

NATIONAL PORK BOARD

Spring Call - 2012

DEADLINE: Tuesday, May 22nd, 2012 – 5:00 pm CST

The National Pork Board is soliciting research proposals dealing with:

A – Environment
B – Swine Health
C - Animal Welfare

D – Pork Safety – Pre-Harvest
G – Human Nutrition
Q – Feed Cost Mitigation

Please read carefully the individual solicitation descriptions for project proposals. If you have questions related directly to the description of a specific solicitation, contact the staff member listed in charge of the program area. For questions on the submission process, contact Bev Everitt at beveritt@pork.org or 515/223-2750.

STAFF MEMBERS:

Environment	Allan Stokes	astokes@pork.org	515/223-3447
Swine Health	Lisa Becton	lbecton@pork.org	515/223-2791
Animal Welfare	Sherrie Niekamp	sniekamp@pork.org	515/223-3533
Pork Safety–PreHarvest	Steve Larsen	slarsen@pork.org	515/223-2754
Human Nutrition	Adria Sheil-Brown	abrown@pork.org	515/223-2632
Feed Costs	Chris Hostetler	chostetler@pork.org	515/223-2606

To be considered for committee review, **all proposals must be submitted via the website by 5:00 p.m. CST on Tuesday, May 22nd, 2012.** See www.pork.org for links. Proposals will be reviewed by both technical advisors and pork producers prior to the committee selection meetings. Final funding is subject to approval by the National Pork Board and USDA.

NOTES:

Proposal selection will occur in late July 2012.
Notification of grant awards will be done in late August 2012.
Project funding will begin October 1, 2012.
Requests for second-year funding must be resubmitted.

A. ENVIRONMENT

The Environment Committee solicits proposals in the following area. Proposals must be submitted in the attached format to be considered. Projects may cover multiple-year efforts for completion of an entire project. For multi-year projects expected project deliverables and budgets will be broken down by year. If proposed projects are for completion of multi-year efforts already in-progress the proposal must include a discussion of progress and accomplishments realized from efforts to date toward success of the overall research effort. This may be accomplished by including copies of interim or final reports from previously funded research efforts as appendices to the proposal submitted. Proposals will be reviewed by panels for scientific soundness and for industry priority. Proposals may be returned to the investigator with suggested/requested revisions prior to making a final funding decision. Funding for accepted projects will follow final approval by the National Pork Board.

1. Research on economical and technologically feasible practices and/or technologies that could be employed at swine production facilities that would reduce emissions of hydrogen sulfide, ammonia, fine particulate matter, volatile organic compounds and greenhouse gas whether from the buildings themselves or associated manure storage facilities. This work must include economic analysis of the costs and benefits of the investigated technology/practice and comparison to other technologies and practices.

B. SWINE HEALTH

Since its discovery in 1991, Porcine Reproductive and Respiratory Syndrome virus (PRRSv) has proven itself as a significant pathogen of swine in nearly all production areas of the world. In a recent study, the economic losses from the PRRS virus were shown to exceed \$664 million annually. While a great deal has been learned about the virus, producers and veterinarians continue to be challenged in the identification of both predictable and consistent tools that are successful in managing or for long-term elimination of the virus from herds, farms, or regions.

*During the 2011 Pork Forum, a National Pork Board advisement was presented to the delegates and passed that states: **That the National Pork Board continue to be engaged in the PRRSV elimination discussions that prioritize research and education towards continued development and application of tools and strategies with the goal of elimination of the PRRSV virus.***

*The Pork Checkoff Swine Health Committee is requesting proposals on issues impacting the welfare of swine. Specific research areas of interest are listed below. All proposals submitted **must** address at least one of the specific research subtopics of interest described below.*

All submitted projects should be multidisciplinary in their approach. Experimental designs must have all the appropriate controls to be considered for funding and proposed methodologies need to be described in detail. Proposals need to also include power calculations to validate the proposed sample size. All approved projects using animals in research for any purpose must be reviewed by an Animal Care and Use Committee (ACUC) or equivalent. An ACUC approval is not only required for future publication of results in a peer reviewed journal, it also ensures a high standard of care of animals used in research in accordance with federal regulations and policies.

Funds will be capped at \$150,000 per proposal. The budget request should be detailed and include justification for the work that is being proposed. Researchers are encouraged to find matching funds or in-kind contributions to the project.

