271,291	20,418,096
Average per farm (dollars)	258,247	228,895	93,200	135,733	219,890
Crops, including nursery and greenhouse crops (\$1,000)	4,081,526	14,144,740	4,109,722	5,319,019	10,343,585
Livestock, poultry, and their products	580,788	3,042,312	2,960,490	2,952,272	10,074,511
Farms by value of sales					
Less than \$2,500	5,307	25,025	26,566	22,470	26,730
\$2,500 to \$4,999	1,072	4,256	7,357	4,971	3,986
\$5,000 to \$9,999	1,247	4,860	7,793	5,686	5,100
\$10,000 to \$24,999	1,444	5,908	9,045	6,325	6,663
\$25,000 to \$49,999	1,227	4,563	6,501	4,531	7,514
\$50,000 to \$99,999	1,638	5,666	5,565	4,273	9,805
\$100,000 or more	7,929	24,809	12,044	12,682	33,058
Total income from farm-related sources (farms)	11,536	40,531	-	-	-
Total income from farm-related sources (\$1,000)	586,574	1,667,992	-	-	-
Total farm production expenses (\$1,000)	3,990,561	13,459,269	5,459,960	6,280,596	15,443,759
Average per farm (dollars)	200,017	179,249	-	-	-
Net cash farm income of the operations (\$1,000)	2,062,275	5,949,078	-	-	-
Average per farm (dollars)	103,540	79,229	-	-	-

**2012-2013**

Table 4.8. Agricultural Production

<i>Item</i>	EC Illinois	Illinois	Ohio	Indiana	Iowa
Market value of agricultural products sold (\$1,000)	5,467,092	17,187,052	10,064,085	11,210,818	30,821,532
Average per farm (dollars)	258,247	228,895	133,366	191,001	347,728
Crops, including nursery and greenhouse crops (\$1,000)	4,081,526	14,144,740	6,597,946	7,530,097	17,366,814
Livestock, poultry, and their products	580,788	3,042,312	3,466,139	3,680,721	13,454,718
Farms by value of sales					
Less than \$2,500	5,307	25,025	25,198	20,283	25,049
\$2,500 to \$4,999	1,072	4,256	7,305	4,859	3,613
\$5,000 to \$9,999	1,247	4,860	7,220	5,204	4,328
\$10,000 to \$24,999	1,444	5,908	8,497	5,681	6,041
\$25,000 to \$49,999	1,227	4,563	6,154	4,101	5,775
\$50,000 to \$99,999	1,638	5,666	5,764	4,254	7,470
\$100,000 or more	7,929	24,809	15,324	14,313	36,361
Total income from farm-related sources (farms)	11,536	40,531	-	-	-
Total income from farm-related sources (\$1,000)	586,574	1,667,992	-	-	-
Total farm production expenses (\$1,000)	3,990,561	13,459,269	7,743,344	9,117,075	23,711,880
Average per farm (dollars)	200,017	179,249	-	-	-
Net cash farm income of the operations (\$1,000)	2,062,275	5,949,078	-	-	-
Average per farm (dollars)	103,540	79,229	-	-	-

**2016-2017**

Table 4.9. Agricultural Production

<i>Item</i>	EC Illinois	Illinois	Ohio	Indiana	Iowa
Market value of agricultural products sold (\$1,000)	5,262,534	17,009,971	9,341,225	11,107,336	28,956,455
Average per farm (dollars)	244,880	234,133	120,059	196,073	336,296
Crops, including nursery and greenhouse crops (\$1,000)	4,414,860	13,843,743	5,426,253	7,121,060	13,832,573
Livestock, poultry, and their products	623,855	3,166,229	27,164	3,986,276	15,123,882
Farms by value of sales					
Less than \$2,500	5,772	23,276	27,164	18,583	25,204
\$2,500 to \$4,999	996	4,185	7,998	4,660	3,697
\$5,000 to \$9,999	1,217	4,989	8,171	5,396	4,258
\$10,000 to \$24,999	1,526	5,848	9,284	6,092	6,065
\$25,000 to \$49,999	1,304	4,919	5,889	4,117	5,651
\$50,000 to \$99,999	1,570	5,724	5,460	4,069	7,600
\$100,000 or more	7,379	23,710	13,839	13,732	33,629
Total income from farm-related sources (farms)	11,218	39,755	-	-	-
Total income from farm-related sources (\$1,000)	265,622	879,724	-	-	-
Total farm production expenses (\$1,000)	3,849,917	13,367,622	7,838,445	9,124,760	23,541,463
Average per farm (dollars)	199,267	183,998	-	-	-
Net cash farm income of the operations (\$1,000)	1,811,757	5,043,302	-	-	-
Average per farm (dollars)	93,542	69,418	-	-	-

