

Swine Health & Management Report

Brought to you by the National Institute for Animal Agriculture
with funding from the soybean checkoff.

May 2009



www.animalagriculture.org
www.unitedsoybean.org

In This Issue

Reducing PRRS Transmission

Castration, Age of Pig

Swine Allergy Riddle

Swine Wastewater Study

Enterococcus

Swine Committee Resolutions

New U.S. Livestock Report

Crunching Numbers

Nutritionist? Consumer Activist?

Stress & Your Health

Mark Your Calendars

Reducing PRRS Transmission

A simple biosecurity protocol--Danish entries--can help reduce porcine reproductive respiratory syndrome (PRRS) transmission. That's the findings of a health monitoring project in contract nursery/finishing barns.

The study, which involved approximately 567,000 PRRS-negative pigs at 42 finisher sites (total of 121 barns), was conducted in an area where PRRSV is endemic.

Approximately 40% of the barns used a Danish entrance (clothing change and hand washing). In a report, Dr. Steve Dritz of Kansas State University noted that the pigs in those barns were significantly less likely to become PRRS infected during the project than those that had no entrance biosecurity protocols. In addition, average daily gain and feed conversion ratio were significantly better and the opportunity cost per pig was almost \$2.00 less.

The study found that the previous PRRSV status of the barn had no impact on the PRRSV status of subsequent groups of pigs. This suggests that cleaning and disinfecting can effectively kill the virus.

Season, on the other hand, did have an impact. The study found significantly more PRRSV outbreaks in January-March than at other times of the year. Researchers say this is understandable as previous research has demonstrated the stability of the virus in freezing conditions.

Castration and Age of Pig

Although castration of pigs is stressful, the stress associated with handling appears to increase with the age of the pig. This is the findings of researchers at Livestock Issues Research Unit, Agricultural Research Service-USDA, Lubbock, Texas; Department of Animal Sciences, University of Missouri; and and Department of Animal Science, University of Tennessee. The study involved 90 total pigs, with nine to 13 pigs per treatment group.

The researchers found that, during the first two hours after castration, 3-day-old pigs stood more than the 6-, 9- or 12-day-old pigs. Although the researchers noted a trend ($P=0.08$) for castrated pigs to be less active than non-castrated pigs, treatment did not influence the time that pigs spent nursing, lying, standing or sitting, and no overall treatment effect was detected on growth performance of pigs at 24

or 48 hours post treatment.

While the cortisol was greater in the castrated pigs than in the non-castrated pigs, no overall effect of age at castration was observed on cortisol concentrations. Serum cortisol concentrations returned to baseline in all treatment groups 24 hours after castration, but at 48 hours post castration, the overall cortisol concentrations were elevated ($P < 0.01$) in the 6-, 9-, and 12-day-old pigs in both the castrated and non-castrated groups compared to baseline concentrations.

There was an overall age effect on the time that pigs spent standing ($P = 0.01$) in the first two hours after castration, as 3-day-old pigs stood more than did the older age groups. Treatment did not influence the time that the pigs spent nursing, lying, standing or sitting, however, there was a trend ($P = 0.08$) for castrated pigs to be less active than the non-castrated pigs. The data from this study indicates that, regardless of age, castration is stressful, but the stress associated with handling increases with the age of the pig.

The full report, "Hormonal profiles, behavioral responses, and short-term growth performance after castration of pigs at three, six, nine, or 12 days of age," is available in the *J. Anim. Sci.* 2006. 84:1271-1278.

Solving the Swine Allergy Riddle

When we think of allergies, sniffing, sneezing and watery eyes come to mind. However, researchers are only just beginning to unlock the causes of allergens in both the environment and the foods we eat. Animals are no different in terms of having allergies. Adverse reactions to soy in some young piglets and other animals stimulates the need to understand the full impact of feeding soy in order to better understand how to improve the U.S. soybean varieties and resulting meal, a project the United Soybean Board, through soybean checkoff funding, is taking on in conjunction with the National Pork Board and QUALISOY.

