

Charles R. Stark, Ph.D.

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### **Education**

Kansas State University, 1994, Ph.D. Grain Science  
Kansas State University, 1990, M.S. Grain Science  
Kansas State University, 1988, B.S. Animal Sciences –Dairy Science

### **Employment History**

Jim and Carol Brown Associate Professor of Grain Science & Industry and  
Faculty Coordinator of the O.H. Kruse Feed Innovation Technology Center,  
Departments of Grain Science and Industry and Animal Sciences and Industry  
Kansas State University, Manhattan, 2013 – present

Adjunct Faculty, Prestage Department of Poultry Science 2013 – present

Assistant Professor, Prestage Department of Poultry Science

North Carolina State University, 2006 – 2013

Feed Science Program Coordinator, 2006 – 2013

Dean's Feed Advisory Board Faculty Coordinator, 2007 – 2013

Feed Mill Educational Unit Liaison, 2008 – 2013

Associate Graduate Faculty, 2006 – 2013

Nutrition Faculty, 2009 – 2013

Director of Feed Manufacturing East Coast Division, Murphy-Brown, 2004 – 2006

Quality Assurance Manager, East Coast & Mexico, Murphy-Brown, 2001 – 2004

Production Research & Development Specialist, Murphy-Brown, 2001 – 2004

Ingredient and Logistics Manager, Murphy Family Farms, 1994 – 2001

Quality Assurance Manager, East Coast Division, Murphy Family Farms, 1994 – 2001

### **Professional Service**

University Service:

Graduate Student Council, 2016 – present

Graduate Faculty, Kansas State University, 2011 – present

Feed Science Club Advisor, Kansas State University, 2013 – present

Industry Service:

Reviewer, ASABE Applied Engineering in Agriculture, 2012 – present

Reviewer, Journal of Animal Feed Technology, 2012 – present

Global Food Safety Initiative, Feed Working Group Chair, 2011 – 2012

Reviewer, Journal Applied Poultry Research, 2010 – present

Purchasing & Ingredient Suppliers Committee, American Feed Industry Association,  
2013 – present

Safe Feed Safe Food, American Feed Industry Association, 2010 – present

Integrators Committee, American Feed Industry Association, 2009 – 2013

U.S. Regional Swine School, Feed Science Coordinator, 2008 – present

Carolina Feed Industry Association, Feed Mill Workshops, 2007 – 2013

Society Memberships:

