2007 The Iowa State University Combined Research and Extension Plan of Work

1. Name of the Planned Program

Iowa Pork Industry Center

2. Program knowledge areas 10% allocation to each

- KA 301 Reproductive Performance of Animals
- KA 302 Nutrient Utilization in Animals
- KA 306 Environmental Stress in Animals
- KA 307 Animal Production Management Systems
- KA 307 Improved Animal Products
- KA 315 Animal Welfare/Well-Being and Protection
- KA 402 Engineering Systems and Equipment
- KA 403 Waste Disposal
- KA 601 Economics of Agricultural Production and Farm Management
- KA 903 Communication, Education and Information Delivery

3. Program existence

Long Term (more than five years)

4. Program duration

Long Term (more than five years)

5. Brief summary about planned program

We need to take action now in planning the growth of the pork industry in Iowa to meet the long term needs of the pork production industry and our rural economies while being considerate of the environmental and social concerns shared by all residents of Iowa. As we look to the future, the primary use for Iowa farmland will still be to grow crops such as corn and soybeans. These crops will need even more fertilization as yields will continue to be pushed higher. The primary products used for fertilizers have been petroleum based. The cost of these petroleum based fertilizers will most likely rise, which will then drive the value of swine manure as a crop nutrient even higher. The synergy between crop production and pork production is unique and it is logical to consider this avenue to enhance our rural economies by capitalizing on these opportunities.

6. Situation and priorities

The pork industry in Iowa is broad in its scope, diverse in its components and essential to the economy of the state. Over the past 50 years the pork industry in Iowa has maintained its position as the number one state for pork production and processing in the country. However, there has been a massive structural change in the pork industry that mandates an organized and planned approach to maintain and further evolve the industry. The industry must strive to be sustainable from three different perspectives: economic, environment and social. While the population of Iowa has been stable over the past years, the population is shifting from rural communities to urban and suburban communities. This shift has resulted in a decline in the rural economies as businesses and industries have moved to the city. There is a real need to assist rural
communities to “grow back” their economies and offer opportunities for people to locate businesses in rural areas. As we have seen these demographic changes, the need for the development of the next generation of the pork industry in Iowa also has emerged. Accomplishing these goals can only be achieved through a team approach.

Pork production has added value to Iowa’s corn and soybean industries for many years. While the number of hogs on farms in Iowa has been steady over the past years (13 million to 16 million at any one time,) the number of farms with hogs has declined from 100,000 in 1967 to 9900 in 2004. Correspondingly, the average size of an Iowa hog farm has increased. The primary reason for this is that the average profit per pig has declined to the point where the farm must be larger if an acceptable income is to be realized for the producer. The pork processing capacity of Iowa has always been very important to the needs of the industry and the rural economies of Iowa. The percent of the nation’s pigs that are harvested in Iowa packing plants has stayed around the 30% mark, with only a small increase over the past five years. The industry has also evolved into different segments: commodity pork, attribute based niche market pork, an emerging pork biotech segment, pork harvesting and further processing.

The growth of commodity pork production offers our traditional partners an increased demand for Iowa grains, supplies, capital, energy, labor and consumables. But it also has the potential to add jobs in other areas such as custom finishing, building cleaning and maintenance and nutrient application. And there is potential to grow the pork industry in areas other than commodity pork production. The demand for attribute defined niche market pork continues to grow. Some consumers appear willing to pay a premium for pork that has been raised in systems that have preferred attributes. Production systems such as pasture-raised, organically fed and antibiotic-free all have seen a growing demand and offer even more potential in the future. The biosciences based pork industry is also one that offers a great potential for expansion in the state of Iowa.

7. Assumptions made for the program

The long term outlook for fresh and further processed pork demand is excellent. Domestically, our population continues to grow at a rate of 13% per decade while per capita pork consumption has remained relatively stable at 51 pounds/person. The trend towards Americans eating more meals outside the home, requiring a greater amount of further processed product, has continued to grow. Internationally, the demand for pork continues to escalate as developing economies increase their demand for pork. This is reflected in pork exports growing by 400% over the past decade.

While the future demand for U.S. pork looks promising, the location of where this pork will be produced is not so clear. Currently about 20% of the U.S. pigs are farrowed on the east coast of the U.S. These facilities are aging rapidly and the potential to maintain or grow the pig industry on the east coast is more limited than other areas. If demand continues to increase, there will be need to expand pig production in other places. Iowa has the most inherent advantages for pork production: abundant and affordable feedstuffs, crop production that needs high quality and affordable nutrients, a large and growing pork processing industry, a history of pork production excellence, and rural economies that are in need of development.