## 4. CROP OVERVIEW

**Corn and soybeans** are the Midwest's two main commodity crops, grown on 75% of the region's arable land. As one of the most intensive agricultural areas in the world, states throughout this region produce over 33% of the world's corn and 34% of the world's soybeans. The US is the largest corn producer in the world, with 96,000,000 acres (39,000,000 ha) of land reserved for corn production annually, the majority of which are in the Corn Belt region (NASS, 2020). Corn growth is dominated by west/north central Iowa and East Central Illinois where approximately 13% of annual yield is exported (USDA, 2020). Key statistical highlights for both corn and soybean production, two of the region's largest agricultural commodities, are presented in Tables 4.10-4.15 below.

### Corn

Table 4.10. Corn Production 2015

<i>State/Region</i>	Area Planted (1,000 acres)	Area Harvested (1,000 acres)	Yield Per Acre (bushels)	Production (1,000 bushels)	Price per Bushel (dollars)	Value of Production (1,000/\$)
Illinois	11,700	11,500	175.0	2,012,500	3.69	7,426,125
Iowa	13,500	13,390	192.0	2,505,600	3.52	8,769,600
Missouri	3,500	3,050	142.0	437,360	3.65	1,596,364
Indiana	5,650	5,480	150.0	822,000	3.85	3,164,700
Ohio	3,550	3,260	153.0	498,780	3.80	1,895,364
<b>Total Corn Belt</b>	<b>37,900</b>	<b>36,680</b>	<b>162.4</b>	<b>6,276,240</b>	<b>3.70</b>	<b>22,852,153</b>

USDA, National Agricultural Statistics Service (2021)

Table 4.11. Corn Production 2017

<i>State/Region</i>	Area Planted (1,000 acres)	Area Harvested (1,000 acres)	Yield Per Acre (bushels)	Production (1,000 bushels)	Price per Bushel (dollars)	Value of Production (1,000/\$)
Illinois	11,200	10,950	201.0	2,200,950	3.41	7,505,240
Iowa	13,300	12,900	202.0	2,605,800	3.31	8,625,198
Missouri	3,400	3,250	170.0	552,500	3.41	1,884,025
Indiana	5,350	5,200	180.0	936,000	3.56	3,332,160
Ohio	3,400	3,150	177.0	557,550	3.61	2,012,756
<b>Total Corn Belt</b>	<b>36,650</b>	<b>35,450</b>	<b>186.0</b>	<b>6,852,800</b>	<b>3.46</b>	<b>23,259,379</b>

USDA, National Agricultural Statistics Service (2021)

Table 4.12. Corn Production 2019

<i>State/Region</i>	Area Planted (1,000 acres)	Area Harvested (1,000 acres)	Yield Per Acre (bushels)	Production (1,000 bushels)	Price per Bushel (dollars)	Value of Production (1,000/\$)
Illinois	10,500	10,200	181.0	1,846,200	3.85	7,107,870
Iowa	13,500	13,050	198.0	2,583,900	3.80	9,818,820
Missouri	3,200	2,990	155.0	463,450	3.90	1,807,455
Indiana	5,000	4,820	169.0	814,580	4.10	3,339,778
Ohio	2,800	2,570	164.0	421,480	4.20	1,770,216
<b>Total Corn Belt</b>	<b>35,000</b>	<b>33,630</b>	<b>173.4</b>	<b>5,396,480</b>	<b>3.97</b>	<b>23,844,139</b>

