2007 The State University Combined Research and Extension Plan of Work

1. Name of the Planned Program.
   Dairy Team

2. Program knowledge areas.
   - 601 Economics of Agricultural Production and Farm Management - 20%
   - 307 Animal Production Management Systems - 20%
   - 315 Animal Welfare/Well being and Protection - 20%
   - 802 Human Development and Family Well-being - 20%
   - 401 Structures, Facilities, and General Purpose Farm Supplies - 20%

3. Program existence
   - Intermediate (five years)

4. Program duration
   - Long Term (more than five years)

5. Brief summary about Planned Program
   Growth and development of Iowa's dairy industry provides significant program opportunities. Programs and projects related to dairy business development will enable the industry to remain a viable player in the national milk market. Moreover, program will focus on modernizing dairy facilities, integrated herd and health management, human resource management, and environmental and energy resource stewardship. These complex issues will be addressed by the ISU Extension Dairy Team with rural economic and social development as the intended outcomes.

6. Situation and priorities
   Dairy is a large industry in Iowa. Iowa is home to 200,000 dairy cows and 2250 dairy farms. Iowa Dairy cows produce an average of 20,722 pounds of milk per cow for a total milk production of 3.85 billion pounds. But, Iowa processes 4.8 billion pounds with milk imported from other states. Using the above figures, the Iowa dairy industry generates $1.306 billion of economic activity in the state. Iowa dairy production has remained relatively stable, but continues to lose dairy herds while herd size and production per cow continue to increase.

   The Iowa dairy industry provides economic development for rural communities and value-added benefits for Iowa grain and forage producers. Dairy is a great economic development engine providing profitable jobs and land use. A Cornell study puts the Total Income multiplier (TI) at 2.29 for dairy production, only dairy product manufacturing exceeds this at 2.61. No other economic sector exceeded these numbers (the next highest among all sectors was construction with a TI of 1.66, which is heavily used in dairy as well). Employment effects of dairy production are near the top of the list as well at 1.52. Dairy product manufacturing was the highest at 3.53—double the employment of the highest non-agricultural economic sector. Each 100 cow dairy
would provide an estimated 2.5 jobs with off-farm employment increasing an estimated one half that due to dairy production’s labor intensity.

Capital requirements, quality of life and current capital infrastructure often inhibit newer, younger producers or other new entrants into the industry in order to maintain or grow Iowa dairy production base. Business planning and development of new, sustainable models are necessary. The Iowa dairy industry is in need of modernizing facilities to accommodate labor and energy efficient technology to become more competitive. Human resource skills need further development and use. Proper manure and crop nutrient utilization can further protect the environment.

7. Assumptions made for the Program

The Iowa dairy industry has tremendous room for growth in milk production. Feed by-products from a growing ethanol industry will need to be utilized by livestock. Rural communities need dairy for economic growth. Beginning and transition dairy producers need opportunities for entry and expansion. Business planning will be pertinent to their success. The dairy facility infrastructure needs modernizing. Worker health and safety improvements will make milking easier and more attractive. Improvements in nutrient intake need to be balance will nutrient excretion for efficiency and environmental sustainability. Farm owners will need to develop interpersonal skills and organizational skills as farms expand and require the work of hired employees.

The Dairy Team has approximately 1.25 FTE campus staff, and has 2.60 field staff specifically working on dairy along with 1 FTE in farm management; 1 FTE in Crops and 1 FTE in Ag Engineering working on dairy. Thus, staff time is limited across the state in dairy.

Many underutilized dairy resources such as publications need to be updated, and website further created. Staff members need continued professional improvement on current research in their respective disciplines. Producers, lenders, nutritionists, veterinarians and other agri-business personnel need continued professional improvement on profitable dairy production systems.

Internally the Dairy Team needs cooperation with County Extension Education Directors, other field staff and administration. Externally the dairy team is a major stakeholder in Iowa State Dairy Association, the NE Iowa Dairy Foundation, the Western Iowa Dairy Alliance. Cooperation with these and other industry players is pertinent to the dairy team’s success.

Communities will form coalitions to address dairy development as an economic development strategy. The Dairy Team will play a key role in educating new and prospective producers and partners as to the importance of the dairy industry to the economic well-being of Iowa.