As we look to the future, the primary use for Iowa farmland will still be to grow crops such as corn and soybeans. These crops will need even more fertilization as yields will continue to be pushed higher. The primary products used for fertilizers have been petroleum based. The cost of these petroleum based fertilizers will most likely rise, which will then drive the value of swine manure as a crop nutrient even higher. The synergy between crop production and pork production is unique and it is logical to consider this avenue to enhance our rural economies by capitalizing on these opportunities.

We believe that communities can work together to responsibly grow the pork industry of Iowa. A key to this will be the development of and access to unbiased, scientifically sound information
relating to the environmental, economic and social aspects of pork production and processing. Iowa State University has the faculty, staff and administration to utilize the resources needed to address these important and continually changing needs of our industry.

8. Ultimate goal(s) of this program

Goal: Environmental, economic and social sustainability of the pork industry in Iowa
Goal: Rural economic development for Iowa
Goal: Development of the next generation of the pork industry in Iowa

9. Scope of Program

In-State Extension
In-State Research
Multistate Integrated Research and Extension

Inputs for the Program

10. Expending formula funds or state-matching funds

Yes

11. Expending funds other than formula funds or state-matching funds

Yes

12. Estimated amount of professional FTEs/SYs to be budgeted for this program

<table>
<thead>
<tr>
<th>Year</th>
<th>Extension 1862</th>
<th>Extension 1890</th>
<th>Research 1862</th>
<th>Research 1890</th>
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<tr>
<td>2007</td>
<td>14</td>
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<tr>
<td>2011</td>
<td>14</td>
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Outputs for the Program

13. Activity (What will be done?)

Goal: Environmental, economic and social sustainability of the pork industry in Iowa

- Have 10,000 premises registered in the national animal ID program
- Expose 500 pork producers to large pen gestation systems and their management
- Educate Iowa producers on the value of transport and aerosol transmission of disease pathogens
- Have 60% of pork producers use manure testing information to manage their manure
- Inform the industry building new production facilities in the state on the advantages of “low density” systems
- Work with scientific and industry efforts to delineate the causation of odor from swine facilities
• Install BLUP Sow Indexing systems at more than ten Iowa swine farms each year
• Cooperate with more than 100 Iowa sow farms in their efforts to extend sow longevity
• Create a benchmarking program of post-weaning performance from more than 50 Iowa swine farms
• Work with more than 500 Iowa swine farms in their manure management programs
• Conduct EMS training sessions for more than 1000 Iowa swine farms
• Maintain and expand the cooperative work with at least five producer peer groups

Goal: Rural economic development for Iowa
• Work with 100 producers on siting questions, business plans, production practices for the construction of new swine facilities in rural areas of Iowa
• Cooperate with DNR in interpreting the rules and regulations pertaining to confinement animal units in rural Iowa
• Work with five AI studs in rural Iowa on their expansion and biosecurity issues

Goal: Development of the next generation of the pork industry in Iowa
• Coordinate the Iowa State Fair Derby swine show with over 500 youth participating annually
• Work with the Iowa State University Animal Science Department staff in their Roundup program for student recruitment
• Cooperate with appropriate state staff and ISU Extension field staff to offer three pork-related workshops during the annual Iowa State 4-H Youth Conference
• Have ten students complete the Swine Fellows program annually at ISU
• Work with the IPPA in its Youth Ambassador Program with at least ten youth completing the program each year
• Scan over 2,000 pigs at 30 county fairs around Iowa each year
• Judge youth swine shows at more than 25 youth events annually
• Work with 50 crop producers to broaden their agricultural enterprise to include swine production facilities in order to bring another family member into the business

14. Type(s) of methods will be used to reach direct and indirect contacts.

<table>
<thead>
<tr>
<th>Extension</th>
<th>Direct Methods</th>
<th>Indirect Methods</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>• Regional seminars</td>
<td>• Popular press, periodicals, newsletters and other media</td>
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<td></td>
<td>• Subject matter workshops</td>
<td>• Individualized education</td>
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<tr>
<td></td>
<td>• Commodity group activities</td>
<td>• Invited presentations</td>
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<td></td>
<td>• Field days</td>
<td>• ISU student recruitment activities</td>
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<td></td>
<td>• In-service trainings</td>
<td>• County and state fairs</td>
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<td></td>
<td>• National, international and statewide conferences</td>
<td>• Web based information</td>
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<td></td>
<td>• Distance education through varied technologies</td>
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<td></td>
<td>• Certification and training programs</td>
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15. Description of targeted audience
• Independent farms
• Corporate farms
• Attribute based farms
• Peer support groups
• Youth and next generation
• Commodity groups
• Veterinarians
• Community colleges
• General population
• Policy makers