The responses of early-weaned piglets to soy-based rations have led, in some cases, to decreased performance, reduced feed intake and slower growth rates due to sensitivity to certain proteins in soybean meal. Reactions to proteins have been attributed to the development of anti-soy-protein antibodies and subsequent intestinal complications. One potential remedy for this condition involves reducing or eliminating immune reactive proteins that cause increased antibodies in animals that have persistent immune reactions to soy. One mechanism to accomplish this remedy involves silencing genes that encode the offending proteins.

"The goal of this project was to develop a model system with which to study immune mediated allergic responses to legume allergens," says Niels Nielsen, Ph.D., professor of crop science at North Carolina State University. "If we are successful in reducing the hypersensitivity in piglets, we could benefit the soybean industry by permitting higher inclusion rates for soybean meal in rations and reducing production expenses for swine producers."

As the project reaches its final stages, researchers hope to determine if they were successful in silencing the allergens and producing a soybean that could potentially reduce the number of allergic responses not only in swine and other monogastric animals but also eventually in humans, too. By creating reliable evaluation procedures, conducting research that is vital to end customers like the feed industry, and developing new products and enhanced-traits, USB, NPB and QUALISOY help ensure that not only do soybean farmers and the entire soybean value chain benefit, but so too do pork producers. For more information visit www.unitedsoybean.org/programs/animal_ag.aspx.

Courtesy of the United Soybean Board and the soybean checkoff.

Swine Wastewater Study

Agricultural engineer Kenneth Stone and soil scientists Patrick Hunt and Matias Vanotti--all with the

Agricultural Research Service--are finding ways to use pretreated swine wastewater for crop irrigation. Curious to see if subsurface drip irrigation (SDI) with pretreated swine wastewater could eliminate emissions and increase the effectiveness of irrigation, the three conducted a two-year study of SDI that compared yields of bermudagrass hay irrigated with wastewater and hay irrigated with well water and amended with commercial fertilizer. The wastewater was pretreated to remove concentrations of nitrogen and phosphorus.

When the SDI study was finished, the team assessed hay yield, hay biomass, soil nutrients and soil-water nutrients. Their findings: 1) SDI crop yields were higher for the bermudagrass that had been irrigated with the pretreated wastewater. 2) Yields of bermudagrass hay did not vary significantly when the crops were irrigated with wastewater levels that replenished only 75 percent of the water lost to evapotranspiration. The scientists say this suggests that wastewater SDI can be effective at lower application rates, which would help conserve water supplies. And it would reduce the amount of water draining through the soil, thus lessening the opportunity for plant nutrients to be leached below the root zone.

"We found that by irrigating with treated swine wastewater, we can use less water than traditionally required. Since water is a precious commodity, this finding is extremely important," Vanotti states.

Results suggest that SDI with treated swine wastewater provides forage crops with both water and fertilization. The benefits can equal or even sometimes exceed those of using commercial fertilizer.

Enterococcus & Prevalence, Antimicrobial Drug Susceptibility - APHIS Report

APHIS/Veterinary Services, Centers for Epidemiology and Animal Health has published a three-page April '09 Info Sheet on "Commensal Enterococcus on U.S. Swine Sites: Prevalence and Antimicrobial Drug Susceptibility." The Info Sheet highlights a 17-state study conducted by USDA's National Animal Health Monitoring System which found at least one culture-positive sample for *Enterococcus* on 99.3 percents of sites, 96.1 percents of barns and 71.4 percent of pens. Between two and four different *Enterococcus* species were isolated on 76.1 percent of sites. Slightly more than 12 percent of sites had as many as five or six different species isolated. Among the 940 isolates were 11 different *Enterococcus* species, with *E. faecalis* and *E. faecium* accounting for 35.3 percent of isolates.

All available isolates were tested for resistance to a panel of 17 antimicrobial drugs. Resistance to lincomycin was the most common (96.0 percent of isolates), followed by resistance to tetracycline (81.9 percent) and flavomycin (57.1 percent). No *Enterococcus* isolates were resistant to vancomycin or linezolid. Only 2.5 percent of isolates were resistant to gentamicin, and all of those isolates were *E. faecalis*.

