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Animal Agriculture in a Changing Climate Online Course: An Effective Tool for Creating Extension Competency

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Animal Agriculture in a Changing Climate Online Course: An Effective Tool for Creating Extension Competency

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Abstract

There is a need to create competency among Extension professionals on the topic of climate change adaptation and mitigation in animal agriculture. The Animal Agriculture in a Changing Climate online course provides an easily accessible, user-friendly, free, and interactive experience for learning science-based information on a national and regional level. The web-based curriculum is proving to be a useful tool and valuable resource for Extension educators in gaining knowledge and being better equipped to inform and influence livestock and poultry producers regarding climate issues.

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Introduction

Given that climate change is a new topic for many Extension educators and other livestock advisors, a need exists for science-based content to provide subject matter competence and tools for educational programs. A national team of Extension faculty and professionals was funded to build Extension capacity with the goal of informing and influencing livestock and poultry producers and consumers of animal products in all regions of the United States. The primary goal of the work is to foster adoption of animal production practices that are environmentally sound, climatically compatible, and economically viable.

Providing a Free, High-Quality Interactive Online Resource

To help meet the goals of the project, a free online course was developed to provide a high-quality, user-friendly platform for educating a geographically diverse population of Extension educators and

farm advisors. This self-paced course can be completed in 10 to 12 hr and is offered through Moodle, a web-based, open-source learning platform. Course lesson topics include

- climate and weather trends,
- impacts on animal agriculture,
- risk management and adaptation,
- climate science,
- sources of greenhouse gas (GHG) emissions,
- options to reduce GHG emissions,
- policy and regulations, and
- communicating science and controversial issues.

Each lesson includes recorded lectures, quizzes, and forums in which students and instructors can interact. In addition to the required course materials, there are links for further reading. The online interactive forums let students share expertise and data with other participants from across the United States as well as internationally. This interaction among users not only informs participants about each other's challenges and potential solutions, but also broadens perspectives and gives each student access to a pool of diverse, talented professionals.

Benefits of Completing the Online Course

After completing the course, a student will

- be aware of recent weather trends in the United States and future climate projections,
- understand how weather and climate affect animal production,
- understand the implications of environmental stress on specific animal species and food production,
- be familiar with management and technology options for dealing with extreme weather events (e.g., drought, periods of prolonged heat),
- have a fundamental understanding of climate science and the basis for projected climate change,
- be able to identify major sources of GHG emissions in animal agriculture and understand how emissions are estimated by using life cycle analysis,
- be familiar with ways to reduce net GHG emissions from animal production systems,

- understand the practice of carbon sequestration and its benefits for agricultural production,
- be familiar with current regulations related to carbon emissions and voluntary carbon market opportunities for animal agriculture, and
- understand effective strategies for communicating controversial issues, such as climate change.

Continuing Education and Professional Development Credits Available

Students completing the course are eligible for 10 Certified Crop Advisor continuing education units or eight American Registry of Professional Animal Scientists continuing education units. Students also receive a certificate of completion validating knowledge and competency in the area of animal agriculture and climate change. Additionally, users of the course can stay informed with weekly blogs and regional newsletters that provide continuing education on current events and research.

Science-Based Information Delivered by Region-Centric Web-Based Training

The online course is congruent with other successful Extension methods of delivering information on controversial topics in Extension that strive to provide science-based education while providing local examples and having the student focus on regional issues. Morris, Megalos, Vuola, Adams, and Monroe (2014) suggested developing an approach that addresses the clients' varied needs while providing necessary information to emphasize resources related to health and resilience, concentrate educational efforts on clients who lack strong opinions on climate change, and focus on the local climate impacts/threats rather than regional or national trends. To achieve these recommendations, Extension agents may require additional training in climate science and adaptive management, similar to the online course. For a better understanding of farmer perceptions toward climate change education, the Central Great Plains Climate Education Partnership conducted focus groups in Kansas (Hibbs et al., 2014). Participants indicated that they prefer access to information through web-based programs that allow them to manipulate variables relevant to their area and situation. Participants also favor locally relevant information and identified Extension agents as trusted educators.

A Valuable and Useful Resource for Extension

As of January 2015, 97 people had completed the online course since it opened in September 2013, whereas 270 people expressed interest in the course through registration (resulting in a 36% completion rate). Although a higher completion rate is desired, the majority of those who completed the course found the information gained to be very valuable. A survey was administered to those who completed the course by the Bureau of Sociological Research (2015) at the University of Nebraska–Lincoln. Of the 55 people who completed the course and responded, 79% found the course to be very valuable or valuable (Figure 1). Eighty percent of respondents completing the course are using information from the course (Figure 2). In addition, 66% have recommended the course to others (Figure 3). Primary reason given for not completing the course were lack of time

and previous commitments (Figure 4). Course respondents suggested that the course be offered with materials in smaller segments and that the length of the course be shortened. Among those respondents who did not complete the course, the majority did originally intend to complete the course. The course has also gained interest internationally. Of the total registrations since fall 2013, 17% are from countries other than the United States.

Figure 1.