16. **Standard output measures** (Targets for number of direct and indirect contacts.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Contacts Adults</th>
<th>Indirect Contacts Adults</th>
<th>Direct Contacts Youth</th>
<th>Indirect Contact Youth</th>
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<tbody>
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<td>2011</td>
<td>8000</td>
<td>16000</td>
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17. **Standard research target** (Number of patents)

<table>
<thead>
<tr>
<th>Year</th>
<th>Expected Patents</th>
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<tbody>
<tr>
<td>2007</td>
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<td>2008</td>
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<td>2009</td>
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<td>2010</td>
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18. **Output measures** (number of research projects completed)

2007 Target: 12
2008 Target: 12
2009 Target: 12
2010 Target: 12
2011 Target: 12

**Outcomes for the Program**

19. **Outcome measures**

**Outcome Text:** Number of premises registered in the national animal ID program (cumulative)

2007 Target: 2500
2008 Target: 4500
2009 Target: 6500
2010 Target: 8500
2011 Target: 10,000

**Outcome Text:** Number of pork producers exposed to large pen gestation systems and their management (cumulative)

2007 Target: 125
2008 Target: 250
2009 Target: 350
2010 Target: 425
2011 Target: 500

**Outcome Text:** Percent of pork producers using manure testing information to manage swine manure application (cumulative)
2007 Target: 25
2008 Target: 35
2009 Target: 45
2010 Target: 55
2011 Target: 60

**Outcome Text:** Number of niche market farms with accurate cost of production records

2007 Target: 30
2008 Target: 40
2009 Target: 50
2010 Target: 60
2011 Target: 70

**Outcome Text:** Number of swine farms to participate in EMS training sessions (cumulative)

2007 Target: 400
2008 Target: 600
2009 Target: 750
2010 Target: 900
2011 Target: 1,000

**Outcome Text:** Number of youth participating in the Iowa State Fair swine programs (annually)

2007 Target: 500
2008 Target: 500
2009 Target: 500
2010 Target: 500
2011 Target: 500

**Outcome Text:** Number of crop producers who broaden their agricultural enterprise to include swine production facilities in order to bring another family member into the business (annually)

2007 Target: 25
2008 Target: 25
2009 Target: 25
2010 Target: 25
2011 Target: 25

20. External factors which may affect outcomes

The traditional pork industry structure in Iowa has been the production of pigs to consume the locally grown corn and soybean meal and turn this into a higher valued product. The pigs were processed in Iowa pork processing facilities and the pork was then shipped to all parts of the nation for further processing and sale as commodity pork in grocery stores. The retailing sector has seen more concentration over the past few years. For 2004, the top five food retailers in the U.S. controlled 60% of the market share. With this concentration has come more pressure on the suppliers to reduce their margins. As the margin per pig sold for commodity pork has dropped, the necessity for larger production units has emerged. This then creates a need for the pork industry to broaden its product line and expand into non-commodity based pork markets.

Public awareness and sensitivity to environmental issues, animal welfare concerns, and a growing awareness of agricultural consolidation need to be addressed. The climate for state and federal funding of programs that support the pork industry of Iowa has not been favorable over the past years. These declines in funding for unbiased, science based programs are a factor that has already had a negative impact on our programs and results. ISUE has responded by increasing the amount of support funding from our clients and moving first to cost recovery programs and more recently towards income generation programs. Another factor that could negatively impact the development and delivery of successful programs is the declining political
influence of the agricultural industries on the state legislature. As the population shifts from rural to urban and suburban, the funding of programs to assist the pork producers of Iowa will most likely be harder to procure. In addition, the implementation of rules and laws that impede the development and profitability of the pork industry in Iowa becomes more likely.


- Surveys of meeting participants in IPIC technology transfer events
- Evaluate manure management plans as to practices being implemented by producers
- Examination of specific technology implementation from IPIC educational programs
- Feedback from advisory groups about successes/failure of IPIC educational programs
- Examine the Group Tracker benchmark database for level of usage and changes in performance
- Monitor results from reproductive management software programs for client changes in performance that have adopted technology due to extension recommendations
- Evaluate the effectiveness of the "regional" resource sharing programs using survey information

22. Data Collection Methods.

- X Sampling
- X Whole Population
- X Survey
- X Mail (surface, electronic)
- X Telephone
- X On-site
- X Interview
- X Structured/unstructured
- X Case study
- X Observation
- X Portfolio reviews
- X Tests
- X Journals
- Other