At the same time, efforts must be continued to help keep Iowa dairy producers and dairy consultants informed about Best Management Practices, and about profitable models of production and risk management. Many avenues will be used to disseminate information, ranging from individual farm visits or phone calls to group meetings to using internet technology.

To accomplish program goals, external funds must be obtained from partners, grant and contract agreements, and the participants who attend educational programs.

8. Ultimate goal(s) of this Program

- Increase dairy farm business planning and establish new sustainable dairy farms.
- Increase the adoption of more competitive dairy production systems and practices.
- Adopt, apply and evaluate approaches to integrated dairy herd and health management
practices that result in improved profitability, enhanced food quality and safety, and improved environmental stewardship.

- Increase the awareness and use of interpersonal and organizational skills by dairy personnel.
- Increase efficiency of manure and crop nutrient utilization while minimizing surface run-off and preserving ground water and air quality. Conserve current energy resources, and implement alternate energy resources where appropriate.

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</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1862</td>
<td>1890</td>
</tr>
<tr>
<td>2007</td>
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</tr>
<tr>
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<td>7</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>7</td>
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</tbody>
</table>

Outputs for the Program

13. Activity (What will be done?)

Goal: Increase dairy farm business planning and establish new sustainable dairy farms.

- Dairy producers will implement business planning to accommodate intergenerational transfers, new enterprises, value-added processing and/or marketing, risk management strategies, and long-term sustainability.

Goal: Increase the adoption of more competitive dairy production systems and practices.

- Producers will implement cost efficient milking, feeding, housing and manure handling systems designed to increase labor efficiency along with improved animal (cow comfort) and worker well-being (safety, ergonomics, air quality, stress).
Goal: Adopt, apply, and evaluate approaches to integrated dairy herd and health management practices that result in improved profitability, enhanced food quality and safety, and improved environmental stewardship.

- Dairy producers will make improvements by setting goals through the use of records that identify herd production problems/opportunities for improvement in milk and food quality, nutrition, biosecurity and herd health, reproduction, and productive life.

Goal: Increase the awareness and use of interpersonal and organizational skills by dairy personnel.

- Dairy producers will optimize human resources by acquiring and improving human resource management skills.

Goal: Increase efficiency of manure and crop nutrient utilization while minimizing surface run-off and preserving ground water and air quality. Conserve current energy resources, and implement alternate energy resources where appropriate.

- Dairy producers will adopt energy conserving measures on dairy farms. Dairy producers will adopt nutrient [manure and waste water] management systems that reduce risk to surface and groundwater environmental quality.

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

<table>
<thead>
<tr>
<th>Direct Methods</th>
<th>Indirect Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>* One-on-One Telephone, Office and on-farm consultation</td>
<td>• Dairy Team Website</td>
</tr>
<tr>
<td>* Producer Meetings (i.e. dairy days)</td>
<td>• Publications</td>
</tr>
<tr>
<td>* Agri-business Meetings</td>
<td>• Dairy Newsletter</td>
</tr>
<tr>
<td>* Milking Parlor, Dairy Facility Tours</td>
<td>• Media—Radio and Newspaper</td>
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<td>* Pasture and Forage Field Days</td>
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<td>* Barn Meetings</td>
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<td>* Focus Groups or Peer Groups</td>
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</table>

15. Description of targeted audience.

Dairy producers  
Beginning farmers  
Agricultural lenders  
Dairy nutritionists  
Other agri-business personnel  
Builders and contractors  
Dairy veterinarians  
Economic development partners

Target for the number of persons (contacts) to be reached through direct and indirect contact methods.
<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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</thead>
<tbody>
<tr>
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<tr>
<td>2011</td>
<td>10,000</td>
<td>2500</td>
<td>2300</td>
<td>1050</td>
</tr>
</tbody>
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17. (Standard Research Target) Number of patents.

