

**NATIONAL PORK BOARD**  
**Request for Proposals – Spring Call 2016**



**DEADLINE: Tuesday, May 17th– 5:00 pm CST**

The National Pork Board is soliciting research proposals dealing with these categories:

- PORK SAFETY – Post-Harvest**
- PORK QUALITY – Pork Quality**
- SUSTAINABILITY – Manure Storage/Application**
- SUSTAINABILITY – Environmental Footprint**
- SWINE HEALTH - PRRS**

**STAFF MEMBERS:**

<b>PORK SAFETY &amp; QUALITY</b>	<b>Steve Larsen</b>	<a href="mailto:slarsen@pork.org">slarsen@pork.org</a>	<b>515/223-2754</b>
<b>SUSTAINABILITY</b>	<b>Allan Stokes</b>	<a href="mailto:astokes@pork.org">astokes@pork.org</a>	<b>515/223-3447</b>
<b>SWINE HEALTH – PRRS</b>	<b>Lisa Becton</b>	<a href="mailto:lbecton@pork.org">lbecton@pork.org</a>	<b>515/223-2791</b>

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**NOTES:**

- Proposal selection will occur in July 2016.
- Notification of grant awards will be done by September 2016.
- Project funding will begin October 1, 2016.
- Requests for second-year funding must be resubmitted.

## **PORK QUALITY AND SAFETY**

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.

**Researchers should expect to hear back from the Committee by the end of August. Proposals are solicited in the following area 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 SAFETY – Post Harvest**

#### **Understanding *Salmonella* I 4,[5], 12:i:-**

- 1) Over the past few years, we have seen the salmonella serotype I 4,[5], 12:i:- increase in prevalence, both animals and humans. The industry wants to gain a better understanding as to why this specific serotype is increasing in prevalence. The Committee is encouraging researchers to submit a proposal to investigate the ecology/evolution of this serotype to help explain why it is increasing in prevalence within the U.S. The proposals should address a national prevalence. Below is a list of topics for researchers to consider when developing a proposal:
  - a. What makes this serotype unique compared to other serotypes
  - b. Is there an association with sick vs. health pigs
  - c. Resistance pattern to antibiotics, packing/processing and environmental pressures
  - d. Ability to cause disease
  - e. How does it adapt to its environment
  - f. Is it more heat tolerant than other serotypes
  - g. Does it outcompete other serotypes
  - h. Do typical control procedures (hurdle technologies) on the farm and/or during processing reduce/eliminate this serotype

#### **Foodborne Pathogen Reduction Strategies**

- 1) Addressing foodborne pathogens is a priority in the pork industry strategic plan. The Committee is interested in research to identify foodborne pathogen reduction strategies on the farm and in the packing/processing areas. Identified reduction strategies should be able to fit natural and/or organic programs. Below is a list of topics for researchers to consider when developing a proposal:
  - a. Are you addressing pre or post-harvest or a farm to fork approach
    - i. On the farm
    - ii. Lairage
    - iii. Packing plant

- iv. Processing facility
- v. Retail
- vi. Consumer
- b. What products are you evaluating for reduction strategies
- c. What pork products are you applying the intervention
  - i. Pig
  - ii. Carcass
  - iii. Chops
  - iv. Roasts
  - v. Primals
  - vi. Trim
  - vii. Head meat
  - viii. Offal
- d. Is there a cost associated with the intervention, if so, what is the cost
- e. Need to evaluate both microbiological and quality/organoleptic characteristics
- f. Sampling scheme
  - i. What time points are you going to sample
  - ii. How often
- g. Testing methodology
  - i. Describe the testing methodology
  - ii. Describe the performance of the test
- h. If the proposal addressing packaging type, what packaging type are you evaluating

## **PORK QUALITY**

### **Understanding 24hr Pork Quality Measurements Compared to 10 – 14 Day Quality Measurements**

- 1) The pork industry has identified improving pork quality as a strategic initiative. The Committee has funded many pork quality research proposals identifying pork quality attributes at the packer level and retailer/consumer level. The Committee would like to understand the pork quality change from a 24hr measurement to a 10 – 14 day measurement. The Committee is looking for either a meta-analysis or research study to understand those measurements. Below is a list of topics for researchers to consider when developing a proposal:
  - a. Are those two measurements correlated?
  - b. Can a 24hr pork quality measurement predict 10 – 14 day quality?
  - c. What is the difference of quality from 24hr pork quality measurements to 10 – 14 day
  - d. Understanding the factors affecting pork quality from 24hrs vs. 10 – 14 days
    - i. Cold chain management
    - ii. Packaging type
    - iii. Handling of the product
  - e. The Committee is mainly focused on loin quality measurements, but other primals could be incorporated into a meta-analysis or research study

## **SUSTAINABILITY**

*The Sustainability Committee solicits proposals in the following areas. The Committee anticipates having \$111,000 to fund sustainability and environment 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 and reflect those matching dollars on the budget sheet that is part of the proposal package. 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 inquiries regarding this solicitation can be directed to Allan Stokes by email [astokes@pork.org](mailto:astokes@pork.org) or by phone: 515/223-3447. Proposals may be returned to the investigator with suggested/requested revisions prior to making a final funding decision.*

### **SUSTAINABILITY - Manure Storage/Application**

1. A meta-analysis of current and emerging technologies / practices for management and re-use of manure constituents, including associated costs and benefits.

