

NATIONAL PORK BOARD

Spring Request for Proposals - 2014

DEADLINE: Wednesday, May 21st – 5:00 pm CST

The National Pork Board is soliciting research proposals dealing with:

ANIMAL WELFARE - Animal Welfare
HUMAN NUTRITION - Human Nutrition
PORK SAFETY – Pre-Harvest

PORK QUALITY – Pork Quality
SWINE HEALTH – PRRS

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:

| | | | |
|----------------------------------|--------------------------|--|---------------------|
| ANIMAL WELFARE | Sherrie Niekamp | sniekamp@pork.org | 515/223-3533 |
| HUMAN NUTRITION | Adria Sheil-Brown | abrown@pork.org | 515/223-2632 |
| PORK SAFETY & QUALITY | Steve Larsen | slarsen@pork.org | 515/223-2754 |
| SWINE HEALTH – General | Lisa Becton | lbecton@pork.org | 515/223-2791 |

To be considered for committee review, **all proposals must be submitted via the website by 5:00 p.m. CST on Wednesday, May 21st.** 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 July 2014.
Notification of grant awards will be done in August 2014.
Project funding will begin October 1, 2014.
Requests for second-year funding must be resubmitted.

ANIMAL WELFARE

*The Pork Checkoff Animal Welfare 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 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 and will be prioritized. 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 for animals used in research in accordance with federal regulations and policies.

The Animal Welfare Committee has \$198,700 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 Webb by email swebb@pork.org or by phone: 515/223-3533.

1. Mass Depopulation – In an emergency response situation involving pigs, such as a disease outbreak or a natural disaster, it may be necessary to depopulate a large number of animals to protect public and animal health or prevent further animal suffering. When depopulating a large number of pigs, consideration must be given to the terminal experience of the animal realizing that the circumstances surrounding the event are urgent and extenuating.

- Develop and beta test protocols for methods of mass depopulation for at least one of the following phases of production
 - i. Suckling piglets (pre-weaned)
 - ii. Weaned pigs up to 70 lbs
 - iii. Market pigs and sows

Protocols must be adaptable to various building/housing designs and consider the following issues:

- i. Ease of implementation
- ii. Cost effectiveness
- iii. Availability of necessary equipment
- iv. Effectiveness to achieve death
- v. Minimizes labor inputs
- vi. Accounts for worker safety
- vii. Results in acceptable carcass disposal

2. **Tail Docking** – Proposals in this category should address at least one of the following objectives (please note that these are **not** in priority order):
 - Identify the relationship between tail docking practices and incidence of tail biting behavior in a commercial production setting. Specifically, quantify the impact of leaving tails intact on animal welfare and tail biting behavior, cull and mortality rates, and carcass quality and value at the harvest plant.
 - Identify and validate alternative methods or practices to tail docking that effectively and reliably eliminate tail biting behavior.
3. **Castration** - Proposals in this category should address the following objective:
 - Develop and evaluate potential alternatives or modifications of castration procedures that provide for the well-being of the pig and still maintain acceptable pork quality.
4. **Sow Housing – Breeding and Gestation** - Housing of sows has been and continues to be an important question for the swine industry. Proposals for individual sow housing systems for breeding and gestation will be accepted in this section. Please note that proposals should evaluate behavior, physiology and productivity.
 - Housing system optimization – Modify existing or design new individual sow housing systems for breeding and gestating sows that optimize individual well-being, management/labor, lifetime productivity and reproductive performance/efficiency.

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 \$145,000 for human nutrition related research for **2014 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 when possible.

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. Proposals submitted that do not relate to these areas will not be evaluated, scored or considered for funding (the topics below are NOT listed in any priority order):

For the below research areas where dietary meat and pork especially is considered, stress accurate descriptions of all the meat products involved (red, processed, by species, fresh, etc.).

- a. What are the Metabolic/CV outcomes of higher protein, (20 to 35% of calories from protein) weight loss diets that include lean, fresh pork in African American and/or Hispanic Populations?
- b. What are the beneficial role of dietary nitrate/nitrates from processed pork excluding food safety and preservation aspects?
Areas to investigate:
 - Mechanistic studies
 - Nutritional role certain processed pork products may play
- c. **Unique or novel** approaches to demonstrating the health benefits of fresh pork consumption. The National Pork Board is willing to think along new lines of research and explore new ideas involving our products in various diet plans and/or age and lifestyle situations.

PORK SAFETY AND QUALITY REQUEST FOR PROPOSALS

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 will be due on May 21, 2014.

Researchers should expect to hear back from the Committee by the end of August

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:

PORK QUALITY

What is the correlation of loin quality measurements to predict quality attributes throughout the carcass?

- 1) The majority of quality measurements have focused on the loin; however, there has been limited to no research correlating loin quality measurements to ham or other primal quality attributes. The Committee is requesting research proposals in this area. Below is a list of topics for researchers to consider when developing a proposal:
 - a) Researchers are encouraged to investigate both fresh and processed quality attributes when correlating with loin quality attributes
 - b) Important quality attributes are:
 - i) pH, marbling, color, water holding capacity, available protein, and tenderness (either SSF or WBS)
 - ii) The Committee is open to other quality measurements that are suggested and justified by the researcher such as image technology
 - c) Researchers are encouraged to include a discussion to account for hot carcass weight, gender, seasonality and genetics.