American Society of Animal Science

Poultry Science Association

Southern Poultry Science Society

## Publications

1. Gebhardt, J.T., C.B. Paulk, M.D. Tokach, J.M. DeRouchey, R.D. Goodband, J.C. Woodworth, J.A. De Jong, 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.
2. 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. DeRouchey, 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. Ani. Sci.* doi.org/10.1093/jas/sky320.
3. Saensukjaroenphon, M., C.K. Jones, C.H. Fahrenholz, and **C.R. Stark**. 2018. The effect of extended mix times and sample preparation with different salt particle sizes on the uniformity of mix of a corn-SBM swine diet. *Transactions of the ASABE* 61(2):743-746.
4. Gebhardt, J.T., R.C. 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, 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. Ani. Sci. J. Anim.* 96: doi.org/10.1093/jas/sky295.
5. Gebhardt, J.T., J.C. Woodworth, C.K. Jones, M.D. Tokach, P.C. Gauger, R.G. Main, J. Zhang, Q. Chen, J.M. DeRouchey, R.D. Goodband, **C.R. Stark**, J.R. Bergstrom, J. Bai, and S.S. Dritz. 2018. Determining the impact of commercial feed additives as potential porcine epidemic diarrhea virus (PEDV) mitigation strategies as determined by polymerase chain reaction analysis and bioassay. *Trans. Anim. Sci.* doi.org/10.1093/tas/txy100.
6. Martinez, A., C.K. Jones, **C.R. Stark**, L McKinney, K.C. Behnke and C.B. Paulk. 2018. Evaluating flushing procedures to prevent nicarbazin carryover during medicated feed manufacturing. *J. Anim. Feed Sci. Tech.* 242:1-7.
7. Kalivoda, J.R., C.J. Jones, and **C.R. Stark**. 2017. Effect of ground corn on fractionation of flowability. *Appl. Eng. Agric.* 33:6 927-932.
8. 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.E. Williams, J. Erceg, B. Haberl, L.J. McKinney, G. Smith, D. Van Otterloo, and C. B. Paulk. 2017. Formation of pellet fines during the feed manufacturing process, transportation and reed line delivery, and their nutrient composition. *Appl. Eng. Agric.* 33(6):921-926.
9. Saensukjaroenphon, M., C.K. Jones, C.H. Fahrenholz, and **C.R. Stark**. 2017. Effects of water temperature, technician, extraction time, and dissolution time on salt concentration using the Quantab chloride titrator method. *Transactions of the ASABE* 60(5): 1759-1763.
10. 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.J. Derscheid, D.R. Magstadt, R.G. Main, and C.K. Jones. 2017. Effect of pelleting on survival of porcine epidemic diarrhea virus-contaminated feed. *J. Anim. Sci.* 95:1170-1178.
11. Tilley, J.E.N., J.L. Grimes, M.D. Koci, R.A. Ali, **C. R. Stark**, P.K. Nighot, T.F. Middleton, and A.C. Fahrenholz. 2017. Efficacy of feed additives to reduce the effect of naturally occurring mycotoxins fed to turkey hen poults reared to 6 weeks of age. *Poult. Sci.* 0:1-9.
12. Kalivoda, J.R., C.J. Jones, and **C.R. Stark**. 2017. Impact of varying analytical

- methodologies on grain particle size determination. *J. Anim. Sci.* 2017 95:113-119.
13. 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*: 0169612.
  14. Schumacher, L.L., A.R. Huss, R.A. Cochrane, **C.R. Stark**, J.C. Woodworth, J. Bai, E.G. Poulsen, Q. Chen, R.G. Main, J. Zhang, P.C. Gauger, A.R. Rachel, J. Derscheid, D.M. 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*:0187309.
  15. Gebhardt, J.T., S.S. Dritz, M.D. Tokach, J.M. DeRouchey, R.D. Goodband, J.C. Woodworth, **C.R. Stark**, and C.K. Jones. 2016. Impact of grain particle size reduction technologies on pig performance and economics. American Association of Swine Veterinarians Annual Meeting.
  16. 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.
  17. De Jong, J.A., J.M. DeRouchey, M.D. Tokach, S.S. Dritz, R.D. Goodband, C.B. Paulk, 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 performance, carcass characteristics, and nutrient digestibility. *J. Anim. Sci.* 94:3303-3311.
  18. Zhu, L., C. Jones, Q. Guo, L. Lewis, **C.R. Stark**, and S. Alavi. 2016. An evaluation of total starch and starch gelatinization methodologies in pelleted animal feed. *J. Anim. Sci.* 94:1501-1507.
  19. 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.
  20. 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.
  21. Cochrane, R.A., A.R. Huss, C.G. 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.
  22. Xu, Y., **C.R. Stark**, P.R. Ferket, C.M. Williams, and J. Brake. 2015. Effects of feed form and dietary coarse ground corn on broiler live performance, body weight uniformity, relative gizzard weight, excreta nitrogen, and particle size preference behaviors. *Poult. Sci.* 94 (7):1549-1556.
  23. Xu, Y., **C.R. Stark**, P.R. Ferket, C.M. Williams, S. Auttawong, and J. Brake. 2015. Effects of dietary coarsely ground corn and litter type on broiler live performance, litter characteristics, gastrointestinal tract development, apparent ileal digestibility of energy and nitrogen, and intestinal morphology. *Poult. Sci.* 94 (3):353-361.
  24. Xu, Y., **C.R. Stark**, P.R. Ferket, C.M. Williams, B. Nusairat, and J. Brake. 2015. Evaluation of litter type and dietary coarse ground corn inclusion on broiler live performance, gastrointestinal tract development, and litter characteristics. *Poult. Sci.* 94 (3):362-370.
  25. Xu, Y., **C.R. Stark**, P.R. Ferket, C.M. Williams, and J. Brake. 2015. Effect of dietary coarsely ground corn on broiler live performance, gastrointestinal tract development, apparent ileal digestibility of energy and nitrogen, and digesta particle size distribution and retention time. *Poult. Sci.* 94 (7):53-60.

