K-State Applied Swine Nutrition Team has far reaching impact

The Situation
Our K-State Applied Swine Nutrition Team focuses on being the world’s leader in applied nutrition research and producer-focused service. Besides working to improve nutritional efficiency and producer profitability, in 2020, research and extension activities focused on responding to Covid-19 processing plant disruptions and the impact on swine producers. Graduate and undergraduate student training to develop future swine industry leaders continued to be a top program priority, even with the pandemic.

What We Did
- Covid-19 response for Kansas producers including research on holding diets, planning meetings with Kansas Pork Association and Kansas Department of Agriculture, and individual consultation with numerous producers.
- Published 44 journal articles and 33 abstracts.
- Secured $1.24 million in grants for swine nutrition and production research and outreach.
- Presented keynotes at conferences in U.S., Argentina, Brazil, Canada, Chile, China and Spain.
- Published Swine Industry Day Report with 37 papers from 38 experiments using approximately 37,000 pigs.
- Updated K-State Swine Nutrition Guide to web-based format including 12 new fact sheets
- Contributed 21 articles and news releases to national and international swine industry magazines
- Provided coordination and leadership to commercial research facilities in Iowa, Minnesota, Missouri, and Ohio.
- Our graduate students coordinated research trials in 11 US swine production systems.
- Our students won numerous awards at premier swine science conferences:
  - Midwest ASAS meetings – Midwest Young Scholar; 2nd place MS oral; Corah Outstanding PhD and MS Graduate Student Awards; 4 Donoghue Graduate Scholars;
  - 10 scholarships and numerous fellowships.
- We had 16 graduate students in 2020 (9 MS and 7 PhD) and serve on committees of many students in other programs.
- Added Dr. Jordan Gebhardt as faculty in College of Veterinary Medicine to our Applied Swine Nutrition Team.
- Hosted visiting scholar from Spain.
- Hosted KSU Swine Day virtually with over 1000 registrants from 37 countries.

Outcomes
- 7 MS and PhD students completed degrees in 2020 with two placed in Pipestone System (250,000 sows) and one in Eichelberger Farms (70,000 sows) with 4 M.S. graduates moving to PhD programs.
- Determined growth and economic response to low lysine holding diets for finishing pigs to allow producers time to hold pigs for later marketing in response to Covid-19.
- Determined that increasing the valine or isoleucine level in high leucine diets could restore feed intake and growth performance reduced by diets with high corn protein content (high leucine).
- Found that high protein DDGS could be included in pig diets if the branch chain amino acid levels were properly managed.
- Established that iron injections could be provided from day 1 to 8 of lactation without reducing pig performance.
- Determined that high amylase corn could replace conventional corn in sow, nursery, or finishing pig diets.
- Established phytase release curve for a new phytase product (Smizyme).
- Demonstrated that fecal dry matter could be improved by lowering dietary crude protein or adding a purified cellulose source to nursery diets after weaning.
- Continued to lead efforts to help feed mills and producers evaluate risk of disease transmission via feed, which became increasingly important with the spread of African Swine Fever worldwide.
- Incorporated research results into diets for Kansas swine producers directly and globally by working with nutritionists in feed and production companies.

**Success Story**

Attendance at the 2020 Virtual KSU Swine Day highlights the far reach of the K-State Applied Swine Nutrition Team. With over 1,000 registrants from 37 countries, the team reached producers, allied industry, and researchers around the world. Comments sent from attendees after the program included:

- *As much as I prefer attending live events and don’t really care for online meetings, I thought the virtual version of the swine conference went well. Presentations were very good and very professional.*
- *Congratulations on another highly successful Swine Day. Very good presenters & information again this year. The virtual program worked even better than I thought it might.*
- *Please extend my kudos to all involved with Swine Day, it was so good. I have several things I want to explore and can’t wait to share them with my crew.*
- *I really appreciate so much to have the opportunity to participate to this magnificent event!*
- *We were happy to help sponsor. Congratulations all for a fantastic event! The reach was incredible. You should all be very proud.*
- *THANK YOU to everyone for making a good experience out of a bad situation. Such a well presented volume of good information - in the usual, organized and coordinated manner. Know a lot of work went into this and it was greatly appreciated. Imagine that many attendees from around the world may have never been to Swine Day before - and this was a great introduction!* 

**Contact**

K-State Applied Swine Nutrition Team
Phone: 785-532-1267
Joel DeRouchey ([jderouch@ksu.edu](mailto:jderouch@ksu.edu))
Jordan Gebhardt ([jgebhardt@vet.ksu.edu](mailto:jgebhardt@vet.ksu.edu))
Bob Goodband ([Goodband@ksu.edu](mailto:Goodband@ksu.edu))
Mike Tokach ([mtokach@ksu.edu](mailto:mtokach@ksu.edu))
Jason Woodworth ([jwoodworth@ksu.edu](mailto:jwoodworth@ksu.edu))