Newly submitted multi-year proposals should provide a clear overall vision and objectives for the entire project with a detailed plan of work and budget outline for each of the proposed years. If proposed projects are seeking second-year funding of a previously funded project, the proposal must include a discussion of progress and accomplishments realized from the research efforts to date toward success of the overall research effort. This may be accomplished by including copies of interim or final reports from previously funded research efforts as appendices to the proposal submitted.

Proposals must be submitted in the required format to be considered. All eligible proposals will be reviewed by a panel of peers for scientific soundness and validity. Final funding decisions will be made by the National Pork Board. Further enquiries regarding this solicitation can be directed to Lisa Becton by email lbecton@pork.org or by phone: 515-223-2791.

The priority for the 2012 PRRS Research Initiative is to seek proposals that can lead to the creation of PRRS negative pig from positive herds and then how best to maintain those pigs until slaughter. Methods to achieve this priority can include research in the following topic areas:

1. PRRSv Immunology:

- Identify PRRS viral determinants of viral pathogenesis, immune evasion and transmission
- Characterization of the structural components of PRRSv and subsequent effect on the pig's immune system that determine protective immunity
- Development of novel vaccine technologies that can provide broad protection against PRRS infection and allow the differentiation of infected from vaccinated animals (DIVA).
**The funds awarded would provide "seed money" to then be leveraged with another funding source such as USDA NIFA or AFRI.*

2. PRRSv Epidemiology and Ecology

- Understand key routes of transmission
 - On a macro scale, assess the rate and the risk of an outbreak for PRRS virus among filtered and non-filtered farms in the same geographic area and/or region with comparable densities, utilizing biosecurity assessment tools like PADRAP
 - Investigate the transmission dynamics within high density regions; what are the sources of infection and re-infection within these areas?
 - How does the presence of positive nursery and/or finishing sites affect regional elimination efforts?
- Ability of novel technologies to decrease viral shedding and transmission within a farm
- Surveillance
 - Novel approaches to provide a format to share and utilize diagnostic lab information to better understand PRRSv epidemiology in real time; the goal is to potentially have a standardized mechanism where data can be shared and compared between producers and veterinarians to help better understand PRRSv epidemiology, transmission and spread.
 - Development of and/or improvement of a testing methodology for the end outcome of a quick, accurate and improved ease of use test for PRRS identification
 - For PRRSv identification, any mechanism that can be utilized with the goal of being better able to track changes in the virus and help to understand what factors play into shifts of the virus. (i.e. whole virus sequencing vs. orf testing?)
 - Development of and/or improvement of a PRRS surveillance test(s) and reporting system(s) at harvest to monitor herd and regional PRRS status

C. ANIMAL WELFARE

*The Pork Checkoff Animal Welfare Committee is requesting proposals addressing issues impacting the welfare of swine, specifically weaned or feeder pigs during transport. Specific research areas of interest are listed below. All proposals submitted **must** address at least one of the specific research subtopics of interest described below.*

All submitted projects should be multidisciplinary in their approach and should include neuroscience, performance, physiology, and behavior when applicable. Experimental designs must have all the appropriate controls to be considered for funding. Proposed methodologies need to be described in detail and behavioral methods and physiological assays used in the study need to be validated. Proposals need to also include power calculations to validate the proposed sample size. Projects that have cooperative arrangements with industry are strongly encouraged. All approved projects using animals in research for any purpose must be reviewed by an Animal Care and Use Committee (ACUC) or equivalent. An ACUC approval is not only required for future publication of results in a peer reviewed journal, it also ensures a high standard of care of animals used in research in accordance with federal regulations and policies.

The Animal Welfare Committee has \$150,000 to fund swine welfare related research. There is no exact funding limit for submitted proposals but the budget request should be appropriate and justified for the work that is being proposed. Researchers are encouraged to find matching funds or in-kind contributions to the project.

Newly submitted multi-year proposals should provide a clear overall vision and objectives for the entire project with a detailed plan of work and budget outline for each of the proposed years. If proposed projects are seeking second-year funding of a previously funded project, the proposal must include a discussion of progress and accomplishments realized from the research efforts to date toward success of the overall research effort. This may be accomplished by including copies of interim or final reports from previously funded research efforts as appendices to the proposal submitted.