The USDA/APHIS-generated report can be viewed in full at http://www.aphis.usda.gov/vs/ceah/ncahs/nahms/swine/swine2006/Swine2006_entero_infosheet.pdf

NIAA Swine Committee Resolutions

The Swine Committee of the National Institute for Animal Agriculture--comprised of producers, veterinarians, government regulatory personnel, extension specialists, academicians, researchers and allied industry representatives--reaffirmed five resolutions and amended two resolutions at NIAA's 2009 annual meeting. Reaffirmed resolutions addressed funding for infectious disease research and field studies; swine health protection act enforcement; swine health protection act support--commercial waste processing methods; the Marine Act of 1920 (Jones Act) exemption; and free-ranging species research.

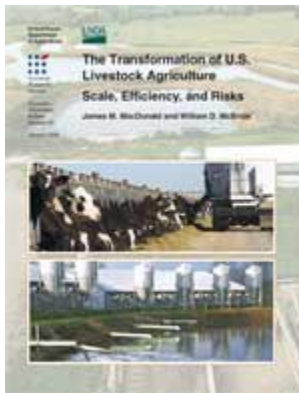
Amended resolutions: 1) The National Institute for Animal Agriculture (NIAA) requests that the U.S.

Department of Agriculture continue expansion of program funding for basic research, applied research, field studies, control and elimination plans, and national prevalence studies for PRRS. 2) The National Institute for Animal Agriculture urges the USDA/APHIS/VS SHP to continue to work with industry to adapt and implement the HACCP principles to define SDAP standards for the PRV and SB Programs.

NIAA's 2009-10 swine-related resolutions, which are provided to government and industry for their decision-making processes, can be read in full at

<http://www.animalagriculture.org/About%20NIAA/Resolutions/Current/Swine.pdf>

New Report: Transformation of U.S. Livestock Agriculture



The shift in U.S. livestock production is the focus of a recently published 46-page USDA/Economic Research Service report "The Transformation of U.S. Livestock Agriculture: Scale, Efficiency, and Risks" by James M. MacDonald and William D. McBride.

The report notes that "various stages of input provision, farm production and processing are now much more tightly coordinated through formal contracts and shared ownership of assets." MacDonald points out that "important financial advantages have driven these structural changes, which in turn, have boosted productivity growth in the livestock sector." He adds that structural changes can also generate environmental and health risks for society as industrialization concentrates animals and animal wastes in localized areas.

Relying on farm-level data, the report details the nature, causes, and effects of structural changes in livestock production.

The report is on the Web at <http://www.ers.usda.gov/Publications/EIB43/>

Crunching Numbers

Kansas State University has five calculators and a spreadsheet on the Web that can make life a lot easier when it comes to crunching numbers: KSU Fat Analysis Calculator, DDGS Economic calculator, AA Pricing Spreadsheet, Meat and Bone Meal Calculator, KSU Feed Budget Calculator and KSU Phytase Calculator. You can find these six calculators online at <http://www.asi.ksu.edu/DesktopDefault.aspx?tabid=1220>

Get Acquainted with Who's Saying What about Nutrition

Respected nutritionist or consumer activist nutritionist? In a presentation at a national conference, Lisa Katic, formerly with the U.S. Dairy Council and now president of KConsulting, Washington, D.C., noted that some nutritionists have a hidden agenda, and many of today's consumers are taking information provided by these nutritionists as proven research. Katic's presentation highlighted eight individuals who are receiving media attention for their information regarding nutrition and nutrition policy and shared snippets of what these individuals are saying about food, food industry and agriculture. She also explained where each individual fits in the nutrition scene-and if they are among today's consumer activists or an unbiased nutritionist. To hear Katic's 20-minute presentation in full and view her slideshow presentation, go to <http://www.trufflemedia.com/home/content/2009-the-changing-face-of-agriculture> and click on "Lisa Katic" on the right side of the web page.

Is Stress Impacting Your Health?

