

# CASSANDRA KATHERINE JONES

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jonesc@ksu.edu | Phone: 785-532-5289 | 126 Weber Hall, Manhattan, KS 66506

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## EMPLOYMENT

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- 2016 – Present Associate Professor, Coordinator of Undergraduate Research  
Department of Animal Sciences & Industry  
Kansas State University  
Appointment: 80% teaching, 20% research
- 2016 – 2017 Assistant Professor, Coordinator of Undergraduate Research  
Department of Animal Sciences & Industry  
Kansas State University  
Appointment: 80% teaching, 20% research
- 2012 – 2016 Assistant Professor of Feed Technology  
Department of Grain Science & Industry  
Kansas State University, Manhattan  
Appointment: 40% research, 40% teaching, 20% outreach

## EDUCATION

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- 2012 Doctor of Philosophy in Nutritional Sciences (Swine Nutrition emphasis)  
Iowa State University, Ames, Iowa
- 2009 Master of Science in Animal Science (Swine Nutrition emphasis)  
Kansas State University, Manhattan, Kansas
- 2007 Bachelor of Science in Agriculture (Animal Sciences & Industry major)  
Kansas State University, Manhattan, Kansas

## TEACHING

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### Scholarship of Teaching Summary

Refereed Journal Articles: 4

Scientific Abstracts: 5

Awarded Grants and Gifts: \$408,575 total, \$318,465 as PI

### Referred Journal Articles

1. Radcliffe, J.S., D.K. Aaron, J. Sterle, M.A.G. von Keyserlingk, N. Irlbeck, M. Maquiver, M. Wulster-Radcliffe, and C.K. Jones. 2020. Moving online: Roadmap and long-term forecast. *Anim. Front.* 10(3):36-45.
2. Lerner, A.B., M.D. Tokach, J.M. DeRouchey, J.C. Woodworth, S.S. Dritz, R.D. Goodband, and C.K. Jones. 2020. Implementing a species-specific undergraduate research program. *Nat. Sci. Ed.* 49:e20010.
3. Mendez, E., C. Jones, and V. Trinetta. 2020. Engaging undergraduate students about the importance of food safety. *Food Prot. Trends.* 40(3):164-170.
4. Jones, C.K. and A.B. Lerner. 2019. Implementing a course-based undergraduate research experience to grow the quantity and quality of undergraduate research in an Animal Science curriculum. *J. Anim. Sci.* 97(11):4691-4697.

Scientific Abstracts

1. Mendez, E., C.K. Jones, and V. Trinetta. 2019. Engaging undergraduate students into the importance of food microbiology and safety. International Association of Food Protection Annual Meeting. P1-82.
2. Jones, C.K. 2019. Growing the quantity and quality of undergraduate research experiences in animal science. J. Anim. Sci. 97(E3):426.
3. Jones, C.K. 2019. Undergraduate research experiences improve critical thinking ability of animal science students. J. Anim. Sci. 97(E2):237.
4. Jones, C.K. and G. Hock. 2018. Evaluation of undergraduate student critical thinking in animal and food sciences. North American Colleges and Teachers of Agriculture Conference.
5. Jones, C.K. 2017. Impact of student demographics on confidence of critical thinking proficiency. North American Colleges and Teachers of Agriculture Conference. NACTA. 61(1):0088.

Awarded Grants and Gifts

1. Gifts to the Kansas State University Foundation to support the ASI Undergraduate Research Program directed by **C.K. Jones** (Dr. Mark and Kim Young, Tom Jones, ADDCON, Seaboard Foods, Dairy Nutrition Plus, Tyson Fresh Meats).
2. National Pork Board Swine Research and Educational Experiences. 2019. **C. Jones**.
3. Kansas Corn Commission. Utilizing undergraduate research to evaluate DDGS and ionophore inclusion in Boer goat grower rations. 2019. A. Crane, **C. Jones**, J. Lattimer.
4. Kansas Corn Commission. Utilizing undergraduate research to evaluate DDGS or corn gluten feed in Boer goat grower rations. 2018. A. Crane, **C. Jones**, J. Lattimer.
5. Kansas Corn Commission. Utilizing undergraduate research to evaluate DDGS as a replacement for soybean meal in Boer goat grower rations. 2017. A. Crane, **C. Jones**.
6. National Pork Board Swine Research and Educational Experiences. 2017. **C. Jones**.

Undergraduate Research Program Growth and Success

<u>Activity</u>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Students with Meaningful Undergrad Research Experiences.....	34	152	147	146	120
Credit Hours Generated for Undergraduate Research.....	50	128	144	167	161
Number of Faculty Mentors to Support Undergraduate Research.....	22	23	15	23	
Students Presenting at Dept/University/Regional/National Level.....	41	75	82	88	80
Graduates Attending Graduate or Professional School.....	n/a	22%	27%	35%	38%
Graduates Completing Undergraduate Research.....	n/a	29%	33%	38%	39%

Undergraduate Research Competition Awards Won by K-State Students

- 2020 Gamma Sigma Delta Undergrad Research Award (× 3 students)
- 2020 ASAS Midwest Meeting, 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> Place
- 2020 Kansas City One Health Day, 1<sup>st</sup> Place
- 2019 ASAS Annual Meeting, 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> Place
- 2019 Reciprocal Meats Conference, 3<sup>rd</sup> Place
- 2019 Midwest ASAS Meeting, 1<sup>st</sup> Place
- 2019 Gamma Sigma Delta Undergrad Research Award
- 2018 Midwest ASAS Meeting, 1<sup>st</sup> Place (× 4 students)
- 2018 Western ASAS Meeting, 2<sup>nd</sup> Place
- 2018 Kansas City One Health Meeting, 1<sup>st</sup> Place
- 2018 Gamma Sigma Delta Undergrad Research Award

## Courses Currently Taught

TEVAL Raw Score Report Summary Evaluation Scale of 1 (low) to 5 (high)

Courses	TEVAL Evaluation	S17	F17	S18	F18	S19	F19	S20	F20	S21
ASI 318 Fundamentals of Nutrition (Spring)	Number of Students:	133	-	143	-	143	-	143	96	148
	Overall Effectiveness	4.5	-	4.7	-	4.5	-	4.6	4.8	4.8
	Increased Desire to Learn	4.4	-	4.6	-	4.4	-	4.6	4.5	4.7
	Amount Learned	4.5	-	4.6	-	4.4	-	4.6	4.4	4.6
ASI 561 Undergraduate Research in Anim. Sci.	Number of Students:	15	20	20	35*	39*	28*	38*	28*	50*
	Overall Effectiveness	4.8	4.6	4.7	4.7	4.6	4.8	4.8	4.8	4.8
	Increased Desire to Learn	4.7	5.0	4.9	4.7	4.7	4.8	4.7	4.8	4.9
	Amount Learned	4.7	4.6	4.9	4.5	4.7	4.9	4.7	4.7	4.7
ASI 675 Monogastric Nutrition (Fall)	Number of Students:	-	43	-	37	-	36	-	51	-
	Overall Effectiveness	-	4.6	-	4.9	-	4.8	-	4.6	-
	Increased Desire to Learn	-	4.4	-	4.6	-	4.6	-	4.4	-
	Amount Learned	-	4.4	-	4.6	-	4.6	-	4.3	-

\*Number of students is a total sum of 2 sections. Resulting TEVAL scores are weighted means.

## Courses Previously Taught

Courses	TEVAL Evaluation Items	2012	2013	2014	2015	2016
GRSC 101 Introduction to Grain Science (Fall)	Number of Students:	132	107	117	109	146
	Overall Effectiveness	4.2	4.6	4.6	4.7	4.8
	Increased Desire to Learn	4.1	4.3	4.5	4.4	4.7
	Amount Learned	4.2	4.4	4.4	4.5	4.5
GRSC 661/561 Qualities of Feed Ingredients (Spring)	Number of Students:	-	10	18	23	21
	Overall Effectiveness	-	4.6	4.7	4.6	4.9
	Increased Desire to Learn	-	4.7	4.7	4.4	4.7
	Amount Learned	-	4.8	4.7	4.5	4.9
GRSC 790 Principles and Analytical Methods in Animal Feed Safety (Even Spring)	Number of Students:	-	-	9	-	17
	Overall Effectiveness	-	-	5.0	-	4.9
	Increased Desire to Learn	-	-	4.8	-	4.8
	Amount Learned	-	-	4.8	-	4.8

## Undergraduate Advising

	2012	2013	2014	2015	2016	2017	2018	2019
Number of Advisees	9	13	18	23	38	50	61	57
Overall Satisfaction, %*	4.00	4.00	4.00	4.00	3.82	97.9	94.8	98.1

\*Overall satisfaction was reported as a score out of 4.0 from 2012-2016 and percentage from 2017.