USDA, National Agricultural Statistics Service (2021)

## Soybeans

Table 4.13. Soybean Production 2015

<i>State/Region</i>	Area Planted (1,000 acres)	Area Harvested (1,000 acres)	Yield Per Acre (bushels)	Production (1,000 bushels)	Price per Bushel (dollars)	Value of Production (1,000/\$)
Illinois	9,800	9,720	56.0	544,320	9.19	5,002,301
Iowa	9,850	9,800	56.5	553,700	8.65	4,789,505
Missouri	4,550	4,480	40.5	181,440	9.00	1,632,960
Indiana	5,550	5,500	50.0	275,000	8.85	2,433,750
Ohio	4,750	4,740	50.0	237,000	8.85	2,097,450
<b>Total Corn Belt</b>	<b>34,500</b>	<b>34,240</b>	<b>50.6</b>	<b>1,791,460</b>	<b>8.90</b>	<b>15,955,966</b>

USDA, National Agricultural Statistics Service (2021)

Table 4.14. Soybean Production 2017

<i>State/Region</i>	Area Planted (1,000 acres)	Area Harvested (1,000 acres)	Yield Per Acre (bushels)	Production (1,000 bushels)	Price per Bushel (dollars)	Value of Production (1,000/\$)
Illinois	10,600	10,550	58.0	611,900	9.60	5,874,240
Iowa	10,000	9,940	57.0	566,580	9.25	5,240,865
Missouri	5,150	5,100	49.5	292,545	9.08	2,960,307
Indiana	5,950	5,940	54.0	320,760	9.61	3,082,504
Ohio	5,100	5,090	49.5	251,955	9.62	2,423,807
<b>Total Corn Belt</b>	<b>37,600</b>	<b>36,620</b>	<b>53.6</b>	<b>2,043,740</b>	<b>9.43</b>	<b>19,581,723</b>

USDA, National Agricultural Statistics Service (2021)

Table 4.15. Soybean Production 2019

<i>State/Region</i>	Area Planted (1,000 acres)	Area Harvested (1,000 acres)	Yield Per Acre (bushels)	Production (1,000 bushels)	Price per Bushel (dollars)	Value of Production (1,000/\$)
Illinois	9,950	9,860	54.0	532,440	9.15	4,871,826
Iowa	9,200	9,120	55.0	501,600	8.65	4,338,840
Missouri	5,100	5,780	46.0	230,460	8.40	2,378,376
Indiana	5,400	5,360	51.0	273,360	9.10	2,487,576
Ohio	4,300	4,270	49.0	209,230	9.15	1,914,455
<b>Total Corn Belt</b>	<b>33,950</b>	<b>34,390</b>	<b>51.0</b>	<b>1,747,090</b>	<b>8.9</b>	<b>15,991,073</b>

USDA, National Agricultural Statistics Service (2021)

## Organic Crops

Trends for organic crop production in states across the Corn Belt over recent years are highlighted in Table 4.16. Data were collected across three fixed, 5-year intervals and provide a portrayal of changes in organic crop production throughout the region.

Table 4.16. Organic Crop Production

<i>State/Region</i>	Certified Organic		Primary Production Challenges			5-Year Production Plan		
	Number of farms	Cropland (acres)	Regulatory problems	Price Issues	Production problems	% of farms increase	% of farms maintain	% of farms decrease
<b>2009</b>								
Illinois	229	25,623	32%	89%	17%	43%	32%	5%
Iowa	518	77,491	39%	7%	20%	28%	47%	5%
Indiana	148	9,137	41%	5%	21%	34%	50%	4%
Ohio	547	50,220	52%	7%	16%	39%	42%	2%
<b>2014</b>								
Illinois	249	41,054	27%	3%	26%	36%	51%	2%
Iowa	612	97,448	39%	5%	21%	36%	48%	2%
Indiana	282	26,298	50%	3%	18%	31%	58%	2%
Ohio	541	74,391	45%	4%	16%	42%	45%	2%
<b>2019</b>								
Illinois	258	60,688	41%	38%	40%	47%	36%	4%
Iowa	779	133,691	45%	36%	35%	31%	53%	2%
Indiana	595	-	51%	24%	30%	23%	55%	1%
Ohio	785	111,920	47%	24%	35%	31%	45%	3%

## 5. CONSERVATION PRACTICES

Climate and natural resources are important for long-term economic sustainability in communities throughout the Midwest. As such, participation in conservation programs is becoming increasingly important for agricultural producers in the Corn Belt region. Despite its economic and social benefits, agriculture is now a leading source of water pollution in the United States (Reimer et al., 2013).