Variation in quality as pigs are marketed

- 1) The majority of quality measurements have focused on the average of a group of pigs from a barn or pen; however, there has been limited to no research trying to understand the variation in quality as pigs are

marketed. The Committee is requesting research proposals in this area. Below is a list of topics for researchers to consider when developing a proposal:

- a) The Committee wants to understand the variation of quality as pigs are marketed.
- b) Important fat quality attributes are:
 - i) firmness, color, stability, fatty acid profile, fat separation and maturity
- c) Important fresh quality attributes are:
 - i) pH, marbling, color, water holding capacity, and tenderness (either SSF or WBS)
 - ii) the Committee is open to other quality measurements that are suggested and justified by the researcher
- d) Topics for researchers to consider when developing their proposal:
 - i) hot carcass weight
 - ii) gender
 - iii) seasonality
 - iv) multiple pulls out of a barn
 - v) genetics
 - vi) transportation
 - vii) diet
- e) Researchers should consider a discussion within the statistics section justifying their sampling technique. For example, should the study design include: 1) sampling multiple pulls out of one barn and sample many barns or 2) sampling many pigs from the first pull out of multiple barns, then sample many pigs from the second pull from multiple barns and the same for third pull pigs from multiple barns.

PORK SAFETY

Determine the National Estimate of Salmonella Prevalence for Head Trim, Trim intended for ground, Chops and Roasts

- 1) The majority of salmonella prevalence studies have focused on the live pig or carcass; however, there has been limited to no research to estimate the national prevalence of salmonella on head trim, trim intended for ground, chops and roasts. The Committee is requesting research proposals in this area. Below is a list of topics for researchers to consider when developing a proposal:
 - a) The outcome desired is a national estimate of salmonella prevalence for head trim, trim intended for ground, chops and roasts.
 - b) Salmonella is the pathogen for this prevalence study. However, if a researcher wants to add another pathogen to the study, there needs to be a thorough discussion and justification for the addition
 - c) Important factors to include are:
 - i) Prevalence
 - ii) Serovar
 - iii) Antimicrobial Resistance
 - iv) Other Potential Molecular Information Justified by the Researcher
 - d) Researchers should include within the statistics section a discussion justifying their sampling technique. For example, researchers should include a discussion addressing seasonality, where to take the most appropriate sample, time and location of day, etc.

SWINE HEALTH – PRRS

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 for the management of PRRS including the elimination of the virus from herds, farms, or regions.

*The National Pork Board has been engaged in PRRSV area control and elimination efforts through research and education efforts that support and continue to develop tools and strategies to better manage the virus. In 2013, the Swine Health Committee developed the following statement to help guide PRRS research and outreach efforts. “**The short-term objective (to accomplish in less than 3 years) is to reduce the impact PRRS has on producers, and to assess the feasibility and financial acceptability of PRRS area control and/or elimination for producers.**”*

*The National Pork Board Swine Health Committee is requesting proposals on issues impacting the health of swine. Specific research areas for the PRRS virus are listed below. All proposals submitted **must** address at least one of the specific research subtopics of interest described below. Funding for proposals is outlined as follows:*

- a.) Short-term (12 month) proposals*
- b.) Long-term (12-24 months)*

***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.*

*For projects 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.*

Investigators are encouraged to leverage their PRRS research efforts by including additional swine viral pathogens in the experimental design if the experiment can accommodate it and it is appropriate to do so.

*Proposals **must** be submitted in the required format provided with the RFP in order to be considered. Proposals that do not directly address the targeted priorities list below will not be considered for funding. 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 Swine Health Committee. Further enquiries regarding this solicitation can be directed to Lisa Becton by email lbecton@pork.org or by phone: 515-223-2791.*

2014 PRRS Research Priorities:

The priority for the 2014 PRRS Research Initiative is to seek proposals that can reduce the impact PRRS has on producers by identifying and reducing the viral load in a herd, area or region, and to assess the feasibility and financial acceptability of PRRS area control and/or elimination for producers. Methods to achieve this priority can include research in the following topic areas:

1. PRRSv Immunology and Virology:

- What are the properties of new virus introductions that cause herd immunity failure?
 - Correlate PRRSV genotype with pathotype to devise a method or system to investigate the immunological relationship among PRRSV viruses.
 - Identify determinants of protection that can be used as predictors of protective immunity.
- Why does herd immunity fail?
 - Define mechanism(s) of lack of PRRSV cross-protection.
 - Development of assays and reagents that measure immune function. e.g., measure function for antigen specific B and T cells (cytotoxic T cell killing assays, antibody-cell secreting assays).

2. PRRSv Epidemiology and Surveillance

- Virus Transmission:
 - Develop a practical system for inactivating airborne PRRSV in commercial farm settings.
 - Evaluate protocols/mechanisms to improve transportation sanitation to inactivate PRRS and/or other pathogens in a low-cost, low-time manner.
- Surveillance:
 - Design and develop companion diagnostic tests that can differentiate infected from vaccinated animals (DIVA).
 - Development of inexpensive and accurate alternative sampling methods for PRRS detection/screening for improved herd surveillance.

3. Economic Impact of Interventions

- Perform a GAP analysis to assist in understanding the cost and impact for the industry for moving away from the current PRRS control status to a national elimination plan AND to assess what the economic and opportunity cost would be for a national elimination plan. The project should address the following bullet points:
 - What is the impact of a national elimination plan on sustained, consistent production and the ability of producers to fulfill market agreements?
 - Utilization/roll-up of herd level data to estimate what a national program would cost for producers.