Proposals must be submitted in the attached format to be considered. All eligible proposals will be reviewed by a panel of peers for scientific soundness and validity. Final funding decisions will be made by the National Pork Board. Further enquiries regarding this solicitation can be directed to Sherrie Niekamp by email sniekamp@pork.org or by phone: 515/223-3533.

1. Handling and Transportation of Weaned or Feeder Pigs – The handling and transport of pigs is a critical element in the swine industry. It is important to understand the pig needs at weaning in order to handle and transport them safely while minimizing adverse effects during and after transport as measured by effects on ADG, ADFI, FE, health status, mortality, and/or incidence of culls. Proposals addressing handling and transportation should address topic suggestions for at least one of the following objectives for weaned pigs (3-5 wks of age) or feeder pigs (10-12 wks of age) (please note that these are **not** in priority order):

- Define the interaction of transport time with pig well-being. Specifically, identify the maximum amount of time a class of pig can be transported before the well-being of the pig becomes significantly compromised. Possible factors to consider in the experimental design include: season, trailer type, and on board provisions (i.e. food and water).
- Determine the proper use of bedding and weather boards/plugs in controlling the internal environment of the trailer so as to provide for the thermal comfort of the pig during cold temperatures, moderate, and warm temperatures. Targeted temperatures should reflect those commonly experienced during the winter in the Northern region and/or summer in the Southern region of the U.S.A.
- Determine and evaluate proper use of cooling mechanisms in controlling the internal environment of the trailer during loading and transport so as to provide for the thermal comfort of the pigs during warm and hot temperatures. Targeted temperatures should reflect those commonly experienced during the summer and fall in the Midwest and Southern regions of the U.S.A.

- Develop and evaluate technologies and/or techniques that contribute to a low stress handling system that promotes self-movement by the pigs. This includes group sizes, ramp design and angles, handling tools, etc.

D. PORK SAFETY – Pre-Harvest

The Pork Safety, Quality and Human Nutrition Committee is requesting proposals in the following areas only. Specific research topics are listed below, not in priority order. All proposals submitted must address at least one of the specific research topics of interest described below. Novel approaches and concepts to the research topics are encouraged.

There is no exact funding limit for submitted proposals, but the budget request should be appropriate and justified for the work that is being proposed. Researchers are encouraged to find matching funds or in-kind contributions to the project. Multi-disciplinary proposals are encouraged.

Proposals must be submitted in the designated format to be considered. Projects may cover multiple-year efforts. For multi-year projects, project expected deliverables and budgets should be broken down by year. Proposals will be reviewed by panels for scientific soundness and for industry priority. Proposals may be returned to the investigator with suggested/requested revisions prior to making a final funding decision. Funding for accepted projects will follow final approval by the National Pork Board. Further enquiries regarding this solicitation can be directed to Dr. Steve Larsen by email slarsen@pork.org or by phone: 515/223-2754.

Proposals are solicited in the following areas only. Proposals submitted that do not relate to this area will not be evaluated, scored or considered for funding. The topics below are NOT listed in priority order:

Salmonella Prevalence in Ground Pork

1. A study to determine the salmonella prevalence in ground pork is needed. Seasonality needs to be incorporated into the study design. Important prevalence characteristics are:
 - a. Serotype
 - b. Seasonality
 - c. Antibiotic Resistance Profile
 - d. Geographic Region

NAHMS Sampling

2. The NAHMS (National Animal Health Monitoring System) survey will start in July of 2012. There is an opportunity for further analysis of those samples. A study to determine the prevalence of **Trichinella** and **Toxoplasma** is a priority for the industry.

G. HUMAN NUTRITION

*The Pork Safety, Quality and Human Nutrition Committee is requesting proposals **in the following areas only**. Specific research topics are listed below, not in priority order. All proposals submitted **must** address at least one of the specific research topics described below. **Novel approaches and concepts are encouraged.***

*The Committee has \$220,000 to fund human nutrition related research for **2012 funding**. There is no exact funding limit for submitted proposals, but the budget request should be appropriate and justified for the work that is being proposed. Researchers are encouraged to find co-funding or matching funds or in-kind contributions for the project.*

Proposals must be submitted in the attached format to be considered. Projects may cover multiple-year efforts. For multi-year projects, project expected deliverables and budgets will be broken down by year. Proposals will be reviewed by panels for scientific soundness and for industry priority. Proposals may be returned to the investigator with suggested/requested revisions prior to making a final funding decision. Funding for accepted projects will follow final approval by the National Pork Board. Further inquiries regarding this solicitation can be directed to Adria Sheil-Brown by email abrown@pork.org or by phone: 515/223-2632.