Value of Information Gained by Respondents Who Completed the Online Course

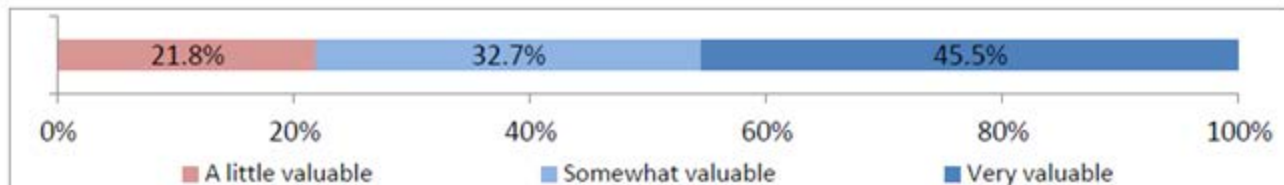


Figure 2.

Use of Information by Respondents Who Completed the Online Course

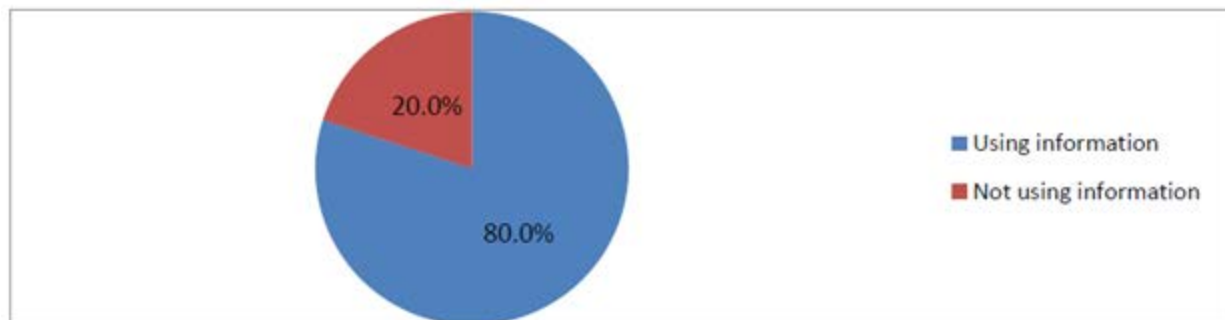


Figure 3.

Recommendation of the Online Course to Others by Respondents Who Completed the Course