## Teaching Awards and Honors

- Earned Effectiveness of College Instruction Certificate from the Association of College and University Education/American Council on Education
- Participated in 9 teaching and/or advising workshops
- 2019 Midwest American Society of Animal Science Outstanding Young Teacher
- 2018-2019 Kansas State University College of Agriculture Advisor of the Year

## RESEARCH

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### Scholarship of Research Summary

Refereed Journal Articles: 68

Scientific Abstracts: 123

Books or Book Chapters: 7

Invention Disclosures: 4

Awarded Grants and Gifts: \$7.24 million, \$2.47 million as PI

### Google Scholar Metrics

Citations: 954

h-index: 16

i10-index: 23

### Referred Journal Articles

1. Elijah, C.E., O.L. Harrison, A.K. Blomme, J.C. Woodworth, C.K. Jones, C.B. Paulk, and J.T. Gebhardt. 2021. Understanding the role of the feed supply chain within a series of porcine deltacoronavirus investigations. *J. Swine Health Prod.* *Accepted*.
2. Dahmer, P.L. and C.K. Jones. 2021. Evaluating dietary acidifiers as alternatives for conventional feed-based antibiotics in nursery pig diets. *T. Anim. Sci.* *Accepted*.
3. Dee, S., A. Shah, C. Jones, A. Singrey, D. Hanson, R. Edler, G. Spronk, M. Niederwerder, and E. Nelson. 2021. Evidence of viral survival in representative volumes of feed and feed ingredients during long-distance commercial transport across the continental United States. *Trans. Emerg. Dis.* 00:1-8.
4. Gebhardt, J.T., S.S. Dritz, F.J. Domingues, Jr., C.K. Jones, J.C. Woodworth, and C.B. Paulk. 2021. Importance of feed biosecurity in relation to swine health: What lessons can be learned from preliminary monitoring for African swine fever virus in a region of ongoing transmission. *J. Amer. Vet. Med. Assoc.* 258:35-38.
5. Sorensen, R. C. Jones, A. Crane, and J. Lattimer. 2021. Efficacy of corn dried distillers grains with solubles as a replacement for soybean meal in Boer-cross goat finishing diets. *Small Rum. Nutr.* *Accepted*.
6. Huss, AA., C. Jones, C. Stark, R.N. Dilger, S. Fleming, and J. Jendza. 2021. Formate provides continuous protection against *Salmonella* in mash and pelleted feed. *T. Anim. Sci.* *Accepted*.
7. Acosta, J.A., A. Petry, S. Gould, C.K. Jones, C.R. Stark, A.C. Fahrenholz, and J.F. Patience. 2020. Can the digestibility of corn distillers dried grains with solubles fed to pigs at two stages of growth be enhanced through management of particle size using a hammermill or a roller mill? *T. Anim. Sci.* 4(3):txass171.
8. Dahmer, P.L., G.E. Luebcke, A.B. Lerner, and C.K. Jones. 2020. Effects of Medium Chain Fatty Acids (MCFA) as alternatives to ZnO or antibiotics in nursery pig diets. *T. Anim. Sci.* 4(3):txaa151.
9. Boccato, G. E. Lambertini, L. Noll, C. Jones, J. Bai, T.G. Nagaraja, R. Phebus, J. Woodworth, and V. Trinetta. 2020. Potential risk-factors affecting *Salmonella* spp. and *E. coli* occurrence and distribution in Midwestern United States swine feed mills. *J. Appl. Microbiol.* jam.14758.
10. Muckey, M., A.R. Huss, A.D. Yoder, and C.K. Jones. 2020. Evaluating the roles of surface sanitation and feed sequencing on mitigating *Salmonella* Enteritidis contamination on animal food manufacturing equipment. *J. Poult. Sci.* 99(8):3841-3845.
11. Stewart, S.S., J.C. Woodworth, S.S. Dritz, C.B. Paulk, and C.K. Jones. 2020. A review of strategies to impact swine feed biosecurity. *Anim. Health Res. Rev.* 21:61-68.
12. Saensukjaroenphon, M., C.E. Evans, C.B. Paulk, J.T. Gebhardt, J.C. Woodworth, C.R. Stark, J.R. Bergstrom, and C.K. Jones. 2020. Impact of storage conditions and premix type on fat-soluble vitamin stability. *T. Anim. Sci.* txaa143.
13. Dee, S., M. Niederwerder, G. Patterson, R. Cochrane, C. Jones, D. Diel, E. Nelson, G. Spronk, E. Brockhoff, and P. Sundberg. 2020. The risk of viral transmission in feed: What do we know, what do we do? *Trans. Emerg. Dis.* 00:1-7.
14. Jones, C.K., J. Woodworth, S. Dritz, and C. Paulk. 2020. Foreign animal disease in the feed industry: What are the risks, and what can we do? *Cereal Foods World.* 65(1)1-8.

15. Acosta, J.A., A. Petry, S. Gould, C.K. Jones, C.R. Stark, A. Fahrenholz, and J.F. Patience. 2020. Effects of grinding method and particle size of wheat grain on energy and nutrient digestibility in growing and finishing pigs. *T. Anim. Sci.* 4:1-12.
16. Lerner, A.B., R.C. Cochrane, J.C. Gebhardt, S.S. Dritz, C.K. Jones, J.M. DeRouche, M.D. Tokach, R.D. Goodband, J. Bai, E. Poulsen, J. Anderson, P.C. Gauger, D. Magstadt, B. Bass, J.Q. Zhang, T.P. Karnezos, B. de Rodas, and J. Woodworth. 2020. Effects of medium chain fatty acids as a mitigation or prevention strategy against porcine epidemic diarrhea virus in swine feed. *J. Anim. Sci.* 98(6):1-7.
17. Saensukjaroenphon, M., C.B. Paulk, J.T. Gebhardt, J.C. Woodworth, C.R. Stark, and C.K. Jones. 2020. Impact of storage conditions and premix type on phytase stability. *T. Anim. Sci.* 4(3):txaa049.
18. Gebhardt, J.C., K. Thompson, J.C. Woodworth, S.S. Dritz, M.D. Tokach, J.M. DeRouche, R.D. Goodband, C.K. Jones, R.C. Cochrane, M.C. Niederwerder, S.C. Fernando, and T.E. Burkey. 2020. Effect of dietary medium chain fatty acids on nursery pig growth performance, fecal microbial composition, and mitigation properties against porcine epidemic diarrhea virus following storage. *J. Anim. Sci.* 98(1):skz358.
19. Cochrane, R.C., S.S. Dritz, J.C. Woodworth, C.R. Stark, M. Saensukjaroenphon, J. Gebhardt, J. Bai, P.C. Gauger, M.D. Tokach, and C.K. Jones. 2020. Assessing the effects of medium chain fatty acids and fat sources on PEDV infectivity. *T. Anim. Sci.* 4(2):txz179.
20. Acosta, J.A., A. L. Petry, S.A. Gould, C. K. Jones, C.R. Stark, A. C. Fahrenholz, and J. F. Patience. 2019. Enhancing digestibility of corn fed to pigs at two stages of growth through management of particle size using a hammermill or roller mill *T. Anim. Sci.* 4(1):txz146.
21. Jones, C.K., J.C. Woodworth, S.S. Dritz, and C.B. Paulk. 2019. Reviewing the risk of feed as a vehicle for swine pathogen transmission. *Vet. Med. Sci.* 00:1-8.
22. Jones, C.K., S. Stewart, J.C. Woodworth, S.S. Dritz, and C.B. Paulk. 2019. Validation of sampling methods in bulk feed ingredients for detection of swine viruses. *Trans. Emerg. Dis.* 00:1-5.
23. Magossi, G., M. U. Yucel, C.K. Jones, and V. Trinetta. 2019. Effects of different moisture and temperature levels on *Salmonella* survival in poultry fat. *T. Anim. Sci.* 3(4):txz090.
24. Niederwerder, M.C., A.M.M. Stoian, R.R. Rowland, S.S. Dritz, V. Petrovan, L.A. Constance, J.T. Gebhardt, M. Olcha, C.K. Jones, J.C. Woodworth, Y. Fang, J. Liang, and T.J. Hefley. 2019. Infectious dose of African swine fever virus when consuming naturally in liquid and plant-based feed. *Emerg. Infect. Dis.* 25(5):891-897.
25. Magossi, G., J. Bai, N. Cernicchiaro, C.K. Jones, E. Porter, and V. Trinetta. 2019. Seasonal presence of *Salmonella* spp., *Salmonella* Typhimurium and its monophasic variant serotype I 4,[5],12:i:-, in selected United States swine feed mills. *Foodborne Path. Dis.* 16(4):276-281.
26. Trinetta, V., A. McDaniel, G. Magossi, U. Yucel, and C.K. Jones. 2019. Effects of different moisture and temperature levels on *Salmonella* survival in poultry fat. *T. Animal. Sci.* 3(4):1369-1374.
27. Saensukjaroenphon, M., C.E. Evans, C.K. Jones, C.H. Fahrenholz, C.B. Paulk, and C.R. Stark. 2019. The effect of liquid application time and wet mix time with different mixer types on uniformity of mix. *J. Anim. Sci. Res.* 3(2):1-4.
28. Yoder, A.D., C.R. Stark, M.D. Tokach, and C.K. Jones. 2019. Effects of pellet mill processing parameters on pellet quality and nursery pig growth performance. *T. ASABE.* 62(2):439-446.
29. Schumacher, L.L., R.A. Cochrane, A.R. Huss, J.T. Gebhardt, J.C. Woodworth, C.R. Stark, C.K. Jones, J. Bai, R.G. Main, Q. Chen, J. Zhang, P.C. Gauger, J.M. DeRouche, R.D. Goodband, M.D. Tokach, and S.S. Dritz. 2018. Feed batch sequencing to decrease the risk of porcine epidemic diarrhea virus (PEDV) cross-contamination during feed manufacturing. *J. Anim. Sci.* 96(11):4562-4570.
30. Yoder, A.D., C.K. Jones, K. Herrick, C.R. Stark, and C.B. Paulk. 2018. Effects of low oil DDGS on pellet quality and pellet mill motor electrical efficiency. *Appl. Eng. Agric.* 35(1):103-108.
31. Donadelli, R., C.K. Jones, R.S. Beyer, and G.C. Aldrich. 2018. The amino acid composition and protein quality of various egg, poultry meal by-products, and vegetable proteins used in the production of dog and cat diets. *J. Poult. Sci.* 98(3):1371-1378.

