

PROTECTING HERD HEALTH

An Animal Disease Biosecurity Coordinated Agricultural Project



From the Project Director's Desk



Dr. Mo Salman's signature quote states, "Biosecurity is the bedrock of preventive veterinary medicine." I couldn't agree more and would like to add, "Biosecurity is the cornerstone of efficient food (animal) production." More importantly, "Biosecurity is the keystone of healthy agricultural communities."

When we focus on pre-harvest, i.e., production-level, biosecurity in food production systems, we see that successful health protection depends on our ability to prevent disease transfer from one premises to another by direct or indirect means. On animal production sites, the sheer number of employees, service providers, and feed and other deliveries that enter and exit premises each day can make controlling the entry or exit of disease-causing agents a daunting proposition.

The conflicting priorities of needing to get the job done to get paid at the end of the day and of needing to do things "right" to prevent disease entry are resolved on a daily basis, and informed by perception of risk. How good a job we are doing is reflected in the farm-level prevalence of diseases that are endemic to this country and primarily controlled by biosecurity practices.

There are economic tradeoffs that influence our ability to clamp down on these "manageable" diseases. Achieving a 100% risk-free situation is not feasible economically, so food (animal) production remains vulnerable to both manageable and "unmanageable" or high consequence diseases. How do we balance these tradeoffs while mitigating disease "shocks" that threaten the sustainability of individual operations and dependent economies?

We need to better understand the relationship between the design of systems of food production and disease resilience. Does the system support health or is it reliant (by design) on chemical interventions? Does the system reward good behavior or does it encourage risk taking? Does the system punish bad behavior or does it encourage free riders? What is the right balance of incentives and penalties that yields a resilient system that also meets other critical goals such as the production of safe, consumer-desired food products?

In a resource-limited world, what is the optimal cost-benefit tradeoff that most **effectively protects animal health while ensuring the sustainability of animal food supply chains**? We can apply this to plant-based food production as well, hence the parentheses around "animal" in the foregoing discussion. When it comes to protecting the food supply, what is the optimal investment in biosecurity that supports a sustainable and affordable food supply? This is the question we need to answer regarding food system biosecurity (continued on page 4).

ADBCAP Team Travels and Talks

What do Montpellier, France; Des Moines, Iowa; and Burlington, Vermont have in common? They were destinations of members of the ADBCAP team in 2018.

Glynn Tonsor (Kansas State University), Chris Pudenz (graduate student at Iowa State University), Gabriela Bucini (post-doc at the University of Vermont) and Susan Moegenburg (University of Vermont) presented papers or posters at the International Society for Economics and Social Sciences of Animal Health in Montpellier, France in May 2018.

Susan Moegenburg, Eric Clark (graduate student at the University of Vermont), and Chris Pudenz attended the World Pork Expo in June. They staffed a display booth where attendees could play the willingness -to-pay biosecurity investment game and find out more about our project.

The rest of the team gathered in Burlington, Vermont for our annual team meeting. The most important outcomes were strengthening interdisciplinary connections among project objectives and finding new opportunities for collaboration. We welcomed our newest Co-PI, Nick Cheney, who recently joined the faculty in Computer Science at the University of Vermont. His graduate student, Ollin Demian Langle Chimal, will also be contributing to project objectives.

Glynn Tonsor and Julie Smith were both in Vancouver, Canada in July—Glynn for the World Conference on Animal Production, Julie for the American Society of Animal Science annual meeting.

Julie was jealous that both Glynn and her son (separately) had been on cruises from Vancouver earlier in the summer.

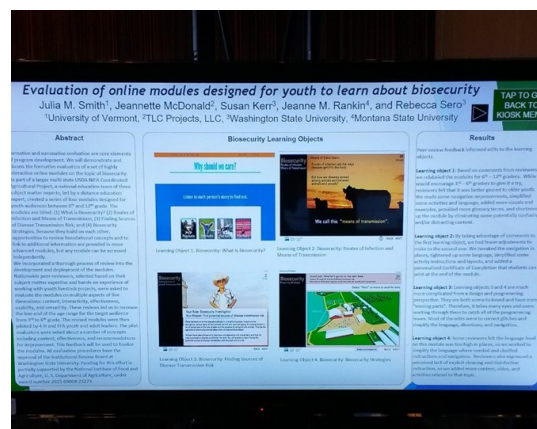
Tim and Deanna Sellnow (communication specialists at the University of Central Florida), Scott Merrill (University of Vermont), Eric Clark, and Gabriela Bucini ran a workshop for industry professionals in Minnesota to aid in the development of messages designed to improve on-facility compliance with biosecurity protocols.

Gabriela Bucini also attended the Lemn Swine Conference in St. Paul, Minnesota in September. In addition to presenting about the project gaming and simulation work, she learned a lot in return. Farm Journal Pork included a small blurb about her presentation in its November issue.