Too much stress--particularly the kind that doesn't seem to let up--can have a significant impact on health. Seven signs that stress may be impacting your health include 1) more headaches than usual; 2) more colds; 3) sleep problems; 4) general anxiety; 5) digestive upsets; 6) lower libido; and 7) chest pain or rapid heart beat. Researchers point out that symptoms should not be taken lightly.

Dr. Michael Rossmann, AgriWellness Inc., points out that, during times of stress and anxiety, "we devalue ourselves, lose confidence and our hope dissipates" and "we tend to focus on the negatives." While market prices and input costs are out of our control, Dr. Rossmann says we can insulate ourselves from stress through careful management of our behavior. He suggests seeking out positive social opportunities--including more time with family rather than working extra long hours and wearing ourselves out even more.

To stimulate the production of beneficial hormones and decrease the production of adrenaline and cortisol which can lead to anxiety and depression, Dr. Rossmann says it's okay to "retreat into fantasy and acceptable forms of pleasures" as an effective self-management tool. Those activities include reading particularly enjoyable literature, listening to our favorite music and engaging in positive day dreaming.

"What it comes down to is not working harder but behaving smarter," he summarizes. "Retreats into social, behavioral and psychological circumstances that allow us for even brief moments to change our body chemistry all help us immensely--and our openness to positive alternative ideas, to the possibility of accepting help and to viable solutions increases.

Mark Your Calendars

ID Info Expo 2009, "The ID Mandate: Meeting Consumer and Government Demands," will be Aug. 25-27 at the Westin Crown Plaza in Kansas City, Mo. The conference will cover the latest on industry and government programs regarding traceability, with the tradeshow highlighting identification and information systems technology. With the growing sentiment to develop a mandatory animal identification system, this is a must-attend event! Register today at www.animalagriculture.org

The 50th Annual George A. Young Swine Conference, "Achieving the Best Production Through Knowledge," is set for Aug. 13 in South Sioux City, Neb. Pork producers, large animal and swine practitioners, faculty in the animal and veterinary sciences, and industry representatives are invited to participate in this conference which will feature an update of research and industry developments as they relate to modern swine production and technology.

The 2009 Advanced Swine Production Technology Course--sponsored by the University of Illinois Extension, Department of Animal Sciences and College of ACES--is on tap for June 7-14. The course, taught by a team of internationally recognized instructors, will be a review of the emerging science in pig biology and the application of these new technologies in state-of-the-art production systems. The course is designed for swine specialists from commercial firms and those specialists who direct or provide technical support for swine research and extension programs. To learn more, please contact Gilbert Hollis at hollisg@illinois.edu or phone 217-265-9191.

NPPC's World Pork Expo is slated for June 3-5 at the Iowa State Fairgrounds, Des Moines, Iowa. Pork Academy, free to all producers attending World Pork Expo, will have six sessions on Wednesday, June 3; six sessions on Thursday, June 4; and two sessions on Friday, June 5. A listing of session titles can be found at <http://www.pork.org/Documents/PorkAcadSched09.pdf>

Our Soybean Checkoff



To learn more, please visit http://www.unitedsoybean.org/programs/animal_ag.aspx

Join Our Mailing List!

This e-newsletter is brought to you by the National Institute for Animal Agriculture with funding from the soybean checkoff. Livestock and poultry represent U.S. soybean farmers' No. 1 customer.

The National Institute for Animal Agriculture provides a forum for building consensus and advancing proactive solutions for animal agriculture-the beef, dairy, swine, sheep, goats, equine and poultry industries-and provides continuing education and communication linkages for animal agriculture professionals. NIAA is dedicated to programs that work towards the eradication of disease that pose risk to the health of animals, wildlife and humans; promote a safe and wholesome food supply for our nation and abroad; and promote best practices in environmental stewardship, animal health and well-being. NIAA members represent all facets of animal agriculture.

The use of trade or firm names within this e-newsletter is for user information and does not imply endorsement by NIAA or the soybean checkoff.

Prepared by Teres Lambert, NIAA Director of Communications, phone 847.838.2966, tlambert@animalagriculture.org.