32. Gebhardt, J.T., R.A. Cochrane, J.C. Woodworth, C.K. Jones, M.C. Niederwerder, M.B. Muckey, C.R. Stark, M.D. Tokach, J.M. DeRouchey, R.D. Goodband, J. Bai, P.C. Gauger, Q. Chen, J. Zhang, R.G. Main, and S.S. Dritz. 2018. Evaluation of the effects of flushing feed manufacturing equipment with chemically treated rice hulls on porcine epidemic diarrhea virus (PEDV) cross contamination during feed manufacturing. *J. Anim. Sci.* 96(10):4149-4158.
33. Magossi, G., N. Cernicchiaro, S. Dritz, T. Houser, J. Woodworth, C. Jones, and V. Trinetta. 2018. Evaluation of Salmonella presence in selected United States feed mills. *MicrobiologyOpen*. e711.
34. Martinez, A., C.K. Jones, C.R. Stark, L.J. McKinney, K.C. Behnke, and C.B. Paulk. 2018. Evaluating flushing procedures to prevent nicrbazin carryover during medicated feed manufacturing. *J. Feed Sci. Technol.* 242:1-7.
35. Gebhardt, J.T., C.B. Paulk, J.A. DeJong, M.D. Tokach, J.C. Woodworth, J.M. DeRouchey, R.D. Goodband, K.F. Coble, C.R. Stark, C.K. Jones, and S.S. Dritz. 2018. Effect of roller mill configuration on growth performance of nursery and finishing pigs and milling characteristics. *J. Anim. Sci.* 96(6):2278-2292.
36. Dee., S., F. Bauermann, M. Niederwerder, A. Singrey, T. Clement, M. DeLima, C. Long, G. Patterson, M. Shehan, A. Stoian, V. Petrovan, C.K. Jones, J. De Jong, J. Ji., G Spronk, J. Hennings, J. Zimmerman, B. Rowland, E. Nelson, P. Sundberg, D. Diel, and L. Minion. 2018. Survival of viral pathogens in animal feed ingredients under transboundary shipping models. *PLoS ONE*. 13(3): e0194509.
37. Saensukjaroenphon, M., C.K. Jones, and C.R. Stark. 2018. The effect of extended mix times and sample preparation with different salt particles size on the uniformity of mix of a corn-soy swine diet. *Appl. Eng. Agric.* 61(2): 743-746.
38. Williams, H.E., R.A. Cochrane, J.C. Woodworth, J.M. DeRouchey, S.S. Dritz, M.D. Tokach, C.K. Jones, S.C. Fernando, T.E. Burkey, Y.S. Li, R.D. Goodband, and R. Amachawadi. 2018. Effects of dietary supplementation of formaldehyde and crystalline amino acids on gut microbial composition of nursery pigs. *Nature Sci. Rep.* 8:8164-8171.
39. Schumacher, L.L., R.A. Cochrane, A.R. Huss, C.R. Stark, J.C. Woodworth, J.F. Bai, E.L. Poulsen, Q. Chen, R.G. Main, J.Q. Zhang, P.C. Gauger, R.J. Derscheid, D.R. Magstadt, S.S. Dritz, and C.K. Jones. 2017. Characterizing the rapid spread of porcine epidemic diarrhea virus (PEDV) through an animal food manufacturing facility. *PLoS ONE*. 12(11):e0187309.\*
40. Kalivoda, J.R., C.R. Stark, and C.K. Jones. 2017. Effect of ground corn fractionation on flow ability. *Appl. Eng. Agric.* 33(6):927-932.
41. De Jong, J.A., J.M. DeRouchey, M.D. Tokach, R.D. Goodband, J.C. Woodworth, S.S. Dritz, C.R. Stark, C.K. Jones, H.C. Williams, and C.R. Paulk. 2017. Formation of pellet fines during the feed manufacturing process, transportation and feed line delivery, and nutrient composition. *Appl. Eng. Agric.* 33(6):921-926.
42. Saensukjaroenphon, M. C.K. Jones, C. Fahrenholz, and C.R. Stark. 2017. The effect of water temperature, technician, extraction time, and dissolution time on the salt concentration by using QuanTab chloride titrator method. *Appl. Eng. Agric.* 60(5):1759-1763.
43. De Jong, J.A., J.C. Woodworth, J.M. DeRouchey, R.D. Goodband, M.D. Tokach, S.S. Dritz, C.R. Stark, and C.K. Jones. 2017. Stability of four commercial phytase products under increasing thermal conditioning temperatures. *T Anim. Sci.* 1(3):255-260.
44. Huss, A.R., J.C. Fuller, Jr., W. Centrella, D.L. Marshall, A. Deliphan, and C.K. Jones. 2017. Mitigation of *Salmonella* on pet food kibbles using liquid and powdered 3-hydroxy-3-methylbutyric acid. *J. Food Protec.* 80(7):1080-1084.
45. Cochrane, R.A., L.L. Schumacher, S.S. Dritz, J.C. Woodworth, A.R. Huss, C.R. Stark, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, J. Bai, Q. Chen, J. Zhang, P.C. Gauger, R.J. Derscheid, D.R. Magstadt, R.G. Main, and C.K. Jones. 2017. Effect of pelleting on survival of Porcine Epidemic Diarrhea Virus (PEDV)-contaminated feed. *J. Anim. Sci.* 95:1170-1178.\*
46. Huss, A.R., L.L. Schumacher, R.A. Cochrane, E. Poulsen, J. Bai, J.C. Woodworth, S.S. Dritz, C.R. Stark, and C.K. Jones. 2017. Elimination of Porcine Epidemic Diarrhea Virus in an animal feed