Tim and Deanna Sellnow continue to travel the world sharing their findings on effective strategic risk communication strategies regarding biosecurity, particularly as related to the PEDv outbreak in the United States. They presented results from their work at the One Health Leadership Conference in Saskatoon, Saskatchewan in August. They presented findings focused on message convergence at the European Communication Research and Education conference in Lugano, Switzerland in October. They presented an instructional training module using the IDEA (internalization, distribution, explanation, action) model for message design and distribution at the National Communication Conference in Salt Lake City, Utah in November.



Glynn Tonsor presented a poster on behalf of co-authors James Mitchell and Lee Schulz at the International Society for Economics and Social Sciences of Animal Health in Montpellier, France.



Julie Smith, Project Director at the Univ. of Vermont, presented an electronic poster on behalf of the education team at the American Society of Animal Science meeting in Vancouver, Canada.



Project team members conducted an industry workshop to develop messages to improve workplace compliance in a swine production system. Kansas State University veterinary professor Steve Dritz (seated near the white board) was instrumental in arranging this opportunity.

Recent Presentations and Publications

Conference presentations

- Bucini G., E. Clark, S. C. Merrill, S. M. Moegenburg, S. Wiltshire, A. Zia, C. J. Koliba, and J. M. Smith. 2018. Perceptions and risk attitudes affect biosecurity investment and compliance decisions with ramifications for disease control and economics at the hog production supply chain level. Oral presentation. Allen D. Leman Swine Conference, Saint Paul, MN. September 15-18.
- Bucini G., S. Wiltshire, E. Clark, S. C. Merrill, C. Koliba, A. Zia, L. Trinity, S. Moegenburg, and J. M. Smith. 2018. Interactive model-based tools for animal disease simulation and intervention strategies. Oral presentation. ISESAH-InnovSur 2018 Conference, Montpellier, France. May 14-18.
- Bucini G., E. Clark, J. M. Smith, S. C. Merrill, A. Zia, C. Koliba, S. Moegenburg, S. Wiltshire, L. Trinity, and E. Reilly. 2018. Interactive tools for simulation of biosecurity adoption and animal disease control. Seminar. Animal and Veterinary Science Dept., University of Vermont, Burlington, VT. February 16.
- Bucini G., E. Clark, S. Wiltshire, S. C. Merrill, C. Koliba, A. Zia, L. Trinity, S. Moegenburg, and J. M. Smith. 2018. Hog production chain biosecurity model. Oral presentation. Animal Disease Biosecurity Coordinated Agricultural Project (ADB CAP) Team meeting, Orlando, FL. January 10 -12.
- Sellnow, T. 2017. Composing and communicating effective risk messages: advice from the most current research. Symposium of Food and Drug Safety Emergency Response, Seoul, South Korea. October 20.
- Sellnow, T., and D. Sellnow. 2018. Risk and crisis communication as a profession: research, professional profiles, and fields of application. Technical University of Ilmenau, Ilmenau, Germany. May 7.
- Sellnow, D., and T. Sellnow. 2018. Preventing crises with effective risk communication. Technical University of Ilmenau, Ilmenau, Germany. May 4.
- Sellnow, T., and D. Sellnow. 2018. Gamification of risk communication research. Technical University of Ilmenau, Ilmenau, Germany. May 8.

Papers

- Thompson, J. M., G. T. Tonsor, D. L. Pendell, and W. Preston. (accepted 2018). United States feedlot operator willingness to pay for disposal capacity to address foreign animal disease risk. *Transboundary and Emerging Diseases*.

Guest lectures, workshops and extension meetings

- Bucini, G., and E. Clark. September 13, 2018. Guest Lecture University of Vermont (ASCI 001) Introductory Animal Sciences: Biosecurity and herd health: digital tools for studying risk mitigation. Reached about 100 students.
- Bucini, G., S. Dritz, S. Merrill, D. Sellnow, and T. Sellnow. August 1, 2018. Industry Workshop: Effective messaging and communication of disease risk improving biosecurity compliance. Lessons learned from PEDv. Reached 30 participants.
- Kerr, S., P. Beech-McKay, S. Lubers, and K. Kandoll. May 11-12, 2018. Extension Workshops: Biosecurity protocols and learning modules. Reached 33 adult and youth small ruminant producers.

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Answering this question requires an interdisciplinary approach funded over many years, involving multiple food production industries. The Animal Disease Biosecurity Coordinated Agricultural Project has taken this approach in relation to a disease issue in the swine industry. We believe this is just the first step and recommend applying a human behavioral approach to better understanding and solving these complex questions across the food supply. We can do it together. Thank you for your support.—Julie Smith



Save the Date!
Spring Symposium
May 14-16, 2019
Washington, D.C.
We hope you will join us!

Collaborating Institutions

