



CYBERSECURITY IN AGRICULTURE PROJECT REPORT

January 24, 2024

Relevance: Agriculture is one of 16 critical infrastructure sectors for the U.S. economy and national security (www.cisa.gov.) In addition, the digitization of agriculture and the exponential rise in the number of internet connected devices on Iowa's farms raises concerns. In the fall of 2021, cyberattacks on Iowa's agribusinesses increased the urgency to secure farm and rural business cyber ecosystems.

Response: Responding to these forces of change and advancing technologies, the farm management team developed a partnership with the Center for Cybersecurity Innovation and Outreach (CyIO) and submitted a Cybersecurity in Agriculture grant proposal to the North Central Extension Risk Management Education Center. The goal of the project was to help farmers increase their cybersecurity literacy and learn practical steps to proactively manage cyber threats. The grant was funded at \$50,000.

The project began with a one-day train-the-trainer workshop for 15 farm management team members which was conducted by CyIO team members Doug Jacobson and Ally Frickel. This laid the groundwork for collaboration. CyIO team members Doug, Ally, Lindsay, and Alycia all worked closely with the farm management team to develop publications, videos, and presentations. Cori Hyde (RISE) supported the team on evaluation.

As the farm management team and CyIO developed new educational content for our audience, we strived to meet our audience where they were at and learn from them what information they valued. We created lessons to insert into other programs and developed online resources.

The farm management team built a network in the agriculture and cyber industries to serve as speakers and collaborators. Additional financial support of \$2,500 was secured for conference expenses from Iowa-Sustainable Agriculture Research and Education, Farm Credit Services of America, and Cybersecurity for Smart Agriculture - a project funded by the office of the President at ISU. Partnerships with the Iowa Farm Bureau Federation, and National Annie's Project gave us access to new audiences as we designed lessons for their programs.



These new partnerships are ongoing. The farm management team is presenting 30-minute cybersecurity presentations at five Iowa Farm Bureau Federation workshops in February 2024. The farm management team is also planning our next steps with CyIO.

"I listened in on the cybersecurity webinars . . .this week and just wanted to send a quick note that I thought they were very helpful and well done. It is a huge issue and it is great to get good information out to farmers and rural residents." - Extension Week cybersecurity webinars participant.

"I thought I was being nice when I shared a post about a lost puppy. I had no idea I was leaving myself and my friends open for cyber-attacks. [Extension] helped me change my security settings and I feel much safer now." – Annie's Project cyber lesson participant.



Activities: The farm management team interacted with 2,906 farmers, women in agriculture, and educators to share important messages on cybersecurity from April 2022 to January 2024 as follows.

- 595 people viewed the Ag Decision Maker publication, "Everyone Has a Role in Cybersecurity."
- 1,203 farmers participated in ten-minute lessons on cybersecurity during one of 70 farmland leasing meetings.
- 185 Iowa State University Extension and Outreach Ag and Natural Resources colleagues heard a lightning talk on cybersecurity at annual conference.
- 23 women took part in a one-hour breakout on cybersecurity at the ISU Extension and Outreach Women in Ag Leadership Conference.
- 148 farmers participated in a 15-minute cybersecurity lesson during one of five Iowa Farm Bureau Federation Managing Margins workshops.
- 358 people viewed one of five videos and handouts on malware, phishing, passwords, cybersafety, and adversaries.
- 61 women participated in a one-hour lesson on cybersecurity during one of five Annie's Project: Farm Business Management courses.
- 37 people participated in a one-hour webinar on cybersecurity for the National Annie's Project Showcase series.
- 90 Extension educators were introduced to cybersecurity during the National Extension Risk Management Education Conference poster session.
- 159 people participated in one or all three Cybersecurity on the Farm webinars during Extension Week.
- 47 people participated in a one-day Cybersecurity on the Farm Conference.

Results: After attending a cybersecurity lesson at farmland leasing meetings, survey respondents (215) indicated 50% intended to make changes to home or business to protect from cyberattacks, 94% felt it's important to have unique passwords on sensitive accounts, and 96% felt it's important to know the source of an email before clicking links.

Women responding (10) to six-month follow-up surveys about Annie's Project cybersecurity lessons indicated 90% discussed cybersecurity with family, 60% took one or more actions to increase cyber safety, and 50% accessed resources. Take-aways included "How to interact with banks, co-ops, and businesses, online safely," and "How to recognize phishing scams."

After attending the leadership conference breakout on cybersecurity survey respondents (7) indicated 71% gained a significant amount of knowledge. They commented, "Cyber threats are real and can be managed," and wanted more about "Cybersecurity updates on computer, phone...with a checklist."

The quality of the speakers, materials, and resources were rated as 'somewhat high' or 'high' by 100% of Extension Week webinar survey respondents (7). Take-aways included: "Importance of using complex passwords." Goals included: "Make our business transactions more secure."

Survey respondents (15) at the cybersecurity on the farm conference indicated 100% gained knowledge on all four topics. Take-aways included: "Change default password on devices," and "Multi-factor, importance of it." Respondents wanted more about: "Practical tools, implementations - low cost or free."

Impact: This Cybersecurity in Agriculture project brought key partners together. Farmers increased their knowledge about cybersecurity and requested additional education. The ISU Extension and Outreach Farm Management Team has an important role in addressing an issue growing in importance. When the farming community increases cybersecurity awareness and implements proactive risk management steps, the agricultural industry can be more resilient to cyberattacks and improve food security for all Iowans.

Project Team Members

Farm Management team members: Farm Management Extension Specialists - Charles Brown, Tim Christensen, Ryan Drollette, Patrick Hatting, Kelvin Leibold, Melissa O'Rourke (former specialist), Alexis Stevens, and Gary Wright; Economics Professors - Chad Hart and Bobby Martens; Ag Decision Maker Manager – Ann Johanns; and Farm Management Women in Ag Program - Lisa Scarbrough (communications specialist) and Madeline Schultz (extension specialist). Center for Cybersecurity Innovation and Outreach team members: Program Specialists - Lindsay Foster and Ally Frickel (former specialist); Electrical Engineering Professor - Doug Jacobson; and Graduate Student in Education - Alycia West. Research Institute for Studies in Education (RISE) team member: Cori Hyde (Research Scientist).

Project website:

<https://www.extension.iastate.edu/agdm/info/cybersecurity.html>

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