Since its establishment in 1985, the Conservation Reserve Program (CRP) has been among the largest and most successful private lands conservation programs. As indicated by previous research and highlighted by findings from the mail-out survey presented above, certain types of farmers are more likely to seek participation in large agricultural conservation programs. Table 4.17 examines CRP enrollment by state and year across three fixed periods to provide a portrait of CRP enrollment throughout the Corn Belt region over the last decade.

<i>State</i>	Number of Contracts	Number of Farms	Acres	Annual Rental (\$1,000)	Payments (\$/Acre)
<b>2020</b>					
Illinois	75,201	42,474	841,743	166,042	197.26
Indiana	32,097	18,261	213,638	40,177	188.06
Iowa	105,159	53,577	1,705,188	382,480	224.30
Ohio	34,825	19,408	237,068	42,540	179.44
<b>2017</b>					
Illinois	78,903	43,802	895,410	161,857	180.76
Indiana	34,729	19,557	231,299	38,684	167.25
Iowa	109,068	54,616	1,786,530	360,729	201.92
Ohio	36,139	20,130	257,519	41,626	161.64
<b>2013</b>					
Illinois	81,854	81,854	992,878	125,590	126.49
Indiana	37,094	20,688	263,238	31,947	121.36
Iowa	102,327	51,702	1,524,985	214,345	140.56
Ohio	37,286	20,893	317,060	39,903	125.85

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## CONCLUSION

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Findings reveal three out of four agriculture-producing respondents did not practice conservation crop rotations that incorporated cover crops during the 2019-2020 season. Despite not being limited by factors such as cost, time, lack of knowledge, or property characteristics, forty-one percent of producer respondents did not practice conservation tillage as a management approach to minimizing tillage. Respondents with middle or median-size operations were less likely to practice conservation tillage compared to smaller or larger operations, whereas respondents leasing land were more likely to implement precision farming practices than those owning land.

For participants, fertilizer and residue from herbicides or pesticides were cited as the greatest threats to surface water quality ‘in the area where they lived.’ Urban sprawl and fertilizer from fields were targeted as the greatest threats to surface water quality statewide. Respondents were more likely to report no threats to surface water quality ‘in the area where they lived,’ than to report no threats to surface water quality statewide.

Just under two-thirds of respondents performed practices for the specific benefit of wildlife. At the time of the survey, fifty percent of respondents were currently participating in the Conservation Reserve Program (CRP). Aside from CRP, approximately half of respondents were unfamiliar with the conservation programs listed. Red tape and too much paperwork were frequently cited as reasons for non-participation.

The vast majority of respondents (98%) did not grow or process USDA certified organic foods. Likewise, overall attitudes toward organic food production were consistently neutral when compared to statements concerning the environment and/or long-term sustainability of agriculture in Illinois.

The enduring impact of agriculture in Illinois hinges, in some part, on recognizing that agriculture plays a dominant role in supporting Illinois’ economy and understanding that conservation practices are key to long-lasting return on investment. Soil quality, water quality, climate, and terrain are just a few of the environmental issues that may impact profits and productivity for farmers in any given growing season now and for generations to come.

In order to successfully engage and appeal to conservation motivations, it is essential to understand what motivates behaviors of both landowner and agricultural producers. Tailoring

outreach and education efforts to these motivations can increase the effectiveness as some messages may not resonate across various demographic or stakeholder groups.

