2007 The State University Combined Research and Extension Plan of Work

1. Name of the Planned Program.

Iowa Beef Center

2. Program knowledge areas.

- 40% 307 Animal Management Systems
- 20% 403. Waste Disposal, Recycling, and Reuse
- 15% 601. Economics of Agricultural Production and Farm Management
- 10% 308. Improved Animal Products (Before Harvest)
- 10% 604. Marketing and Distribution Practices
- 5% 315. Animal Welfare/Well-Being and Protection

3. Program existence

- Long Term (more than five years)

4. Program duration

- Long Term (more than five years)

5. Brief summary about Planned Program

The future of the cattle business in Iowa has tremendous potential for profitability and growth. While opportunity for increased profit margins exist with specialized production, good managers can produce beef cheaper in Iowa than any other region in North America because of our inherent advantage of low-cost feed inputs. Commodity beef production is a narrow profit margin business with inherently high risks. Capital requirements are significant and leverage is often substantial. As a result, capital often becomes a limiting factor when one thinks about bringing the next generation or new producers into the business, either to replace retiring producers or to grow the business. To approach the subject of growing the beef production business, these factors must be considered. Either profit margins must be larger or risks must be reduced to draw in new people and new capital into the Iowa beef industry. Iowa is competitive in the commodity beef business, but Iowa's true strength and brightest future lies beyond the commodity world in the high-quality specification products for the branded beef market.

6. Situation and priorities

The beef industry is dynamic and evolving and Iowa is positioned to take advantage of emerging external factors to grow the production of high quality beef. Changing energy costs and production are a significant turning point for cattle feeding. The High Plains cattle feedlot industry is energy dependent and faces higher cost of production, as it is costly to irrigate or import corn and to steam flake grain to make the diet more efficient. The U.S. Energy Bill has also resulted in more ethanol plants in Iowa, producing wet distiller grains that reduce the cost of gain for cattle fed near an ethanol plant even further. As of January 2006, Iowa had a total of 1.18 billion gallons per year of ethanol production capacity from the 21 plants, with an additional 515 million gallons under construction. When this additional production is on-line, Iowa will produce nearly 11 billion pounds of DDGs per year. Rising energy prices are driving a wedge between cost of
gain in the High Plains and Iowa and it is creating opportunities that didn’t exist in the state five years ago.

Iowa feedlots do face higher environmental compliance costs per head compared to feedlots in drier regions. The larger operation size spreads the initial cost over more head and the lower rainfall requires smaller runoff storage structures. Higher environmental expectations by society and regulators are resulting in higher environmental compliance challenges and costs for many Iowa feedlots. These producers need practical procedures for implementing environmental stewardship practices that protect the water and air quality and keep them out of regulatory problems.

A significant positive change that has occurred in beef demand since its low in 1998; demand has increased over 20%, driven in large part by consumer preferences for high-quality beef. Their preferences are reflected in a Choice–Select spread that has nearly doubled in 15 years and the dramatic growth of Certified Angus Beef which represents the upper two-thirds of Choice quality grade. These changes are accompanied by increased branding of beef products to separate them from commodity beef in the consumer’s eye.

Much like the feedlot sector, feed supplies and costs are an advantage for Iowa’s cowherds as well. The productivity of Iowa land makes it the lowest cost investment in pasture land needed per cow of any of the top 10 beef cow states. Yet, the number of pasture acres in Iowa has declined dramatically in recent years. There are also nearly 1.9 million acres in the CRP program, that can be easily be converted to grazing and stored forage production and still provide the important environmental benefits of protecting water and wildlife habitat. Ethanol co-products along with low-quality hay or grazing from CRP land or cornstarks make a ration for cows that is both nutritionally sound as well as very cost competitive. Applying advanced management techniques such as rotational grazing and mixing and delivering prescription feed rations allows Iowa to have a cow carrying cost that is extremely competitive.

Given the changes in external factors of beef demand, energy costs, and ethanol production, Iowa is positioned to grow cattle production in the state. This production will need to be efficient, sustainable, and well managed. Product quality, traceability, and verification will be important. Producers will need technical assistance, management and marketing skills, and innovative production and business strategies to be successful.

7. Assumptions made for the Program

External environment
- Beef producer clients will be motivated to improve efficiency, quality, and sustainability of their product and operation.
- Cattle cycle economics will continue and prices will trend lower for 3-5 years before moving higher again.
- Acres in Conservation Reserve Program (CRP) will decline, making this land eligible for grazing. Pasture acres will face competition from crop production and recreational land owners.
- Ethanol production will continue and grow in Iowa, making distillers grains plentiful and competitively-priced relative to corn in locations near ethanol plants.
- Environmental regulations will not decrease, but will be manageable for well managed open feedlot and pasture operations.
- Beef demand will remain above 2003 levels, and demand for high quality grade cattle will increase relative to lower quality grade cattle.
- Demand for natural beef, while small, will continue to grow.
- Demand for source-verified cattle by feedlots and packers will increase.
- National animal identification will implemented by 2009.
Internal environment

- Iowa State University will maintain an active research program in beef production and marketing to provide research-based information in extension programs.
- Field staff numbers will remain stable.
- Campus retirements will be replaced in a timely manner and the IBC will have input on the skills of the person hired.
- External funding levels will grow modestly to support targeted efforts
- External funding activities will be consistent with IBC goals to serve Iowa beef producers.
- IBC staff positions will leverage faculty and specialist resources.
- IBC will continue to exploit technology for program delivery.
- IBC will continue to look for opportunities to partner in multi-state beef programming to meet IBC goals.