26. Huss, A.R., R.A. Cochrane, A. Deliephan, **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.
27. 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.
28. Lewis, L.L., **C.R. Stark**, A.C. Fahrenholz, M.A.D. Goncalves, J.M. DeRouchey, and C.K. Jones. 2015. Effects of pelleting conditioner retention time on nursery pig growth performance. *J. Anim. Sci.* 93:1098-1102.
29. Pacheco, W.J., **C.R. Stark**, P.R. Ferket, and J. Brake. 2014. Effects of trypsin inhibitor and particle size of expeller-extracted soybean meal on broiler live performance and weight of gizzard and pancreas. *Poult. Sci.* 93:2245-2252.
30. Pacheco, W.J., **C.R. Stark**, P.R. Ferket, and J. Brake. 2013. Evaluation of soybean meal source and particle size on broiler performance, nutrient digestibility, and gizzard development. *Poult. Sci.* 92:2914-2922.
31. Shields, M.C., E. van Heugten, J. Odle, and **C.R. Stark**. 2012. Impact of crude glycerol on feed milling characteristics of swine diets. *Anim. Feed Sci. Tech.* 175: 3 193-197.
32. Hu, B., **C.R. Stark**, and J. Brake. 2012. Evaluation of crumble and pellet quality on broiler performance and gizzard weight. *J. Anim. Vet. Advances* 11:2453-2458.
33. **Stark, C.R.** and C.G. Chewning. 2012. The effect of sieve agitators and dispersing agent on the method of determining and expressing fineness of feed materials by sieving. *Anim. Prod. Sci.* 52: 69-72.
34. Chewning, C.G., **C.R. Stark**, and J. Brake. 2012. Effects of particle size and feed form on broiler performance. *J. Appl. Poult. Res.* 21:830-837.
35. Shields, M.C., E. van Heugten, X. Lin, J. Odle, and **C.R. Stark**. 2011. Evaluation of the nutritional value of glycerol for nursery pigs. *J. Anim. Sci.* 89:2145-2153.
36. Grimes, J.L., M.D. Koci, **C.R. Stark**, D.P. Smith, P.K. Nighot, and T. Middleton. 2010. Biological effect of naturally occurring mycotoxins fed to poults reared to 21 days of age. *Int. J. Poult. Sci.* 9: 871-874.
37. **Stark, C.R.**, B.E. Spencer, J.C.H. Shih, C.G. Chewning, and J.J. Wang. 2009. Evaluation of Versazyme stability in pelleted broiler diets. *J. Appl. Poult. Res.* 18:30-33.
38. Wondra, K.J., J.D. Hancock, K.C. Behnke, and **C.R. Stark**. 1995. Effects of mill type and particle size uniformity on growth performance, nutrient digestibility, and stomach morphology in finishing pigs. *J. Anim. Sci.* 73:2564-2573.
39. Wondra, K.J., J.D. Hancock, K.C. Behnke, R.H. Hines, and **C.R. Stark**. 1995. Effects of particle size and pelleting on growth performance, nutrient digestibility, and stomach morphology in finishing pigs. *J. Anim. Sci.* 73:757-763.