- manufacturing facility. PLoS ONE. 12(1):e0169612.\*
47. Kalivoda, J.R., C.K. Jones, and C.R. Stark. 2017. Impact of varying analytical methodologies on grain particle size determination. *J. Anim. Sci.* 95(1):113-119.
  48. De Jong, J.A., J.M. DeRouchey, M.D. Tokach, S.S. Dritz, R.D. Goodband, J.C. Woodworth, C.K. Jones, and C.R. Stark. 2016. Stability of commercial phytase sources under different environmental conditions. *J. Anim. Sci.* 94:4259-4266.
  49. Schumacher, L.L., J.C. Woodworth, C.K. Jones, Q. Chen, J. Zhang, P.C. Gauger, C.R. Stark, R.G. Main, R.A. Hesse, M.D. Tokach, and S.S. Dritz. 2016. Minimum infectious dose of porcine epidemic diarrhea virus in a feed matrix. *Amer. J. Vet. Res.* 77(10):1108-1113.
  50. De Jong, J.A., R.D. Goodband, J.M. DeRouchey, M.D. Tokach, S.S. Dritz, J.C. Woodworth, C.K. Jones, and C.R. Stark. 2016. Effects of wheat source and particle size in meal and pelleted diets on finishing pig growth, carcass characteristics, and nutrient digestibility. *J. Anim. Sci.* 94:3303-3311.
  51. Zhu, L., C.K. Jones, Q. Guo, L.L. Lewis, C.R. Stark, and S. Alavi. 2016. An evaluation of total starch and starch gelatinization methodologies in pelleted swine feed. *J. Anim. Sci.* 94:1501-1507.
  52. Dee, S., C. Neill, T. Clement, E. Nelson, A. Singrey, J. Christopher-Hennings, C.K. Jones, R.A. Cochrane, G. Patterson, and G. Spronk. 2016. Modeling the transboundary risk of feed ingredients contaminated with porcine epidemic diarrhea virus. *BMC Vet. Rsrch.* 12:51-63.
  53. Cochrane, R.A., S.S. Dritz, J.C. Woodworth, C.R. Stark, A.R. Huss, and C.K. Jones. 2016. Feed mill biosecurity plans: A systematic approach to prevent biological pathogens in swine feed. *J. Swine Health Prod.* 26(3):154-164.
  54. Cochrane, R.A., A.R. Huss, G.C. Aldrich, C.R. Stark, and C.K. Jones. 2016. Evaluating chemical mitigation of *Salmonella typhimurium* in animal feed ingredients. *J. Food Protect.* 79(4):672-676.
  55. Huss, A.R., R.A. Cochrane, C.R. Stark, and C.K. Jones. 2015. Evaluation of biological pathogen decontamination protocol for animal feed mills. *J. Food Protect.* 78(9):1682-1688.
  56. Yoder, A.D., R.S. Beyer, and C.K. Jones. 2015. The effects of drought affected grain and carbohydrase inclusion in starter diets on broiler chick performance. *J. Appl. Poult. Sci.* 24:177.
  57. Lewis, L.L., C.R. Stark, A.C. Fahrenholz, J.R. Bergstrom, and C.K. Jones. 2015. Evaluation of conditioning time and temperature on gelatinized starch and vitamin retention in a pelleted swine diet. *J. Anim. Sci.* 93:615-619.
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#### Scientific Abstracts

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#### Books, Book Chapters, and Factsheets

1. Huss, A., R. Cochrane, C. Jones, and G.G. Atungulu. *Physical and chemical methods for the reduction of biological hazards in animal feeds*. In: *Food and Feed Safety Systems and Analysis*. S.C. Ricke, G.G. Atungulu, C.E. Rainwater, and S.H. Park, eds. Cambridge, MA: Elsevier Academic Press, 2018. Print.
2. Huss, A., R. Cochrane, M. Muckey, and C. Jones. *Animal feed mill biosecurity: Prevention of biological hazards*. In: *Food and Feed Safety Systems and Analysis*. S.C. Ricke, G.G. Atungulu, C.E. Rainwater, and S.H. Park, eds. Cambridge, MA: Elsevier Academic Press, 2018. Print.
3. *Preventive Controls for Animal Food Participant Manual, Instructor Manual, and Exercise Workbook v1.1*. Jones, C.K., C.R. Stark, B.M. Miller, and A.C. Fahrenholz, eds. Illinois: Food Safety Preventive Controls Alliance, 2017. Electronic.
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5. Cochrane, R.A. and C.K. Jones. *The Role of PEDV in Feed: Current Knowledge and Understanding*. National Pork Board. Des Moines, IA: In-House Publishing, 2016. Print.
6. *Feed Pelleting Reference Guide*. Jones, C.K., C.R. Stark, and A.C. Fahrenholz, eds. Illinois: WATT Ag Net, 2014. Electronic.
7. Neil, C.R., J.M. DeRouche, and C.K. Jones. *Feed Manufacturing*. In: *PIC Nutrient Specifications Manual 2013*. PIC USA. Hendersonville, TN: In-House Publishing, 2013. Print.

#### Invention Disclosures

1. Niederwerder, M., R.R. Rowland, C. Jones, S. Dritz, J.C. Woodworth. Chemical mitigation of viruses. PCT Application No. PCT/US2019/020273. Filed 1 March 2019.
2. Niederwerder, M. C.K. Jones, S. S. Dritz, R. Rowland, J.C. Woodworth. Inactivation of viruses such as African Swine Fever Virus (ASFV) and Classical Swine Fever Virus (CSFV) with medium chain fatty acids. No. 2018-054. U.S. Patent No. 62/637,825. Filed 2 March 2018.
3. Jones, C.K., R.A. Cochrane, J.C. Woodworth, S.S. Dritz. Chemical mitigants in animal feed and feed ingredients. U.S. Patent Publication Number US 2017/0354167 A1. Published 14 December 2017. Currently licensed by PMI Nutritional Products.
4. Niederwerder, M., R.R. Rowland, C. Jones, S.S. Dritz, J.C. Woodworth. Chemical mitigation of African swine fever virus and classical swine fever virus. U.S. Patent Publication Number US 2021/0046144 A1. Published 18 February 2021.

### Awarded Grants and Gifts

1. Effect of *Bacillus* and *Lactobacillus* species in milk on epithelium and immune cell development and microbiota populations of the rumen, jejunum, ileum, and colon in pre-ruminant calves through weaning. Church & Dwight Co. S. Gragg, A. Tarpoff, C. Jones, and S. Quanz. 2020-2021.
2. Assessing the effects of VevoVitall, Essential Oils, and Medium Chain Fatty Acids on PEDV and PRRSv quantity in feed. DSM Nutritional Products. C. Paulk, J. Woodworth, C. Jones, and J. Gebhardt. 2020-2021.
3. Investigation of the risks of organic soy importation and potential means of risk reduction. Swine Health Information Center. C. Paulk, C. Jones, J. Woodworth, and J. Gebhardt. 2020-2021.
4. Identifying pathways of entry of ASF virus onto farms to enhance information for improving biosecurity in Vietnam. Swine Health Information Center. R. Pogranichniy, C. Jones, J. Richt, C. Paulk, and J. Woodworth. 2020-2021.
5. Evaluating the prevalence and distribution of African swine fever virus during feed manufacture, as well as feed mill decontamination measures. National Pork Board. C. Jones, C. Paulk, J. Woodworth, J. Richt, I. Morozov, J. Trujillo, N. Gaudreault. 2020-2021.
6. The journey of *Salmonella enterica* serotype 4, [5], 12:i:- in the pork production chain: from feed to fork. Kansas State University Global Food Systems Seed Grant. V. Trinetta, C. Jones, S. Rensing. 2020-2021.
7. Investigating methods for decontamination of interior surfaces (cabs) of transportation vehicles. National Pork Board. C. Jones, J. Woodworth, C. Paulk, J. Richt, and R. Pogranichniy. 2020-2021.
8. Strategies to Prevent Animal Disease and Maintain Animal Health by Addressing Feed Safety. United States Department of Agriculture. NIFA. M. Draper, C. Jones, C. Paulk, J. Woodworth, and S. Dritz. 2019-2020.
9. Assessing factors affecting *Salmonella* in beef tallow and choice white grease. Fats and Proteins Research Foundation. V. Trinetta, C. Jones. 2019-2020.
10. McNess Products: Assessing the Effects on PEDV and PRRSv quantity in feed. Furst-McNess Company. C. Paulk, C. Jones, J. Woodworth. 2019-2020.
11. Assessing distribution and mitigation of Senecavirus A, a foot and mouth disease surrogate, in a swine feed mill. Swine Health Information Center. C. Jones. 2019-2020.
12. Determining how the pelleting process influences amino acid digestibility and availability for growth and carcass characteristics when feeding varying diets with increased levels of synthetic AA. National Pork Board. C. Paulk, J. Woodworth, M. Tokach, C. Jones, C. Stark, and Y. Li. 2019-2020.
13. Assessing the effects of MCFA on PEDV quantity and infectivity. PMI Nutritional Products. J. Woodworth, S. Dritz, C. Jones. 2019-2020.
14. A validated method to test bulk feed products and applying it to monitoring shipments for pathogen contamination. Swine Health Information Center. C. Jones. 2018-2019.
15. Converting distiller's grains to high-value healthy natural antioxidants. Y. Li, C. Jones, G. Aldrich. Kansas Corn Commission. 2018-2019.
16. Understanding ecology and distribution of Shiga toxin-producing *Escherichia coli* O157 and Non- O157 in US swine feed mills. V. Trinetta, C. Jones, T.G. Nagaraja, R. Phebus, J. Woodworth. National Pork Board. 2018-2019.
17. Assessing the risk of African swine fever virus (ASFV) transmission in feed. National Pork Board. M. Niederwerder, C. Jones, J. Woodworth, M. Tokach, T. Hefley, R. Rowland, S. Dritz. 2017-2019.
18. Evaluation of the risk of transboundary movement of ASFV via feed ingredients. M. Niederwerder, C. Jones, J. Woodworth, M. Tokach, R. Rowland, S. Dritz. 2017-2018.