Demand for accountability has increased, partly due to increased competition for resources among agencies and organizations. Non-governmental organizations are extending education and training services to farmers and agribusinesses, however these efforts have not penetrated much of this community. Targeted communication strategies should therefore align with landowner motivations and encourage future conservation behaviors by equipping people with the skills needed through training and one-on-one communication.

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## APPENDIX A – Survey Instrument

# Illinois

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## Survey of Agricultural Producers and Landowners



The Lumpkin Family Foundation  
&  
Illinois Natural History Survey



This study is funded by the Lumpkin Foundation through grants and conduct programs that support people working together to build healthy, sustainable communities in East Central Illinois and beyond.

**THANK YOU FOR YOUR PARTICIPATION!**  
Please return this survey in the postage-paid return envelope provided.



6. Do you grow or process **USDA certified organic foods**? (Please check one)

Yes, all acres  Yes, some acres  No

7. Do you grow **genetically modified organisms (GMO)**? (Please check one)

Yes, all acres  Yes, some acres  No

**Section 2. Soil and Water Conservation.** Please answer the following statements about soil and conservation in Illinois.

1. Of your cropland, how many acres are under **conservation tillage**? \_\_\_\_\_ acres

1a. Does your cropland contain or border a ditch, stream, river, or wetland?

Yes  No (Please skip to **Question 2**)

1b. Of your **cropland under conservation tillage**, how many acres border a ditch, stream, river, or wetland? \_\_\_\_\_ acres

2. How much do each of the following **limit your ability** to practice **conservation tillage**? Please circle the number that best matches your response.

	Not at All		Somewhat		Moderately		Extremely
I do not know enough about it	1	2	3	4	5	6	7
Too much time required	1	2	3	4	5	6	7
Cost of conservation tillage	1	2	3	4	5	6	7
I do not have enough property	1	2	3	4	5	6	7
Not enough proof of benefits	1	2	3	4	5	6	7
Too much equipment required	1	2	3	4	5	6	7
Increased damage by wildlife	1	2	3	4	5	6	7

3. Which of the following do you feel are the most serious threats to **surface water IN THE AREA WHERE YOU LIVE**? Please check all that apply.

- |                                                             |                                                                                       |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <input type="checkbox"/> heavy metals (mercury, lead, etc.) | <input type="checkbox"/> manure runoff from industrial livestock feedlots             |
| <input type="checkbox"/> chemical residue from pesticides   | <input type="checkbox"/> chemical residue from herbicides                             |
| <input type="checkbox"/> fertilizers from fields            | <input type="checkbox"/> development / urban sprawl                                   |
| <input type="checkbox"/> streambank erosion                 | <input type="checkbox"/> silt from construction                                       |
| <input type="checkbox"/> mine runoff                        | <input type="checkbox"/> I don't feel there are threats to water quality where I live |

4. Which of the following do you feel are the most serious threats to **surface water throughout the STATE OF ILLINOIS**? Please check all that apply.

- |                                                             |                                                                                       |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <input type="checkbox"/> heavy metals (mercury, lead, etc.) | <input type="checkbox"/> manure runoff from industrial livestock feedlots             |
| <input type="checkbox"/> chemical residue from pesticides   | <input type="checkbox"/> chemical residue from herbicides                             |
| <input type="checkbox"/> fertilizers from fields            | <input type="checkbox"/> development / urban sprawl                                   |
| <input type="checkbox"/> streambank erosion                 | <input type="checkbox"/> silt from construction                                       |
| <input type="checkbox"/> mine runoff                        | <input type="checkbox"/> I don't feel there are threats to water quality in Illinois. |

5. Please state how much you *disagree* or *agree* with each of the following statements about **water quality and soil health** by circling the number that matches your response.