<table>
<thead>
<tr>
<th>Expected Patents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>2007</td>
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<tr>
<td>2008</td>
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<tr>
<td>2009</td>
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<tr>
<td>2010</td>
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</tbody>
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18. Output Measures

2007 Target:
- Research/Demonstration: 3
- Publications: 6
- Workshops: 42

2008 Target:
- Research/Demonstration: 3
- Publications: 6
- Workshops: 32

2009 Target:
- Research/Demonstration: 3
- Publications: 6
- Workshops: 32

2010 Target:
- Research/Demonstration: 3
- Publications: 6
- Workshops: 32

2011 Target:
- Research/Demonstration: 3
- Publications: 6
- Workshops: 32

Outcomes for the Program

19. Outcome measures

Outcome Text: Number of new dairy farms established.

2007 Target: 8
2008 Target: 8
Outcome Text: Percent of dairy producers who adopt more competitive dairy production systems and practices.
- 2007 Target: 20%
- 2008 Target: 20%
- 2009 Target: 20%
- 2010 Target: 15%
- 2011 Target: 15%

Outcome Text: Percent of Iowa producers who adopt integrated dairy herd and health management practices that result in improved profitability, enhanced food quality and safety, and improved environmental stewardship.
- 2007 Target: 20%
- 2008 Target: 20%
- 2009 Target: 20%
- 2010 Target: 20%
- 2011 Target: 20%

Outcome Text: Percent of producers who will increase the awareness and use of interpersonal and organizational skills when managing family or non-family personnel.
- 2007 Target: 10%
- 2008 Target: 10%
- 2009 Target: 10%
- 2010 Target: 10%
- 2011 Target: 10%

Outcome Text: Percent of producers increasing the efficiency of manure and crop nutrient utilization while minimizing surface run-off and preserving ground water and air quality.
- 2007 Target: 20%
- 2008 Target: 20%
- 2009 Target: 20%
- 2010 Target: 15%
- 2011 Target: 15%

20. External factors which may affect outcomes.

The dairy production sector runs the spectrum of state-of-the-art facilities, low cost but effective facilities and out-of-date facilities which lack competitiveness in production, labor efficiency and profitability. Adoption of management practices is slow. Integrated herd and health management practices need cooperation with veterinarians. Beginning and expanding producers have financial, business management and consulting needs that often are not readily available in the market place. Many dairy owners and workers need to develop or improve interpersonal and organizational skills. Environmental issues and changing regulations have been a hot button for 6-7 years and producers are torn between fighting regulations and investing in environmental controls for their dairies. Other dairy industry partners have long range dairy development plans consistent with the objectives identified and are needed as partners in program implementation. The dairy team continues to lose FTE staff in critical areas that affect teaching, research and program implementation in the field. How the future staffing needs are met will impact greatly the degree to which program goals are met.


ISU surveyed Iowa dairy producers in early 2005 that will serve as a benchmark for comparison. It is anticipated that producers will be surveyed again in 2010 to assess change in key variables. Some measures will require documentation of actions taken by the producer due in part to dairy team involvement. Still other measures will be estimated from existing secondary data such as Census of Ag and USDA reports.
Goal: Increase dairy farm business planning and establish new sustainable dairy farms.

Evaluation: Documentation of those assisted

Goal: Increase the adoption of more competitive dairy production systems and practices.

Evaluation: Documentation of those assisted with selected post-pre surveys regarding learning and impact.

Goal: Adopt, apply, and evaluate approaches to integrated dairy herd and health management practices that result in improved profitability, enhanced food quality and safety, and improved environmental stewardship.

Evaluation: Documentation of those assisted with selected post-pre surveys regarding learning and impact.

Goal: Increase the awareness and use of interpersonal and organizational skills by dairy personnel.

Evaluation: Documentation of those assisted with selected post-pre surveys regarding learning and impact.

Goal: Increase efficiency of manure and crop nutrient utilization while minimizing surface run-off and preserving ground water and air quality. Conserve current energy resources, and implement alternate energy resources where appropriate.

Evaluation: Documentation of those assisted with selected post-pre surveys regarding learning and impact.

22. Data Collection Methods.
- Sampling – Target audience of participants
- Whole Population
- Survey -yes
- Mail (surface, electronic) -yes
- Telephone -yes
- On-site - yes
- Interview -yes
- Structured/unstructured
- Case study
- Observation
- Portfolio reviews
- Tests -yes
- Journals
- Other