19. Validation of a low-cost tool for Senecavirus A detection, and surveillance of viral prevalence in United States feed mills. Swine Health Information Center. C. Jones, M. Niederwerder, V. Trinetta, J. Woodworth, C. Paulk, R. Rowland, S. Dritz. 2017-2018.
20. Assessing the role of medium chain fatty acids as an alternative to medically-important antibiotics. National Pork Board. C. Jones, R. Cochrane, T.G. Nagaraja, R. Amachawadi, M. Tokach, M. Niederwerder, J. Woodworth, S. Dritz, C. Paulk, and C. Stark. 2017-2018.
21. Identifying combinations and doses of of MCFA on PEDV quantity and infectivity. PMI Nutritional Products. J. Woodworth, S. Dritz, C. Jones. 2017-2018.
22. Assessing tools for the mitigation of foreign animal disease introduction and transmission in feed. Swine Health Information Center. M. Niederwerder, C. Jones, J. Woodworth, M. Tokach, R. Rowland, and S. Dritz. 2017-2018.
23. Converting distiller's grains to high-value healthy natural antioxidants. Kansas Sorghum Commission. Y. Li, C. Jones. 2017-2018.
24. Assessing factors affecting Salmonella in poultry fat. Fats and Proteins Research Foundation. PI: V. Trinetta. Co-PI: C. Jones, G. Aldrich.
25. Role of feed antimicrobial replacement on broiler growth and performance. Koch Industries, Inc. Research and Creative Inquiry Project. PI: C. Jones. 2016-2017.
26. Role of moisture addition on pellet quality in finishing pig feed. National Pork Board Swine Research and Education Experience. PI: C. Jones. Co-PI: C. Stark. 2016-2017.
27. Assessing the effects of medium chain fatty acids and fat sources on PEDV infectivity. National Pork Board. PI: C. Jones. Co-PI: R. Cochrane, A. Huss, J. Woodworth, S. Dritz, C. Stark, R. Goodband, M. Tokach, J. DeRouchey. 2016-2017.
28. Assessing the effects of MCFA on 2PEDV quantity and infectivity. Purina Animal Nutrition LLC. 2016-2019.
29. From feed to meat: investigation of the prevalence and distribution of *Salmonella* enterica serotype I 4,[5], 12:i:- a pathogen of interest in pork. National Pork Board. PI: V. Trinetta. Co-PI: T. Houser, J. Woodworth, C. Jones, S. Dritz, and N. Cernicchiaro. 2016-2017.
30. Compilation of a Food Safety Preventive Controls Animal Food Training Curriculum. United States Department of Health and Human Services. PI: C. Jones. Co-PI: C. Stark and B. Miller. 2015-2018.
31. Evaluation of Amasil NA and pelleting to mitigate Salmonella in a broiler diet. BASF Corporation. PI: C. Jones. Co-PI: C. Stark. 2015-2016.
32. Evaluating the effects of conditioning temperature and probiotic levels on resulting probiotic stability. Kay Dee, LLC. PI: C. Jones. Co-PI: C. Stark. 2015-2016.
33. Evaluating the effects of Magnesium-Mica on pellet quality and aflatoxin concentration in animal feeds. Micro-Lite, LLC. PI: C. Jones. Co-PI: C. Stark. 2015-2016.
34. Creation of a Porcine Epidemic Diarrhea Virus factsheet for pork producers. National Pork Board. PI: C. Jones. 2015-2016.
35. Preliminary evaluation of a chemical additive to mitigate *Salmonella* in kibble. Metabolic Technologies, Inc. PI: C. Jones. Co-PI: A. Huss. 2015-2016. Organization and development of an online curriculum to train qualified individuals based on content adapted from the current Rendering Code of Practice. National Renderers Association. Co-PI: B. Miller. 2015-2017.
36. Evaluating the effects of pelleting temperature on enzyme stability. Dyadic International, Inc. PI: C. Jones. 2015-2016.
37. Evaluating alternative chemical mitigants to prevent PEDv recontamination of swine feed and ingredients. United States Department of Agriculture and National Pork Board Joint Funding Directive. PI: C. Jones. Co-PI: C. Stark, A. Huss, R. Main, P. Gauger, J. Zhang, J. Woodworth, M. Tokach, and S. Dritz. 2015-2016.
38. AMPLIFIES Ghana: Assisting management in the poultry and layer industries by feed improvement and efficiency strategies. PI: C. Stark. Co-PI: C. Jones, C. Campabadal. 2015-2019.
39. Assessing PEDV infectivity of samples collected from a PEDV contaminated feed. National Pork

- Board and Iowa State University. PI: P. Gauger. Co-PI: J. Woodworth, C. Jones, S. Dritz, R. Main, and J. Zhang. 2015-2016.
40. Evaluating the effects of chemical treatments to reduce the likelihood of PEDV transmission by feed manufacturing equipment. National Pork Board. PI: J. Woodworth. Co-PI: C. Jones, S. Dritz, C. Stark, R. Goodband, M. Tokach, J. DeRouchey. 2015-2016.
  41. Feed and Dairy Student Team – China. U.S. Soybean Export Council. PI: C. Campabadal Teran. Co-PI: M. Brouk, B. Miller, H. O’Neil, C. Stark, and C. Jones. 2015-2016.
  42. Determining the impact of Vevovital and/or CRINA as potential PEDv mitigation strategies as determined by PCR analysis and bioassay. DSM Nutritional Products. PI: J. Woodworth, Co-PI: S. Dritz, C. Jones, J. DeRouchey, M. Tokach, B. Goodband. 2015-2016.
  43. Novel feed processing methods of cold pelleting and find ground corn segregation to maximize feed efficiency, nutrient utilization, and economic return. National Pork Board. PI: C. Stark. Co-PI: C. Jones, J. DeRouchey, J. Woodworth, M. Tokach, A. Huss, and K. Ambrose. 2015-2016.
  44. Feed and petfood safety and global competitiveness of U.S. Grain and Feed. USDA National Institute of Food and Agriculture. PI: C. Jones. Co-PI: G. Aldrich, R. Ambrose, D. Maier, J. DeRouchey, and M. Tokach. 2012-2017.
  45. Developing video training modules for feed mill biosecurity from Porcine Epidemic Diarrhea Virus. PIC International. PI: C. Jones. Co-PI: S. Dritz, J. Woodworth, and C. Stark. 2014-2015.
  46. Evaluating the effects of betaGRO on broiler growth performance and breast meat yield. NUTRIQUEST. PI: C. Jones. Co-PI: C. Stark, R. Beyer. 2014-2015.
  47. Chemical mitigation strategies to control PEDv in feed and feed ingredients. National Pork Board. PI: C. Jones. Co-PI: M. Tokach, C. Stark, J. Bai, R. Hesse, and S. Dritz. 2014-2015.
  48. Evaluating the use of long-term conditioning or extrusion to extract nutrients from low energy feedstuffs. National Pork Board. PI: C. Jones. Co-PI: C. Stark, M. Tokach, J. Woodworth, J. DeRouchey. 2014-2015.
  49. Start-up validation of the Cargill Feed Safety Research Center. College of Agriculture. PI: C. Jones. Co-PI: C. Stark. 2014-2015.
  50. Improving wireless access to livestock teaching and research facilities. Kansas State University Academic Excellence Fund. PI: M. Tokach. Co-PI: D. Davis, J. Stevenson, J. Drouillard, C. Carson, C. Jones, and S. Dritz. 2014-2015.
  51. Utilizing feed sequencing as a biosecurity intervention for preventing PEDV cross contamination in the feed manufacturing process. National Pork Board. PI: J. Woodworth. Co-PI: C. Stark, R. Main, J. Zhang, C. Jones, P. Gauger, S. Dritz, and M. Tokach. 2014-2015.
  52. Swine teaching and research center feeders equipment grant. Kansas State University Academic Excellence Fund. PI: J. DeRouchey. Co-PI: M. Tokach, C. Jones, and S. Dritz. 2014-2015.
  53. Determining the impact of conditioning time and temperature in pelleted diets on PEDv. National Pork Board. PI: J. Woodworth. Co-PI: M. Tokach, J. DeRouchey, R. Goodband, C. Jones, C. Stark, R. Hesse, and S. Dritz. 2014-2015.
  54. Use of 2-high, 3-high, or 4-high roller mills. National Pork Board. PI: M. Tokach. Co-PI: J. Woodworth, J. DeRouchey, R. Goodband, C. Stark, C. Jones, and S. Dritz. 2014-2015.
  55. Assessing the efficacy of chemical treatment to control *Salmonella* in rendered protein meals. Fats and Proteins Research Foundation. PI: C. Jones. Co-PI: G. Aldrich, A. Rigdon. 2014-2015.
  56. Food safety inspection – training for bulk agricultural product handling and processing. United States Health & Human Services Food & Drug Administration. PI: C. Jones. Co-PI: D. Maier, L. McKinney. 2012-2014. (PI during FY13 and FY14).
  57. Effects of HP 300 on pelletability and pellet quality in early swine diets. Hamlet Proteins. PI: C. Jones. Co-PI: C. Stark. 2013-2014.
  58. Introducing new profit streams for grain sorghum: milling characteristics and inclusion considerations for use in pet foods. United Sorghum Checkoff Program. PI: G. Aldrich. Co-PI: F. Churchill, C. Jones, C. Miller, and J. Hancock. 2013-2015.
  59. Evaluating moderate to severe feed processes in light of increasing use of wheat in swine diets.