	Strongly Disagree	Disagree	Slightly Disagree	Unsure	Slightly Agree	Agree	Strongly Agree
My actions have minimal impact on water quality.	1	2	3	4	5	6	7
If more farmers used conservation tillage, water quality in Illinois would improve.	1	2	3	4	5	6	7
It is important to help protect water quality even if it slows economic development.	1	2	3	4	5	6	7
The quality of life in my community depends on good water quality in local streams, rivers, and lakes.	1	2	3	4	5	6	7
I would be willing to change the way I manage my property to improve water quality.	1	2	3	4	5	6	7
It is my responsibility to decrease fertilizer run-off into streams.	1	2	3	4	5	6	7
Healthy soils increase productivity and drought resistance.	1	2	3	4	5	6	7
There should be stricter oversight on fertilizer use.	1	2	3	4	5	6	7
Farmers have a responsibility to use soil resources, such as not to cause erosion.	1	2	3	4	5	6	7
It is a waste of money to use excess fertilizer.	1	2	3	4	5	6	7
Conservation program payments to farmers would increase incentives for storing more nutrients in soil.	1	2	3	4	5	6	7

**Section 3: Future Changes in Farming Practices.** Please answer the following questions about future changes in your farming practices.

1. Please indicate how *likely* it is that the people (or groups of people) listed below would **expect you** to implement conservation practices such as conservation tillage and stream buffers.

	Extremely Unlikely	Moderately Unlikely	Slightly Unlikely	Neutral	Slightly Likely	Moderately Likely	Extremely Likely
My family	1	2	3	4	5	6	7
Other farmers	1	2	3	4	5	6	7
Environmental organizations	1	2	3	4	5	6	7
My neighbors	1	2	3	4	5	6	7
Government agencies	1	2	3	4	5	6	7

2. Please state **how familiar** you are with each of the different conservation programs listed below by circling the number that best matches your response.

	Not at all familiar	Familiar, not participated	Participated but not now	I currently participate
Conservation Reserve Program (CRP)	1	2	3	4
Agricultural Conservation Easement Program (ACEP)	1	2	3	4
Environmental Quality Incentives Program (EQIP)	1	2	3	4
State Acres for Wildlife Enhancement (SAFE)	1	2	3	4
Farmable Wetlands Program (FWP)	1	2	3	4
Conservation Stewardship Program (CSP)	1	2	3	4
Fall Covers for Spring Savings Program	1	2	3	4
Partners for Conservation Program	1	2	3	4
Saving Tomorrows Agricultural Resources (STAR)	1	2	3	4
Other (Please identify) _____	1	2	3	4

3. Which of the following best describes **your participation** in a conservation program? (Please choose one)

- I currently participate and plan to re-enroll. (Please skip to **Question 4**)
- I applied but did not get approved. (Please skip to **Question 4**)
- I currently participate but do not plan to re-enroll.
- I used to participate but no longer do so.
- I have never participated.

3a. If you **do not participate or plan on re-enrolling** in a conservation program, please indicate the importance of the following statements by circling the number that best matches your response.

<i>I do not participate or plan to re-enroll because ...</i>	Not at all important		Slightly important		Moderately important		Extremely important
I need to increase my income.	1	2	3	4	5	6	7
There is too much red tape.	1	2	3	4	5	6	7
It will reduce options for using my land.	1	2	3	4	5	6	7
The costs to participate are too high.	1	2	3	4	5	6	7
It is too labor intensive.	1	2	3	4	5	6	7
I put more land into production.	1	2	3	4	5	6	7
Compensation is not enough.	1	2	3	4	5	6	7
There is too much paperwork.	1	2	3	4	5	6	7
Not a typical practice in my community.	1	2	3	4	5	6	7
Not enough technical assistance available.	1	2	3	4	5	6	7
Previous experience was not successful.	1	2	3	4	5	6	7
Other (Please identify) _____	1	2	3	4	5	6	7

4. In the future, would you like to **change** your farming practices? \_\_\_\_ Yes \_\_\_\_ No (Skip to **Question 5**)

4a. If “Yes,” **how?** (Please circle the number that best matches your response)

<i>In the future, I would like to change my farming practices by...</i>	Decrease	Slightly Decrease	No Change	Slightly Increase	Increase
Crop diversification	1	2	3	4	5
Precision farming (GPS, robotics, etc.)	1	2	3	4	5
Pesticide use (insecticides, herbicide, etc.)	1	2	3	4	5
Fertilizer use	1	2	3	4	5
Integrated Pest Management (IPM)	1	2	3	4	5
Cover crops	1	2	3	4	5
Soil conservation practices	1	2	3	4	5
Livestock operations	1	2	3	4	5
Organic production	1	2	3	4	5
Industrial hemp production	1	2	3	4	5
Wildlife conservation practices	1	2	3	4	5
Others (Please specify) _____	1	2	3	4	5

5. Please indicate **how much you rely** on the following resources to obtain information about topics related to sustainable farming. (Circle the number that best matches your response).