Proposals are solicited in the following areas only. Proposals submitted that do not relate to these areas will not be evaluated, scored or considered for funding:

1. Produce, if possible, a systematic, evidence-based literature review regarding the role of meat for prevention and treatment of Type 2 diabetes and Metabolic Syndrome, particularly on controlling blood glucose levels and lipoprotein profile within normal limits.
 - This review could compare/contrast the epidemiological studies evaluating the relationship between meat and Type 2 diabetes with clinical studies and, if possible, make evidence based conclusions regarding the role of meat intake on Type 2 diabetes.
 - Consider specific definitions of meat (species, lean, processed, etc.) and populations studied, independent effects of various meats, and effects of meat preparation / cooking methods.

2. Assess the effect of a moderately-high protein (>20% of calories from protein), pork-based breakfast vs. isocaloric, carbohydrate-based breakfast (less than 15% of calories from protein) on mental state and performance, satiety and motivational drive to eat later in normal, overweight and/or obese adults or children.
 - If children subjects are proposed, add a cognitive performance marker.
 - Examples of acute and chronic end points of interest include mood, attention, memory, problem solving, reaction time, school attendance, school tardiness.

Q. FEED COST MITIGATION

Mitigation of High Feed Costs

*The Animal Science Committee of the National Pork Board is soliciting proposals in the area of **Mitigation of High Feed Costs**. Proposals must be submitted in the attached format to be considered. Projects may cover multiple-years for completion of an entire project. However, proposals for multi-year projects are expected to detail project deliverables and budgets on a year-to-year basis. If proposed projects are for completion of multi-year efforts already in-progress, the proposal must include a narrative of progress and accomplishments to date of the overall research effort. This may be accomplished by including copies of interim or final reports from previously funded research efforts as appendices to the submitted proposal. Proposals will be reviewed by panels for scientific soundness and industry application. Proposals may be returned to the investigator with suggested/requested revisions prior to final funding decisions. Funding for accepted projects will follow final approval by the National Pork Board.*

Proposals are solicited in this area only. Proposals submitted that do not adhere to this area will not be considered further.

Mitigation of High Feed Cost:

Below is a **ranked** list of research priorities to be addressed by the Mitigation of High Feed Cost research. Submitted proposals must bring fundamental knowledge to application to reduce feed cost and feed cost variation. Achievement of these priorities will require a variety of disciplines including but not limited to nutrition, nutritional physiology and biochemistry, immunology, mathematical modeling and ingredient chemistry. Proposals utilizing a multidisciplinary approach are highly encouraged. Proposals should reference key concepts such as feed cost, caloric efficiency, ingredient value, dynamic or predictive estimates of nutrient value and disease diversion of nutrients. Applied growth assays should be conducted in commercial-like conditions and with sufficient replication to make statistically appropriate conclusions. Nursery trials will be given higher consideration when subsequent finishing performance is monitored. Submitted proposals must show evidence of sufficient statistical power in relation to primary project objectives, clearly define the role of the study in meeting the objective to deliver cost effective technology, and address one or more of the following research priorities to be considered for funding:

- 1) Nutrient extraction from low energy feedstuffs including but not limited to enzyme supplementation
- 2) Interaction of nutrition and health including, but not limited to, the effect of nutrition on animal performance, caloric efficiency, nutrient requirements and/or disease persistence when animals are faced with a health challenge
- 3) Novel feed processing methods or emerging technologies having direct field application in reducing the cost of feed
- 4) Mechanisms for enhancing quantification of feeding values of dietary ingredients

Further Information

- Preference will be given to projects that involve academic and commercial collaboration, except where discovery is needed to establish principles necessary for trial
- Projects spanning more than one year are not discouraged so that a project is provided sufficient time to deliver desirable outcomes. However, funding of a multi-year project must be justified, with second and third year funding being dependent on sufficient progress of the prior year
- Preference will be given to projects addressing priorities of highest value and/or spanning more than one priority
- Proposals that include provisions for analysis of the economic impact of the research to the swine industry are encouraged. This may be accomplished by inclusion of an agriculture economist on the research team.

For information regarding this solicitation, please contact Chris Hostetler by Email (chostetler@pork.org) or by phone at (515) 223-2006.