- National Pork Board. PI: M. Tokach. Co-PI: C. Paulk, J. De Jong, J. DeRouchey, C. Jones, and R. Goodband. 2013-2014.
60. Maximizing Kansas soybean utilization by determining the economic and growth implications when including soy hulls and soybean meal in pelleted growing kid diets. Kansas Soybean Commission. PI: B. Faris. Co-PI: A. Sexten, C. Jones. 2013-2014.
  61. Cochran Program on Animal Production and Management. USDA. PI: C. Campabadal. Co-PI: C. Jones, D. Maier, and C. Stark. 2013-2014.
  62. Evaluating the effects of Novasil Plus on pelletability and pellet quality in early swine diets. BASF. PI: C. Jones. Co-PI: C. Stark. 2013-2014.
  63. Strategies for eliminating *Salmonella* in animal feeds. Jones-Hamilton. PI: C. Jones. Co-PI: G. Aldrich, K. Channaiah. 2012-2014.
  64. Determining the stability and homogeneity of Amasil NA for regulatory approval in United States swine and poultry feed. BASF. PI: C. Jones. 2012-2013.
  65. Demonstrating the improved profitability of cereal grains during drought conditions to the poultry industry through further processing and Roxazyme G2 enzyme inclusion. DSM Nutritional Products. PI: C. Jones. 2012-2013.
  66. Continuing expansion of the Department of Grain Science and Industry's Distance Learning Program – Stand Alone Minor Programs. Division of Continuing Education. PI: H. Dogan. Co-PI: J. Faubion, D. Krishock, M. Moore, K. Ambrose, and C. Jones. 2012-2014
  67. Evaluation of techniques used to extend shelf-life and methods for analysis of rendered protein meals in pet foods. Fats and Proteins Research Foundation. PI: G. Aldrich. Co-PI: C. Jones, L. McKinney, and R. Ambrose. 2012-2014.
  68. Development of an online training course for advanced feed safety and associated quality protocols. American Feed Industry Association. PI: B Miller. Co-PI: C. Jones, C. Campabadal, and H. Cook. 2012-2013.

## **COOPERATIVE EXTENSION/OUTREACH**

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### Invited Presentations

1. Allen D. Leman Conference. The role of feed in disease outbreaks: Experiences from Kansas, Vietnam, Brazil, and Beyond. September 2020. Virtual.
2. Feed Risk Task Force. Sampling, testing, and feed risk research. August 2020. Virtual.
3. American Feed Industry Association. Update on African swine fever virus and other foreign animal diseases. July 2020. Virtual.
4. Farm Foundation. African swine fever virus – Risks for Entry. February 2020. Washington, DC.
5. Food and Agriculture Organisation of the United Nations International Food Regulators Meeting. Status of research on virus transmission in feed. Jan. 2020. Atlanta, GA.
6. International Production and Processing Expo. Swine feed mill biosecurity: Prevention of domestic and foreign animal diseases. Jan. 2020. Atlanta, GA.
7. POET. Understanding the role of DDGS in feed safety. January 2020. Virtual.
8. Nestlé Purina North America. African swine fever virus preparedness for the pet food industry. Jan. 2020. St. Louis, MO.
9. Department of Homeland Security Critical Infrastructure Partnership Advisory Council. African swine fever virus in the feed supply chain. Nov. 2019. Virtual.
10. Pet Food Institute Annual Meeting. Foreign animal diseases and animal food – emerging issues. Oct. 2019. Kansas City, MO.
11. National Grain and Feed Association Annual Conference. Feed mill biosecurity. Oct. 2019. Kansas City, MO.
12. Allen D. Leman Conference. What can we do? Methods to keep viruses out of the feed supply chain. Sept. 2019. Minneapolis, MN.

13. Feed Risk Task Force. Monitoring and Surveillance of feed and ingredients for African swine fever virus. Sept. 2019. Arlington, VA.
14. China Agricultural University. Transmission of swine diseases through the feed supply chain. Aug. 2019. Beijing, China.
15. Elanco Animal Health. African swine fever virus: What's going on and how it is impacting U.S. proteins. Aug. 2019. Salina, KS.
16. Association of American Feed Control Officials. Animal food safety – a review of available training and resources via Universities. Aug. 2019. Lexington, KY.
17. Reciprocal Meats Conference. Pet food regulatory compliance with the Food Safety Modernization Act. June 2019. Fort Collins, CO.
18. United States Food and Drug Administration. African swine fever virus and other foreign animal disease transmission via animal food. June 2019. Rockville, MD.
19. United States Department of Agriculture. Sampling bulk feed ingredients for detection of swine viruses. June 2019. Washington, DC.
20. American Feed Industry Association. African swine fever virus and foreign animal disease transmission via feed. May 2019. Orlando, FL.
21. Swine Medicine Education Center Swine Emerging Diseases Diagnosis and Management. Risk of disease transmission through feed. March 2019, Nov. 2019. Virtual.
22. American Association of Swine Veterinarians. Investigating feed and feed mill risks. Mar. 2019. Orlando, FL.
23. Mid-Continental Association of Food & Drug Officials and Heartland Roundtable. Food Safety Modernization Act Preventive Controls for Animal Food update. Feb. 2019. Manhattan, KS.
24. Iowa State University Department of Animal Science. Feed mill biosecurity. Jan. 2019.
25. Pet Food Institute. Factors impacting poultry fat safety during transportation. Dec. 2018. Washington, DC.
26. Iowa State University James D. McKean Swine Disease Conference. Feed mill biosecurity. Nov. 2018. Ames, IA.
27. NutriQuest. African swine fever virus strategies for feed safety. Oct. 2018. Virtual.
28. United States Animal Health Association. Addressing disease threats in the feed supply. Oct. 2018. Kansas City, MO.
29. National Grain and Feed Association Annual Meeting. Current knowledge on the potential for virus transmission through swine feed. Sept. 2018. St. Louis, MO.
30. Pet Food Institute Annual Meeting. Pathogen transmission and animal food. Sept. 2018. St. Louis, MO.
31. Allen D. Leman Swine Conference. Feed testing and feed mill biosecurity. Sept. 2018. Minneapolis, MN.
32. Swine Health Information Center Committee. Role of environmental monitoring to evaluate feed safety. Mar. 2018. Virtual.
33. Midwest American Society of Animal Science Meeting. Practical strategies to maintain feed safety. Mar. 2018. Omaha, NE.
34. Pet Food R&D Showcase. Using grain-based diets to maximize pet food safety. Feb. 2018. Manhattan, KS.
35. Neogen. Mycotoxin analysis – A tool for FSMA compliance. Dec. 2017. Virtual.
36. Pet Food Institute Annual Meeting. Preparing for new conversation-based FSMA inspections. Oct. 2017. Louisville, KY.
37. National Grain and Feed Association Annual Meeting. Conducting an effective animal feed hazard evaluation. Oct. 2017. Louisville, KY.
38. Zinpro Short Course. Feed Safety. August 2017. Manhattan, KS.
39. Seaboard Corp. Good manufacturing practices and FSMA compliance. Jan. 2017. Atlanta, GA.

#### Extension Publications

New Prairie Press: 33 works with 11,337 downloads from 1,019 institutions in 136 countries.