	Mostly rely	Somewhat rely	Slightly rely	Do not rely	Not aware of
Non-profit organizations	1	2	3	4	5
Farm service agencies	1	2	3	4	5
Government agencies	1	2	3	4	5
Friends & family	1	2	3	4	5
Print materials (magazines, etc.)	1	2	3	4	5
Internet, webcasts, podcasts	1	2	3	4	5
Trade shows & fairs	1	2	3	4	5
Other farmers or ranchers	1	2	3	4	5
County and local meetings	1	2	3	4	5
On-farm consultations	1	2	3	4	5
Other (Please specify) _____	1	2	3	4	5

6. Which of the following sources **do you trust** to give you accurate and up to date information about topics related to sustainable farming? Please check **all that apply**.

- |                                                          |                                                        |                                              |
|----------------------------------------------------------|--------------------------------------------------------|----------------------------------------------|
| <input type="checkbox"/> Prairie Rivers Network          | <input type="checkbox"/> Illinois Farmer Today         | <input type="checkbox"/> UIUC Extension      |
| <input type="checkbox"/> USDA Natural Resources Services | <input type="checkbox"/> Illinois Farm Bureau (IFB)    | <input type="checkbox"/> The Land Connection |
| <input type="checkbox"/> American Farmland Trust         | <input type="checkbox"/> Illinois Stewardship Alliance | <input type="checkbox"/> Illinois AgriNews   |
| <input type="checkbox"/> Illinois Green Economy Network  | <input type="checkbox"/> Illinois Farmers Union        | <input type="checkbox"/> IDEA Farm Network   |
| <input type="checkbox"/> The Nature Conservancy          | <input type="checkbox"/> Other (Please specify) _____  |                                              |

7. How **concerned** are you about the following potential issues on your operation over the **next five years**?

	Not concerned	Slightly concerned	Concerned	Extremely concerned
Price of land for expansion	1	2	3	4
New mandates and regulations	1	2	3	4
Fluctuations in global financial markets	1	2	3	4
Severe weather problems	1	2	3	4
Farm transition or succession planning	1	2	3	4
Pest or disease resistance	1	2	3	4
Rising costs of inputs (labor, seed, etc.)	1	2	3	4
Other ( <i>Please specify</i> )	1	2	3	4

**Section 4. Attitudes Toward Agriculture and Farming in Illinois.** Please indicate whether you agree or disagree with the following statements about farming by circling the number that best matches your response.

	Strongly Disagree	Disagree	Slightly Disagree	Unsure	Slightly Agree	Agree	Strongly Agree
Small to medium-sized farms can best serve Illinois' agricultural needs.	1	2	3	4	5	6	7
Healthy rural communities are essential for future success of agriculture in Illinois.	1	2	3	4	5	6	7
Severe weather in Illinois is increasing.	1	2	3	4	5	6	7
Non-agricultural land development is a serious threat to Illinois agriculture.	1	2	3	4	5	6	7
GMO technologies reduce pesticide use.	1	2	3	4	5	6	7
Certified organic production is too costly.	1	2	3	4	5	6	7
My farm operations are changing as a result of severe weather in Illinois.	1	2	3	4	5	6	7
Organic farming is more profitable per acre than conventional farming.	1	2	3	4	5	6	7
GMO crops are a threat to environment.	1	2	3	4	5	6	7
It is difficult to get information regarding organic farming.	1	2	3	4	5	6	7
More local markets for organic produce need to be created.	1	2	3	4	5	6	7
Increased production of organic food benefits rural communities by creating new jobs.	1	2	3	4	5	6	7
Certified organic standards are too restrictive.	1	2	3	4	5	6	7
Severe weather has increased the expenses of my operation.	1	2	3	4	5	6	7

**Section 5: General Household Information.** Please answer the following questions about your general household information.