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Swine Day Reports

1. Evans, C.E.; M. Saensukjaroenphon, C.K Jones, J.M DeRouche, 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. Kansas Agricultural Experiment Station Research Reports: Vol. 3(7).
2. Saensukjaroenphon, M., C.E. Evans, K.H. Sheldon, C.K. Jones, C.B. Paulk, and **C.R. Stark**. 2017. The Effect of Hammermill Screen Hole Diameter and Hammer Tip Speed on Particle Size and Flowability of Ground Corn. Kansas Agricultural Experiment Station Research Reports: Vol. 3(7).
3. Yoder, A., M.D. Tokach, J.M. DeRouche, C.B. Paulk, **C.R. Stark**, and C.K. Jones. 2017. Cleaning Reduces Mycotoxin Contamination in Corn. Kansas Agricultural Experiment Station Research Reports: Vol. 3(7).
4. Cochrane, R. A., S.S. Dritz, J.C. Woodworth, A.R. Huss, **C.R. Stark**, M. Saensukjaroenphon, J.M. DeRouche, 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. 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. Vol. 1(8).
5. Muckey, M., 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. Vol. 1(8).
6. Cochrane, R. A., S.S. Dritz, J.C. Woodworth, A.R. Huss, **C.R. Stark**, M. Saensukjaroenphon, J.M. DeRouche, 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. Vol. 1(8).
7. Gebhardt, J.T., J.C. Woodworth, C.K. Jones, P.C. Gauger, M.D. Tokach, J.M. DeRouche, R.D. Goodband, M. Muckey, R.A. Cochrane, M. Niederwerder, **C.R. Stark**, J. Bai, Qi Chen, J. Zhang, A. Ramirez, R.J. Derscheid, R.G. Main, and S.S. Dritz. 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. Vol. 1(8).
8. Saensukjaroenphon, 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. Vol. 1(8).
9. 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. Vol. 1(8).
10. Bokelman, G.E., K.F. Coble, **C.R. Stark**, J.C. Woodworth, M.D. Tokach, and C.K. Jones. Evaluation of extreme thermal processing methods to improve nutrient utilization of low-energy diets for finishing pigs. 2015 Kansas State University Swine Day. Vol. 1(7).

11. Bokelman, G.E., J.A. De Jong, J.R. Kalivoda, A.D. Yoder, **C.R. Stark**, J.C. Woodworth, and C.K. Jones. Finely grinding cereal grains in pelleted diets offers little improvement in nursery pig growth performance. 2015 Kansas State University Swine Day. Vol. 1(7).
12. Bokelman, G.E., S.C. Stewart, A.L. Baldrige, 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. Vol. 1(7).
13. 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. Vol. 1(7).
14. 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 and Ingredients. 2015 Kansas State University Swine Day. Vol. 1(7).
15. 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. Vol. 1(7).
16. 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. Vol. 1(7).
17. 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. Vol. 1(7).
18. 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. Vol. 1(7).
19. 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. Vol. 1(7).
20. Gebhardt, J.T., K.F. Coble, M.D. Tokach, J.M. DeRouchey, 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. Vol. 1(7).
21. Gebhardt, J.T., J.A. De Jong, 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. 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. Vol. 1(7).
22. De Jong, J.A., J.M. DeRouchey, 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. Vol. 1(7).

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23. 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 temperatures. 2015 Kansas State University Swine Day. Vol. 1(7).
24. De Jong, J.A., J.M. DeRouche, M.D. Tokach, R.D. Goodband, J.C. Woodworth, C.B. Paulk, C.K. Jones, **C.R. Stark**, and S.S. Dritz. 2014. Effects of hard red winter wheat particle size in meal diets on finishing pig growth performance, diet digestibility, and caloric efficiency. Kansas State University Agricultural Experiment Station and Cooperative Extension Service Report 1110 p. 269.
25. Thomas, L.L., **C.R. Stark**, C.H. Fahrenholz, K.F. Coble, S. Hayashi, M. Saensukjaroenphon, J.C. Woodworth, and R.D. Goodband. 2014. Effects of diet bulk density on mixing uniformity. Kansas State University Agricultural Experiment Station and Cooperative Extension Service Report 1110 p. 315.
26. J.A. De Jong, J.M. DeRouche, M.D. Tokach, R.D. Goodband, C.B. Paulk, J.C. Woodworth, C.K. Jones, **C.R. Stark**, and S.S. Dritz. 2014. Effects of wheat source and particle size in pelleted diets on finishing pig growth performance, caloric efficiency, and carcass characteristics. Kansas State University Agricultural Experiment Station and Cooperative Extension Service Report 1110 p. 276.
27. 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.
28. **Stark, C.R.**, K.C. Behnke, J.D. Hancock, and R.H. Hines. 1993. Pellet quality affects growth performance of nursery and finishing pigs. Kansas State University Swine Day 1993. KS Agric. Exp. Stn. #695:67-70.
29. **Stark, C.R.**, K.C. Behnke, R.D. Goodband, and J.A. Hansen. 1991. On-farm feed uniformity survey. Kansas State University Swine Day 1991. KS Agric. Exp. Stn. #641:144-145.