1. Elijah, C.G., J.D. Trujillo, C.K. Jones, N.N. Gaudreault, C.R. Stark, K.R. Cool, C.B. Paulk, T. Kwon, J.C. Woodworth, I. Morozov, J.T. Gebhardt, and J.A. Richt. 2020. Evaluating the distribution of African swine fever virus within a feed mill environment following manufacture of inoculated feed. 2020 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 6:10.
2. Nichols, G.E., J.T. Gebhardt, C.K. Jones, J.C. Woodworth, S.S. Dritz, J. Bai, J.W. Anderson, E. Porter, F.B. Sandberg, A. Singrey, and C.B. Paulk. 2020 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 6:10.
3. Saensukjaroenphon, M., C. E. Evans, C. K. Jones, C. H. Fahrenholz, C. B. Paulk, and C. R. Stark. 2019. Effect of Die Retention Time on Pellet Quality and Phytase Stability of a Corn-Soybean Meal Swine Diet. 2019 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 5:8.
4. Dahmer, P. L., G. E. Luebcke, A. B. Lerner, and C. K. Jones. 2019. Effects of Varying Lipid Sources as Alternatives to Zinc Oxide or Carbadox on Nursery Pig Growth Performance and Fecal Consistency. 2019 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 5:8.
5. Lerner, A. B., R. A. Cochrane, J. T. Gebhardt, S. S. Dritz, C. K. Jones, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, J. Bai, E. Porter, J. Anderson, P. C. Gauger, D. R. Magstadt, J. Zhang, B. Bass, T. P. Karnezos, B. de Rodas, and J. C. Woodworth. 2019. Effects of Medium Chain Fatty Acid Application in Swine Feed on Porcine Epidemic Diarrhea Virus. 2019 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 5:8.
6. Cochrane, R.A., R.G. Amachawadi, S.E. Remfry, A.B. Lerner, T.G. Nagaraja, J.C. Woodworth, S.S. Dritz, M.D. Tokach, M.C. Niederwerder, and C.K. Jones. 2018. Determining the minimum inhibitory concentration of medium chain fatty acids for generic *Escherichia coli*, *Enterotoxigenic coli*, *Salmonella Typhimurium*, and *Campylobacter coli*. 2018 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 4:9.
7. Cochrane, R.A., J.R. Pluske, J.P. Mansfield, S.S. Dritz, J.C. Woodworth, M.D. Tokach, M.C. Niederwerder, C.B. Paulk, and C.K. Jones. 2018. Evaluating medium chain fatty acids as an alternative to chlortetracycline in nursery pig diets. 2018 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 4:9.
8. Nichols, G.E., C.M. Vier, A.B. Clark, M.B. Menegat, H.S. Cemin, C.K. Jones, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, J.C. Woodworth, and S.S. Dritz, 2017. Effects of standardized ileal digestible lysine on 15- to 25-lb nursery pigs. 2017 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 3:7.
9. Gebhardt, J.T., J.C. Woodworth, M.D. Tokach, J.M. DeRouchey, R.D. Goodband, C.K. Jones, and S.S. Dritz. 2017. Quantifying medium chain fatty acid mitigation activity over time against porcine epidemic diarrhea virus in nursery pig diets. 2017 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 3:7.
10. Evans, C.E., M. Saensukjaroenphon, C.K. Jones, J.M. DeRouchey, J.C. Woodworth, M.D. Tokach, C.B. Paulk, and C.R. Stark. 2017. The effects of cold pelleting and separation of fine corn particles on growth performance and economic return in nursery pigs. 2017 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 3:7.
11. Saensukjaroenphon, M., C.E. Evans, K.H. Sheldon, C.K. Jones, and C.R. Stark. 2017. The effect of hammermill screen hole diameter and hammer tip speed on particle size and flowability of ground corn. 2017 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 3:7.
12. Yoder, A.D., M.D. Tokach, J.M. DeRouchey, C.B. Paulk, C.R. Stark, and C.K. Jones. 2017. Cleaning reduces mycotoxin contamination in corn. 2017 Kansas State University Swine Day. *KS Agric. Exp. Stn. Res.* 3:7.
13. Cochrane, R.A., S.S. Dritz, J.C. Woodworth, A.R. Huss, C.R. Stark, M. Saensukjaroenphon, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, J. Bai, Q. Chen, J. Zhang, P.C. Gauger, R.J. Derscheid, D.R. Magstadt, P.E. Arruda, A. Ramirez, R.G. Main, and C.K. Jones. 2016. Evaluating the Inclusion Level of Medium Chain Fatty Acids to Reduce the Risk of Porcine Epidemic Diarrhea Virus in Complete Feed and Spray-Dried Animal Plasma. 2016 Kansas State

- University Swine Day. KS Agric. Exp. Stn. Res. 2:8.
14. Cochrane, R.A., S.S. Dritz, J.C. Woodworth, A.R. Huss, C.R. Stark, M. Saensukjaroenphon, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, J. Bai, Q. Chen, J. Zhang, P.C. Gauger, R.J. Derscheid, R.G. Main, and C.K. Jones. 2016. Assessing the Effects of Medium Chain Fatty Acids and Fat Sources on Porcine Epidemic Diarrhea Virus Viral RNA Stability and Infectivity. 2016 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 2:8.
  15. Gebhardt, J.T., J.C. Woodworth, C.K. Jones, P.C. Gauger, M.D. Tokach, J.M. DeRouchey, R.D. Goodband, M. Muckey, R.A. Cochrane, M. Niederwerder, C.R. Stark, J. Bai, Q. Chen, J. Zhang, R.A. Jianqiang, R.J. Derscheid, R.G. Main, and S.S. Dritz. 2016. Evaluation of the Effects of Flushing Feed Manufacturing Equipment with Chemically- Treated Rice Hulls on Porcine Epidemic Diarrhea Virus Cross Contamination During Feed Manufacturing. 2016 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 2:8.
  16. Gebhardt, J.T., J.C. Woodworth, C.K. Jones, M.D. Tokach, J.M. DeRouchey, R.D. Goodband, R.A. Cochrane, C.R. Stark, J. Bergstrom, P.C. Gauger, J. Bai, Q. Chen, J. Zhang, R.G. Main, and S.S. Dritz. 2016. Evaluating the Impact of VevoVital and/or CRINA as Potential Porcine Epidemic Diarrhea Virus Mitigation Strategies as Determined by Polymerase Chain Reaction Analysis and Bioassay. 2016 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 2:8.
  17. Muckey, M.E., S.S. Dritz, J.C. Woodworth, C.R. Stark, J. Bai, J. Zhang, P.C. Gauger, R.G. Main, and C.K. Jones. 2016. Porcine Epidemic Diarrhea Virus Surface Decontamination Strategies Using Chemical Sanitizing to Reduce the Quantity of PEDV RNA on Feed Manufacturing Surfaces with Environmental Swabbing. 2016 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 2:8.
  18. Saensukjaroenphon, M., C.K. Jones, C.H. Fahrenholz, and C.R. Stark. 2016. Effect of Sample Preparation and Extended Mix Times with Different Salt Particle Sizes on the Uniformity of Mix of a Corn-Soybean Meal Swine Diet. 2016 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 2:8.
  19. Saensukjaroenphon, M., M., C.K. Jones, C.H. Fahrenholz, and C.R. Stark. 2016. The Effect of Liquid Application Times, and Mixer Types with Different Wet Mix Times on Uniformity of Mix. 2016 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 2:8.
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  21. Bokelman, G.E., J.A. De Jong, J.R. Kalivoda, A.D. Yoder, C.R. Stark, J.C. Woodworth, and C.K. Jones. Finley grinding cereal grains in pelleted diets offers little improvement in nursery pig growth performance. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
  22. Bokelman, G.E., S.C. Stewart, A.L. Baldridge, J.C. Woodworth, S.S. Dritz, J.R. Kalivoda, C.R. Stark, and C.K. Jones. Evaluating the accuracy of the 3-sieve particle size analysis method compared to the 12-sieve method. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
  23. Cochrane, R.A., L.G. Sica, J.C. Woodworth, S.S. Dritz, C.R. Stark, and C.K. Jones. Effects of commercial formaldehyde inclusion and Lys level on pig performance of 35- to 50-lb nursery pigs. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
  24. Cochrane, R.A., S.S. Dritz, J.C. Woodworth, A.R. Huss, C.R. Stark, R.A. Hesse, J. Zhang, M.D. Tokach, J.F. Bai, and C.K. Jones. Evaluating chemical mitigation of Porcine Epidemic Diarrhea Virus in Swine Feed. 2015 Kansas State University. KS Agric. Exp. Stn. Res. 1:7.
  25. Cochrane, R.A., L.L. Schumacher, S.S. Dritz, J.C. Woodworth, A.R. Huss, C.R. Stark, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, J. Bia, Q. Chen, J. Zhang, P.C. Gauger, R.G. Main, and C.K. Jones. Effect of thermal mitigation of Porcine Epidemic Diarrhea Virus-Contaminated Feed. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
  26. Schumacher, L.L., R.A. Cochrane, J.C. Woodworth, C.R. Stark, C.K. Jones, R.G. Main, J. Zhang, P.C. Gauger, S.S. Dritz, and M.D. Tokach. Utilizing feed sequencing to decrease the risk of