The following information is helpful to describe different groups of households. Your answers will be used for statistical purposes and will not be identified with you personally.

1. What is your gender?     Male         Female
  
2. How long has your farm been in your family? \_\_\_\_\_ years
  
3. Are you the primary decision-maker on the farm operations?     Yes         No
  
4. Please give your age. \_\_\_\_\_ years
  
5. What is your **county** of residence? \_\_\_\_\_ County
  
6. With which of the following groups(s) do you identify? (Please select **all that apply**)
 

<input type="checkbox"/> Caucasian/White	<input type="checkbox"/> Hispanic
<input type="checkbox"/> African-American	<input type="checkbox"/> Native American (American Indian)
<input type="checkbox"/> Asian-American	<input type="checkbox"/> Other (please specify) _____
  
7. Have you taken any courses in agriculture? (Please select **all that apply**)
  - No, I have never taken any course in agriculture
  - Yes, I have taken workshops through Extension programs
  - Yes, I have an associate degree in agriculture or a related field
  - Yes, I have a bachelor's degree in agriculture or a related field
  - Yes, I have an advanced degree in agriculture or a related field
  
8. Approximately what percentage of your **total net household income** is from agriculture? (Please **check one**)
 

0% to 10%     11% to 25%     26% to 50%     51% to 75%     76% to 100%

**Comments:**

**THANK YOU FOR YOUR PARTICIPATION!**

All of your responses will be kept confidential.  
Please return this survey in the postage-paid return envelope provided.

## APPENDIX B – Cover Letter (Landowner / Agricultural Producer)



### ILLINOIS NATURAL HISTORY SURVEY

Prairie Research Institute  
University of Illinois at Urbana-Champaign

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Dear Illinois Landowner,

We recently mailed you a questionnaire about agriculture in Illinois. If you have already returned the questionnaire, we thank you.

**If you have not returned your completed questionnaire, please do so as soon as possible. We have enclosed another copy for you.** The information you and other selected participants provide will help identify opportunities that support people working together to build a stronger food system in Illinois. **Your responses are voluntary and completely confidential.**

A postage paid envelope is provided for returning the questionnaire to us.

You may access the results of this and other studies related to resource management and environmental health in Illinois at <http://www.inhs.illinois.edu/programs/hd/>. You may also find information about The Lumpkin Family Foundation at <https://www.lumpkinfoundation.org/>.

If you have questions regarding this study, please call (763) 258-4990.

Thank you for helping with this important study.

Sincerely,

Craig A. Miller  
Human Dimensions Research Program



1816 South Oak Street,  
Champaign, Illinois 61820 USA

**I** ILLINOIS NATURAL HISTORY SURVEY  
Prairie Research Institute  
University of Illinois at Urbana-Champaign

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Dear Illinois Agricultural Producer,

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If you have questions regarding this study, please call (763) 258-4990.

Thank you for helping with this important study.

Sincerely,



Craig A. Miller  
Human Dimensions Research Program



1816 South Oak Street,  
Champaign, Illinois 61820 USA

## APPENDIX C – Postcard (Landowner / Agricultural Producer)

Dear Illinois Landowner,

Recently you were mailed a questionnaire about agriculture in Illinois. We have not yet received your response. **If you have already returned the questionnaire, we thank you. If you have not returned the questionnaire, please do so as soon as possible. Your input is very important!**

Your name and address will be deleted from our mailing list when your questionnaire is received. Thank you for your cooperation.

Dear Illinois Agricultural Producer,

Recently you were mailed a questionnaire about agriculture in Illinois. We have not yet received your response. **If you have already returned the questionnaire, we thank you. If you have not returned the questionnaire, please do so as soon as possible. Your input is very important!**

Your name and address will be deleted from our mailing list when your questionnaire is received. Thank you for your cooperation.

## APPENDIX D – Counties in East Central Illinois

