

## Appendix A. Survey Instrument

Hello, my name is \_\_\_\_\_, and I am calling on behalf of Purdue University. Today, we are talking with farmers from across the United States to understand their perspectives and usage of precision farming technologies.

The following questions should take less than five minutes to complete. Your participation is voluntary and your responses will remain anonymous.

1. Do you agree that precision farming technologies and services are an important contributor to your farm's current financial profitability (yes or no)  
 Yes  
 No
2. Compared to a year ago, is your farm planning more, less, or about the same level of annual investments in precision farming technologies and services  
 More  
 Less  
 About the Same
3. Looking ahead 5 years from now, do you expect your farm will be making more, less, or about the same level of annual investments in precision farming technologies and services as 2016?  
 More  
 Less  
 About the Same
4. Have precision farming technologies and services made you a better farm manager? Yes or no.  
 Yes  
 No
5. Have precision farming technologies and services made your job as a farm manager easier? Yes or no.  
 Yes  
 No
6. Would you consider your farming operation an early adopter of precision farming technologies and services? Yes or no.  
 Yes  
 No

7. Which of the following is most the most compelling reason to adopt a precision farming technology or service?
- \_\_\_\_\_ Cost Savings or \_\_\_\_\_ Yield Improvement
  - \_\_\_\_\_ Yield Improvements or \_\_\_\_\_ Convenience
  - \_\_\_\_\_ Convenience or \_\_\_\_\_ Cost Savings
8. On a scale from 1 to 9 (where 1 is “strongly disagree” and 9 is “strongly agree”) rate the following potential barriers to adopting precision farm technologies and services.
- Cost (1-9)
  - Lack confidence in recommendations (1-9)
  - Reduced farm profitability (1-9)
  - Topography (size, shape, and field features) (1-9)
  - Lack of variability in soil productivity (1-9)
  - Too difficult to make decisions based on precision farming technologies and services (1-9)
  - Lack of service partners to support precision farming (1-9)
9. On a scale from 1 to 9 (where 1 is “very inaccurate” and 9 is “very accurate”), how would you rate the following sources of data
- The data you collect on your farm. (1-9)
  - The data your neighbors collect on their farms. (1-9)
  - The data inputted and shared via benchmarking services. (1-9)
10. For management decisions made from precision farming technologies (such as variable seeding rates, variable fertilizer application rates, etc.), do you think these decisions are best made internally by your own farm’s personnel or by a service provider outside your own farm?
- \_\_\_\_\_ Your own farm’s personnel
- \_\_\_\_\_ Service provider outside your own farm (such as a coop, ag retailer, large agribusiness/consultant)
11. In your opinion, what is the most valuable precision farming technology or service that you are aware of? (open ended response)
12. In your opinion, what is the least valuable precision farming technology or service that you are aware of? (open ended response)
13. Does your farm currently use the following precision farming technologies or services: (Yes or No):
- Variable rate fertilizer application (Yes or No)

- b. Variable rate seed application (Yes or No)
- c. Yield monitors (Yes or No)
- d. Auto-steer (Yes or No)
- e. Precision soil sampling (Yes or No)
- f. Drones or UAV (or “Unmanned Aerial Drone” provide only if needed). (Yes or No)
- g. Satellite/Aerial imagery (Yes or No)

14. What single improvement in precision farming is most needed? (open-ended responses)

15. Given the following two options, where do you think most of the improvements in precision farming will be made?

\_\_\_\_\_ 1) Improvements in data collection

\_\_\_\_\_ 2) Improvements in recommendations based upon data collected.

16a. For each of the following pairs choose the precision farming technology that is most likely to **increase yield**. (check one for each pair)

- |    |   |           |   |
|----|---|-----------|---|
| 1. | <input type="checkbox"/> Variable rate fertilizer application | <u>or</u> | <input type="checkbox"/> Precision soil sampling              |
| 2. | <input type="checkbox"/> Variable rate fertilizer application | <u>or</u> | <input type="checkbox"/> Yield monitor                        |
| 3. | <input type="checkbox"/> Yield monitor                        | <u>or</u> | <input type="checkbox"/> Precision soil sampling              |
| 4. | <input type="checkbox"/> Yield monitor                        | <u>or</u> | <input type="checkbox"/> Guidance & auto-steer                |
| 5. | <input type="checkbox"/> Guidance & auto-steer                | <u>or</u> | <input type="checkbox"/> Variable rate fertilizer application |
| 6. | <input type="checkbox"/> Precision soil sampling              | <u>or</u> | <input type="checkbox"/> Guidance & auto-steer                |

16b. For each of the following pairs choose the precision farming technology that is most likely to **reduce production costs**. (check one for each pair)

- |    |   |           |   |
|----|---|-----------|---|
| 1. | <input type="checkbox"/> Variable rate fertilizer application | <u>or</u> | <input type="checkbox"/> Precision soil sampling              |
| 2. | <input type="checkbox"/> Variable rate fertilizer application | <u>or</u> | <input type="checkbox"/> Yield monitor                        |
| 3. | <input type="checkbox"/> Yield monitor                        | <u>or</u> | <input type="checkbox"/> Precision soil sampling              |
| 4. | <input type="checkbox"/> Yield monitor                        | <u>or</u> | <input type="checkbox"/> Guidance & auto-steer                |
| 5. | <input type="checkbox"/> Guidance & auto-steer                | <u>or</u> | <input type="checkbox"/> Variable rate fertilizer application |
| 6. | <input type="checkbox"/> Precision soil sampling              | <u>or</u> | <input type="checkbox"/> Guidance & auto-steer                |

16c. For each of the following pairs choose the precision farming technology that is most likely to **increase convenience**. (check one for each pair)

- |    |   |           |  |
|----|---|-----------|--|
| 1. | <input type="checkbox"/> Variable rate fertilizer application | <u>or</u> | <input type="checkbox"/> Precision soil sampling |
| 2. | <input type="checkbox"/> Variable rate fertilizer application | <u>or</u> | <input type="checkbox"/> Yield monitor           |

- |   |           |   |
|---|-----------|---|
| 3. <input type="checkbox"/> Yield monitor           | <u>or</u> | <input type="checkbox"/> Precision soil sampling              |
| 4. <input type="checkbox"/> Yield monitor           | <u>or</u> | <input type="checkbox"/> Guidance & auto-steer                |
| 5. <input type="checkbox"/> Guidance & auto-steer   | <u>or</u> | <input type="checkbox"/> Variable rate fertilizer application |
| 6. <input type="checkbox"/> Precision soil sampling | <u>or</u> | <input type="checkbox"/> Guidance & auto-steer                |

17. What precision farming technology will have the most impact on your farm over the next decade?

(Open ended response)

18. How important do you think adoption of precision ag technologies will be for your farm to remain competitive in the coming decade? (1 to 9, very unimportant to unimportant)

19. How many acres will your farm operation plant in 2017?

\_\_\_\_\_

Thank you for completing today's survey. Your responses are helpful to the researchers at Purdue University.