- Porcine Epidemic Diarrhea Virus cross-contamination during feed manufacturing. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
27. Schumacher, L.L., R.A. Cochrane, J.C. Woodworth, C.R. Stark, C.K. Jones, R.G. Main, J. Zhang, P.C. Gauger, S.S. Dritz, and M.D. Tokach. Evaluating the effect of manufacturing PEDV-contaminated feed on subsequent feed mill environmental surface contamination. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
  28. Schumacher, L.L., R.A. Cochrane, J.C. Woodworth, C.R. Stark, C.K. Jones, R.G. Main, J. Zhang, P.C. Gauger, S.S. Dritz, and M.D. Tokach. Determining the minimum infectious dose of Porcine Epidemic Diarrhea Virus in a Feed Matrix. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
  29. Kalivoda, J.R., C.K. Jones, and C.R. Stark. Effects of varying methodologies on grain particle size analysis. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
  30. Gebhardt, J.T., K.F. Coble, M.D. Tokach, J.M. DeRouche, R.D. Goodband, J.C. Woodworth, C.R. Stark, C.K. Jones, and S.S. Dritz. Effects of grinding corn through a 2-, 3-, or 4-high roller mill on milling characteristics, and finishing pig growth performance and carcass characteristics. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
  31. Gebhardt, J.T., J.A. De Jong, M.D. Tokach, J.C. Woodworth, J.M. DeRouche, R.D. Goodband, K.F. Coble, C.R. Stark, C.K. Jones, and S.S. Dritz. Effects of grinding corn through a 2-, 3-, or 4-high roller mill on pig performance and feed preference of 25- to 50-lb nursery pigs. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
  32. De Jong, J.A., J.M. DeRouche, B. Habert, H. Williams, M.D. Tokach, R.D. Goodband, J.C. Woodworth, S.S. Dritz, C.R. Stark, L. McKinney, C.K. Jones, and D. Van Otterloo. Effects of feed truck RPM on pellet quality, unloading speed, and feed line location on pellet quality and nutrient segregation. 2015 Kansas State University Swine Day. KS Agric. Exp. Stn. Res. 1:7.
  33. De Jong, J.A., J.C. Woodworth, J.M. DeRouche, M.D. Tokach, R.D. Goodband, S.S. Dritz, C.K. Jones, and C.R. Stark. Stability of four commercial phytase sources under increasing conditioning temperature. 2015 Kansas State University. KS Agric. Exp. Stn. Res. 1:7.
  34. Lewis, L.L., C.K. Jones, A.C. Fahrenholz, M.A.D. Gonclaves, C.R. Stark, and J. M. DeRouche. Feed Processing Parameters and their Effects on Nursery Pig Growth. Kansas State University Swine Research 2013:81-89. KS Agric. Exp. Stn. #13-1092.
  35. Jones, C.K., E.L. Franz, H.L. Frobose, J.M. DeRouche, R.D. Goodband, M.D. Tokach, and J. R. Bergstrom. Effects of Roxazyme G2G and/or Ronozyme VP enzyme inclusion on growth performance of nursery pigs fed normal or drought-stressed corn. Kansas State University Swine Research 2013:90-94. KS Agric. Exp. Stn. #13-1092.
  36. Jones, C.K., N.K. Gabler, and J.F. Patience. 2012. Post-weaning failure to thrive in pigs is associated with increased organ weights and possible anemia, but not changes in intestinal function. Iowa State University Animal Industry Report. AS-Leaflet-R2734.
  37. Jones, C.K. and J.F. Patience. 2012. Birth weight and post-weaning failure to thrive affect subsequent growth performance, but not nursery nutrient digestibility or carcass composition of pigs. Iowa State University Animal Industry Report. AS-Leaflet-R2733.
  38. Jones, C.K. and J.F. Patience. 2012. Feed efficiency in nursery pigs is maximized when additional Lys is supplied by L-Lys·HCl instead of intact protein, but not affected by differing NEAA nitrogen sources. Iowa State University Animal Industry Reports. AS-Leaflet-R2735.
  39. Jones, C.K., N.K. Gabler, R.G. Main, and J.F. Patience. 2011. Both weaning weight and post-weaning growth performance affect nutrient digestibility and energy utilization in pigs. Iowa State University Animal Industry Report. AS-Leaflet-R2654.
  40. Jones, C.K., N.K. Gabler, R.G. Main, and J.F. Patience. 2011. Irrespective of differences in weaning weight, feed efficiency is not different among pigs with varying average daily gain. Iowa State University Animal Industry Report. AS-Leaflet-R2652.
  41. Greco, A., C.R. Hurburgh, G.P. Munkvold, J.F. Patience, C.K. Jones, and C.M. Pilcher. 2011. Defining the feeding value of moldy corn selected for low mycotoxin content. Iowa State

- University Animal Industry Report. AS-Leaflet-R2656.
42. Sulabo, R.C., C.K. Jones, M.D. Tokach, R.D. Goodband, S.S. Dritz, D.R. Campbell, B.W. Ratliff, J.M. DeRouche, and J.L. Nelssen. 2010. Factors affecting stability of commercial phytase sources. *Kansas State University* 2010:273-289. *KS Agric. Exp. Stn. #10-1038*.
  43. Jones, C.K., M.D. Tokach, R.D. Goodband, J.L. Nelssen, S.S. Dritz, J.M. DeRouche, and D. McKilligan. 2009. An evaluation of Peptone as a specialty protein source in diets for nursery pigs. *Kansas State University Swine Research* 2009:80-89. *KS Agric. Exp. Stn. #9-1020*.
  44. Jones, C.K., M.D. Tokach, B.W. Ratliff, N.L. Horn, S.S. Dritz, R.D. Goodband, J.M. DeRouche, and J.L. Nelssen. 2009. Efficacy of varying phytase levels and development of a P release curve. *Kansas State University* 2009:106-121. *KS Agric. Exp. Stn. #9-1020*.
  45. Jones, C.K., J.M. DeRouche, J.L. Nelssen, M.D. Tokach, S.S. Dritz, and R.D. Goodband. 2008. Effects of PepSoyGen and Dried Porcine Solubles 50 on nursery pig diets. *Kansas State University Swine Research* 2008:52-61.
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  47. Benz, C.K., M.D. Tokach, C.N. Groesbeck, S.S. Dritz, J.L. Nelssen, R.D. Goodband, and J.M. DeRouche. 2005. A comparison of Bygholm Feed Sieve to standard particle-size analysis techniques. *Kansas State University Swine Research* 2005:184-189. *KS Agric. Exp. Stn. #5-964*.

## **SERVICE**

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### **Department/College/University**

- Department Committee on Planning
- Departmental Academic Instruction Working Group
- Kansas State Swine Club Advisor
- Gamma Sigma Delta Member, President 2018-2019
- Graduate Program Member: Animal Sciences & Industry, Diagnostic Medicine and Pathobiology, Food Science Institute, Grain Science & Industry
- College of Agriculture Academic Instruction Working Group
- Collaborative Sorghum Investment Program Advisory Board University Representative
- Office for the Advancement of Women in Science and Engineers GROW (Girls Researching Our World) and EXCITE (Exploring Science, Technology, & Engineering) workshops host
- Search Committees: College of Agriculture Associate Dean for Academic Programs, Diagnostic Medicine/Pathobiology Swine Production Veterinarian Assistant Professor, Animal Sciences & Industry Dairy Nutritionist

### **Professional**

- FAO/WHO External Expert Panel on Hazards Associated with Animal Feed
- European Food Safety Authority Expert Knowledge Elicitation: Assessment of Risk of Matrices to Transmit African Swine Fever Virus
- U.S. Food & Drug Administration Committees
  - Food Safety & Preventative Controls Alliance: Alliance of government, academia, and industry participants tasked with providing guidance to the FDA and industry for the implementation of the Food Safety Modernization Act.
  - Primary Author and Chair of Editorial Subcommittee to create the standardized training material for industry and investigators regarding Hazard Analysis and Risk-Based Preventive Controls for Animal Food (both in-person and blended course)
  - Primary Author of training material for industry regarding Current Good Manufacturing



Practice Requirements of the Preventive Controls for Animal Food Rule

- USDA Expert Elicitation: Imports of Non-Animal Origin Feed Ingredients Potentially Contaminated with African Swine Fever Virus
- Representative to USDA/FDA/State response planning for foreign animal disease entry
- American Feed Industry Association Nutrition Committee, previously on Regulatory Committee
- American Society of Animal Science Midwest Section Judge
- Peer-Reviewer: PLOS ONE, J. Anim. Sci., T. Anim. Sci., J. Feed Sci. Technol. J. Appl. Poult. Nutr.