8. Ultimate goal(s) of this Program

- Increase effective use of grain co-products by 2011
- Improved environmental stewardship by beef feedlots by 2011
- Adopt quality management systems to improve cost control and market access by 2011
- Improved beef cowherd production efficiency by 2011
- Expand intergenerational transfer by 2011

9. Scope of Program

In-State Extension
In-State Research
Multi-state 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>
<td>15</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>
Outputs for the Program
13. Activity (What will be done?)

Goal: Increase effective use of grain co-products by 2011
- Conduct applied research and demonstrations and educational efforts on feeding DGS.
- Partner with new ethanol plants producing DGS to educate producers on storage and feeding of DGS.
- Conduct in-service training and materials to feed industry staff that service producers.

Goal: Improved environmental stewardship by beef feedlots by 2011
- Work with state agencies to develop practical and effective feedlot structures that protect water quality and are cost-effective to build and maintain.
- Document the cost to install and maintain these systems and prepare communications.
- Host field days showcasing effective control systems and management.
- Develop and train producers in procedures to assess, operate, and document management in these systems.
- Provide technical assistance to producers installing these practical systems.

Goal: Adopt quality management systems to improve cost control and market access by 2011
- Provide training and templates in a functional EMS for feedlot operators.
- Provide training, practical templates, and pre-verification audits to help producers qualify for special marketing programs that require PVP approval.
- Partner with companies that have existing PVPs but have concerns about producer implementation.
- Work with industry and agency partners to educate producers about national animal ID and encourage them to meet the deadlines for premise registration and animal tracking.
- Develop decision support tools and education programs that allow producers to quickly and easily utilize individual animal identification.
- Have certified auditor on staff keep up-to-date on Animal Care Guideline procedures and to train producers when the guidelines become official.

Goal: Improved beef cowherd production efficiency by 2011
- Develop economic analysis education materials and decision support tools to help producers evaluate the economics of rotational grazing on their farm.
- Research and demonstrate methods of extending forage resources using ethanol co-products for beef cows and grazing cattle.
- Educate beef cowherd producers on managing production, financial, and marketing risk.
- Develop decision support tools and conduct genetic management workshops

Goal: Expand intergenerational transfer by 2011
- Develop and evaluate methods for incorporating a young person into the cattle enterprise.
- Provide business and technical assistance for young farmers on starting or expanding a farming operation.

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>
</tr>
</thead>
<tbody>
<tr>
<td>Conferences</td>
<td></td>
<td>Publications</td>
</tr>
<tr>
<td>Workshops</td>
<td></td>
<td>Software</td>
</tr>
<tr>
<td>Field days</td>
<td></td>
<td>Website</td>
</tr>
<tr>
<td>In-service</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15. Description of targeted audience.

Beef feedlot producers and managers
Cowherd producers and managers
Allied industries and service providers
Ethanol plants and managers
State agencies
Beginning farmers

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>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>8,000</td>
<td>90,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>8,200</td>
<td>95,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>8,400</td>
<td>100,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>8,500</td>
<td>105,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>8,500</td>
<td>110,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. (Standard Research Target) Number of patents.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
</tr>
</tbody>
</table>

18. Output measures

Output Text: Number of applied research and demonstration projects on feeding DGS.
2007 Target: 3
2008 Target: 5
2009 Target: 5
2010 Target: 4
2011 Target: 3

Output Text: Number of applied research and demonstration projects to extend forage resources using ethanol co-products for beef cows and grazing cattle.
2007 Target: 3
2008 Target: 5
2009 Target: 7
2010 Target: 7
2011 Target: 5
Outcomes for the Program

19. Outcome measures

Outcome Text: Percent of Iowa feedlots that regularly feed DGS to reduce cost of gain.
2007 Target: 70%
2008 Target: 73%
2009 Target: 75%
2010 Target: 80%
2011 Target: 85%

Outcome Text: Percent of feedlots over 100 head capacity that utilize solid manure settling structures or alternative technology treatment systems.
2007 Target: 20%
2008 Target: 30%
2009 Target: 40%
2010 Target: 60%
2011 Target: 80%

Outcome Text: Percent of producers who adopt management systems to improve cost control and market access.
2007 Target: 10%
2008 Target: 15%
2009 Target: 20%
2010 Target: 25%
2011 Target: 30%

Outcome Text: Percent of cowherd producers who utilize technologies to improve enterprise efficiency.
2007 Target: 10%
2008 Target: 15%
2009 Target: 20%
2010 Target: 25%
2011 Target: 30%

Outcome Text: Number of intergenerational transfers.
2007 Target: 10
2008 Target: 12
2009 Target: 15
2010 Target: 18
2011 Target: 20

20. External factors which may affect outcomes.

The beef production sector is conservative and very independent. Adoption of management practices is slow. 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 feedlot. The Iowa Cattlemen’s Association has a long-range plan that is consistent with the objectives identified and is a partner in program implementation. ISU has had retirements that have worked in applied beef research and more research and extension retirements are expected during this POW. How these campus and field retirements are handled will greatly impact the IBC.


The IBC surveyed Iowa cattle producers in early 2005, and the results 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 IBC staff involvement. Still other measures will be estimated from existing secondary data such as Census of Ag and USDA reports.
Goal: Increase effective use of grain co-products by 2011
- Survey and documentation of those assisted.

Goal: Improved environmental stewardship by beef feedlots by 2011
- Documentation of those assisted

Goal: Adopt quality management systems to improve cost control and market access by 2011
- Documentation of adoption by participants and survey.

Goal: Improved beef cowherd production efficiency by 2011
- Survey of producers and documentation actions taken by participants.

Goal: Expand intergenerational transfer by 2011
- Survey and secondary data.

22. Data Collection Methods.

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