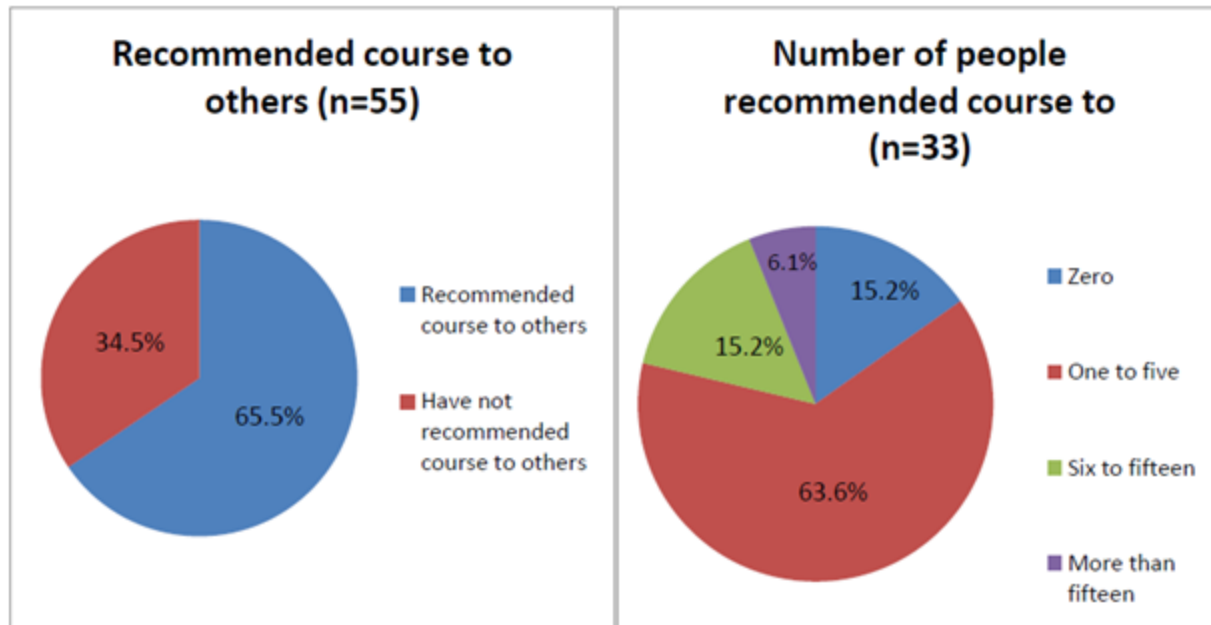
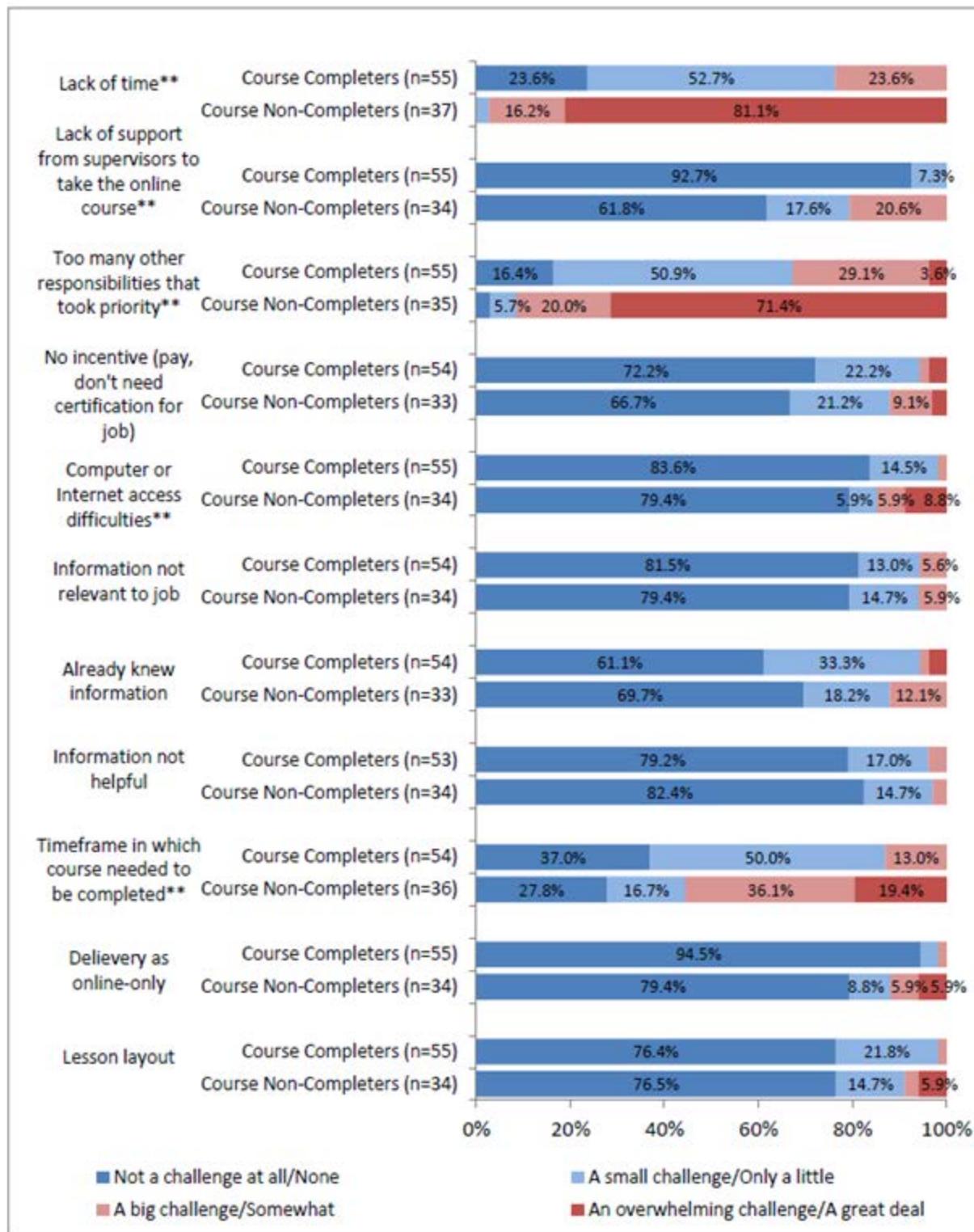


Figure 4.

Challenges of the Online Course to Respondents Who Completed the Course and to Those Who Did Not Complete the Course



Conclusion

The Animal Agriculture in a Changing Climate online course debuted in September 2013 and is offered free of charge. This course provides information necessary to minimize future risk on farms and to understand the issues and impacts of climate change and variability. The course has proved to be a valuable resource for developing capacity in Extension educators, advisors, and consultants to livestock and poultry producers. The course is also beneficial for people who work in all sectors of

the animal agriculture industry, including agriculture teachers as well as producers and farm managers themselves. Registration for the online course and more information about the project is available at www.animalagclimatechange.org.

Acknowledgment

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References

- Bureau of Sociological Research. (2015). Online Course Participation Evaluation Report. University of Nebraska–Lincoln.
- Hibbs, A. C., Kahl, D., PytlikZillig, L., Champion, B., Abdel-Monem, T., Steffensmeier, T., . . . Hubbard, K. (2014). Agricultural producer perceptions of climate change and climate education needs for the Central Great Plains. *Journal of Extension* [online], 52(3) Article 3FEA2. Available at: <http://www.joe.org/joe/2014june/a2.php>
- Morris, H. L. C., Megalos, M. A., Vuola, A. J., Adams, D. C., & Monroe, M. C. (2014). Cooperative Extension and climate change: Successful program delivery. *Journal of Extension* [online], 52(2) Article 2COM3. Available at: <http://www.joe.org/joe/2014april/comm3.php>

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