Extension Bulletins:

1. **Stark, C.R.** and M. Saensukjaroenphon. 2017. Testing Mixer Performance. Kansas State University Agricultural Experiment Station and Cooperative Extension Service Bulletin MF3393.
2. Kalivoda, J.R. and **C.R. Stark**. 2016. Evaluating particle size of feedstuffs. Kansas State University Agricultural Experiment Station and Cooperative Extension Service Bulletin MF3342.
3. **Stark, C.R.** and A.C. Fahrenholz. 2015. Evaluating pellet quality. Kansas State University Agricultural Experiment Station and Cooperative Extension Service Bulletin MF3228.
4. **Stark, C.R.** 2011. Feed mill key performance indicators. North Carolina Cooperative Extension Bulletin FM-003W.
5. **Stark, C.R.** 2010. Feed quality assurance programs for feed mills. North Carolina Cooperative Extension Bulletin FM-002W.
6. **Stark, C.R.** 2009. Developing a program for new employee development. North Carolina Cooperative Extension Bulletin FM-001W.
7. Holden, P. and **C.R. Stark**. 2009. Should I purchase or make my own feed? US Pork Center of Excellence Pork Production How To.

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Book Chapters:

1. **Stark, C.R.** and A.C. Fahrenholz. 2017. Developments in feed technology to improve poultry nutrition: Achieving sustainable production of poultry meat Volume 2 Breeding and nutrition. Todd Applegate, ed. Burleigh Dodds Series in Agricultural.
2. **Stark, C.R.** 2014. Feed processing technology to improve feed efficiency in pigs and poultry. Recent Advances in Animal Nutrition. P. C. Garnsworthy and J. Wiseman.
3. Jones, C.K., **C.R. Stark**, and A.C. Fahrenholz, eds. *Feed Pelleting Reference Guide*. Illinois: WATT Ag Net, 2014. Electronic.
4. **Stark, C.R.** 2012. Feed processing to maximize feed efficiency. Feed Efficiency. Pages 131-149 in Swine. J.F. Patience, ed. Enfield Publishing. Enfield, NH.

Abstracts:

1. Braun, M.B., H.K. Wecker, A.D. Yoder, J.C. Woodworth, **C.R. Stark**, and C.B. Paulk. 2018. Effects of mill type and particle size variation on growth performance and carcass characteristics of finishing pigs. *J. Anim. Sci.* 96(Suppl2):275.
2. Wecker, H.K., C.K. Jones, J.C. Woodworth, **C.R. Stark**, and C.B. Paulk. 2018. The Effects of Moisture Addition and Dwell Time of Moisture on Pellet Quality in Corn and Wheat Based Diets. *J. Anim. Sci.* 96(Suppl2):272.
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4. Smith, A.L., C.J. Delfelder, **C.R. Stark**, C.E. Evans, A.D. Yoder, C.B. Paulk. R.S. Beyer, and C.K. Jones. 2018. Effects of monensin sodium and xylanase on broiler growth performance. *J. Anim. Sci.* 96(Suppl2):263-264.
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## Magazine Articles

1. Fahrenholz, A., **C.R. Stark**, and W. Pacheco. 2018. Pest control plan a must in feed mill. Feedstuffs. Vol. 90(07), page 35.
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