### **SUSTAINABILITY – Environmental Footprint**

1. A multi-year life cycle assessment trend analysis of carbon, water and land footprints based on both per pig produced as well as a per pound of pork produced basis. Ideally this analysis will track the trend in these footprints at five year increments between 1960 and 2015.

## **SWINE HEALTH-PRRS**

**The National Pork Board recently established a Strategic Plan for 2015 – 2020.** As part of that Strategic Plan, specific goals were determined to be the main focus for the National Pork Board: Build Consumer Trust; Drive sustainable Production; and Grow Consumer Demand. The goal, “Drive Sustainable Production” is of high priority to and can be directly impacted by the Swine Health Committee. Therefore, as part of the efforts to address this goal, three key targets will be the basis for the PRRS call for proposals for 2015-2020. These targets are:

1. By 2020, the National Pork Board will develop, with key stakeholders, the identification and diagnostic tools, surveillance and mitigation strategies for the potential elimination of the top domestic swine diseases.
2. By 2020, the National pork Board will deploy tools and programs to decrease the annual economic impact of PRRS by 20 percent, as adjusted for inflation and measured against the 2012 PRRS economic impact baseline study.
3. By 2020, the National Pork Board will build the capacity to detect and prepare for foreign, non-regulatory swine production diseases, to rapidly respond to non-regulatory and regulatory foreign animal diseases and to facilitate pork Producer business continuity.

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 remains engaged in PRRSV area control and elimination efforts through research and education focus that support and continue to develop tools and strategies to better manage the virus.

**The National Pork Board Swine Health Committee is requesting proposals on issues that directly address the goals of the 2015 Strategic Plan.** 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 opportunities for proposals are 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 listed priorities 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](mailto:lbecton@pork.org) or by phone: 515-223-2791.

## **2016 Proposed PRRS Research Priorities:**

### **1. PRRS virology/immunology:**

In the past, infections and/or intentional exposure with PRRS viruses have been able to confer adequate homologous protection but not provide for adequate heterologous protection. Recently, PRRS viruses have emerged that do not appear to provide adequate homologous protection and have proven to be very difficult to manage (e.g. 1-7-4 isolates). It is very important to be able to utilize herd health and sequencing data from field and laboratory investigations to better understand the changing dynamics of PRRS infection and control.

Therefore, the items below are what the Committee wants to further investigate:

- Determine the underlying mechanism to be able to understand how/why herds are able to achieve homologous protection and yet not achieve heterologous protection.
- Even though the issue above is the most significant issue, within the past 18 months, there have been new PRRS isolates that do not provide for homologous protection. Therefore, we would like to better understand the underlying mechanisms for contemporary viruses (e.g. 1-7-4 strains) for these viruses.
- Develop a more sensitive method to differentiate PRRSV isolates other than predicted RFLP patterns for ORF 5.

### **2. PRRS Epidemiology:**

Gaining an understanding of how the virus is transmitted at the source is critical to be able to control and eliminate the virus. Determining how the virus is retained and maintained within a herd can help in this process.

Targeted priorities to address epidemiology of transmission are listed as below:

- Gain a better understanding on the transmission of viruses within the Area Regional Control projects after viruses have entered these areas. What are the transmissibility patterns after the viruses are already present? In order to complete this assessment, it will be critical to analyze and cross reference existing databases and field data sources that are currently available.
- Develop practical systems to control virus transmission at the source, e.g., to inactivate or reduce airborne PRRSV in commercial farm settings.
- Do contemporary (2015-2016 isolates of PRRS) viruses have different viral ecology characteristics (replication, co-infections with other pathogens, transmission/vectors/fomites, survival etc.) that make them harder to control/manage as compared to older strains?
  - ✓ Important to consider include: Infective dose, rate of infection, viral amount produced.

### **3. PRRS Surveillance and Diagnostics:**

The development of effective surveillance strategies supports the goal of reducing the impact of PRRS by 20% as well as support in the future elimination of the virus. New tools and strategies are needed in order to effectively reach this goal.

Targeted priorities to address surveillance are listed below:

- Improve the efficiency and accuracy of herd-level testing. Proposals can address one or more of the following: on-farm sampling methods, sample handling/processing, determination of persistent status, and/or test development.

- Design surveillance protocols that integrate spatiotemporal (geographical area over time) approaches or other “value added” approaches to disease surveillance.
- Design cost effective, accurate methods of quickly performing surveillance testing for differentiating PRRSV from other rule out diseases (such as multiplexing assays for respiratory disease rule outs).
- Develop sampling/testing strategies for detection of low prevalence infection (< 5%) prior to weaning and in the growing population (i.e. for use in testing for PRRS elimination strategies or in surveillance for currently negative herds).
- Design and develop diagnostic tests that can differentiate PRRSV vaccinated animals from non-vaccinated animals.

The National Pork Board will consider novel ideas outside those listed above, with the caveat that such proposals will require strong preliminary data in support of the proposed hypothesis.