Report from the Beef Production Systems Workshop

January 7, 2016, University of Nebraska-Lincoln East Campus

Introduction

Seventy-seven people from UNL, USDA, the Nebraska Department of Agriculture and the beef industry throughout the state gathered in Lincoln to identify high priority areas for future research and educational programming in beef production systems. The workshop was a follow-up to a similar one held in January 2015.

Martin Massengale, Director of the Center for Grassland Studies which hosted the workshop both years, and IANR Associate Vice Chancellor Ron Yoder, gave opening remarks. Jim Robb, Director and Senior Agricultural Economist for the Livestock Marketing Information Center in Denver, CO, then set the stage for the day's discussions by providing an overview of the market situation and outlook for beef cattle and corn on a global basis. Animal scientist Jim MacDonald and range scientist Walter Schacht reviewed new and existing UNL research in various aspects of beef production systems for Nebraska to help the workshop participants identify what is known and the gaps that remain. Innovative producers Fred Bruning and Dave Hamilton each shared how his operation has adapted to the changing production and market environments, and discussed what they saw as current challenges and opportunities for increased profitability and expansion of beef enterprises.

In two separate sets of table discussions – one focused on perennial grassland systems and one on integrated crop/livestock systems – participants were asked to answer: What does Nebraska provide that has made it a leader in the beef cattle industry and that is critical to continued growth of the beef industry in this state? What are the gaps in knowledge, tools, models, and education/communication programs that limit both forage and animal production in beef systems?

Each of the nine tables had a moderator and a recorder. After each discussion session, the recorder reported that table's prioritized list of issues. Animal scientist and professor emeritus Terry Klopfenstein helped the group identify over-arching themes from the table reports. All of this was summarized in a report that is available at the Center for Grassland Studies website. Below is the essence of the report.

Summary of Table Discussions

The base of beef production in western and much of central Nebraska is perennial grasslands, including the Sandhills and mixed and shortgrass prairie. Forage plants and grain crops can be critical components of beef systems in this area but grazinglands provide the majority of the feed resource for cattle production. The priorities identified by the tables can be grouped into four broad areas: 1. increasing production efficiency; 2. communicating and adopting new strategies and systems coming from research and technological advances; 3. addressing human dimension issues – land transfer, communicating with the consumers, developing and maintaining a management and labor pool, etc.; 4. understanding business planning and production economics.

1. Production efficiency. A common priority discussed at the tables centered on increasing efficiency of both forage and beef production. With limited land and feed resources, there was agreement that there are two principal possibilities for sustaining (or growing) beef cattle numbers in Nebraska: a) increase forage plant production on croplands and/or grazinglands, and b) increase harvest efficiency of forage plants, especially on grazinglands. Most tables concluded that there is a lack of knowledge and adoption of management strategies that optimize the harvest of forage on grazing lands. Priority listings indicated that harvest efficiency could be improved by using grazing strategies and systems that take into account forage quality, palatability, season of growth, drought, forage and land type, supplemental feeding, invasive species control, integration of cover crops, subirrigated meadows, and crop residue use. Priorities in the production efficiency area included improved cattle genetics and management practices that ensure more efficient use of potential feedstuffs.

2. Knowledge transfer. Lack of adoption of proven management strategies and technologies by producers was the most commonly identified factor that limits beef cattle production. Producers' tendency of staying with traditional methods and systems was commonly mentioned. Increasing the effectiveness of communication and knowledge transfer through Extension and other consulting channels was seen as essential to increase beef production. Including producers in the process of disseminating information also was viewed as important.

3. Human dimension. The human dimension included concerns about the efficient transfer of land ownership and management from the current generation to the next, maintaining and even growing a competent labor pool, bridging the producer-to-consumer gap, and further developing the producer relationship with government agencies (e.g., NRCS) and their conservation programs. Temporal continuity of goals, expertise, and management was viewed as necessary for sustaining beef production systems.

4. Economics. A sound base in production economics and business management is required to sustain any industry or individual operation. The lack of effective economic analysis of the components of beef systems at the producer, researcher, and educator level was seen as a weakness. Along with this, enterprise diversity at the operation (farm/ranch) and industry level was emphasized as an important priority.

In eastern and parts of central Nebraska, beef production is not the driving force of most agricultural operations, which creates a different production environment and set of limitations/gaps in beef production than identified for the perennial grassland systems in western and parts of central Nebraska. Most tables reported that there are significant challenges in integrating beef production into mostly crop-dominated operations. The advantages of such integration are not obvious to operators, and the knowledge of how to successfully achieve the integration is lacking in many cases. There was general agreement among the tables that the integration of crop/livestock production systems is realistic in terms of management and justifiable economically. Many tables stated that further research and development of educational programs in production systems are needed to provide producers with the required knowledge. The principal priority areas emerging from this discussion session were: 1. identify the production, management, and potential use of feed resources in crop-dominated operations and areas; 2. realize efficient integration of the feed resources in integrated crop/livestock production systems; 3. identify types of livestock and crop enterprises best suited for the integrated systems; 4.

communicate the crop/livestock production systems to land owners; 5. development of expertise in forage and cattle production in managers and workers; 6. business economics.

1. Feed resources. Types of feed resources and systems in eastern Nebraska are diverse. The production and use-potential of these feedstuffs and systems must be investigated and documented. These feedstuffs include cover crop forages and perennial forages, forage crops, hayland, pasture, crop residues, and ethanol co-products, and this diversity of complementary feeds/forages result in numerous alternative feeding systems. Along with this priority, further development of infrastructure (i.e., livestock water and fencing) for increased production and use of forages was seen as important.

2. Integration of feed resources. Most tables reported that the integration of these feedstuffs into high-return systems is largely an unknown for many crop farmers. Lack of knowledge specific to production and use of feed resources in crop/livestock operations was identified as a major limitation. Many tables pointed out that the cattle production environment in cropland-dominated areas is much different than that in perennial grasslands.

3. Cattle enterprise identification. The type of cattle enterprises (e.g., cow-calf or stocker operations) is affected by perennial pasture availability, pasture size, timing of other priority activities (e.g., planting), types of available forages and supplemental feeds, and confinement options. Research needs to be done on how the production environment in integrated crop/livestock systems affects decisions concerning type of cattle enterprise.

4. Knowledge transfer. As with perennial grassland systems, transfer of information and recommendations to producers is required. Again, UNL Extension, staff of federal agencies, and private consultants were identified as critical in communicating this knowledge and assisting in the development of partnerships between cattle and crop producers.

5. Expertise in animal husbandry and beef systems. Discussions at most tables included a concern that crop producers and the labor pool in eastern Nebraska no longer have knowledge of animal husbandry. This knowledge gap was proposed to be addressed through a dedicated educational effort through Extension and private consultants.

6. Economics. The economics of integrated crop/livestock systems was seen as very important. Economic justification is needed to convince producers to integrate cattle production into their cropping systems, especially if they are not convinced of the advantages of doing so. Economic comparisons of production of different feed/forage types and cropping rotations are critical in developing potential new systems.

Reports on Priority Areas by Table Number

Perennial Grassland Systems:

Table #1

1. Transfer of knowledge—adaptation of new technology by producers
2. Addressing the producer-to-consumer gap
3. Matching land and labor needs with resources; assisting with generational transfer

Table #2

1. Improved genetics in production and efficiency
    a. Crossbreeding
2. Evaluation of grazing strategies
    a. Economics of increased harvest efficiency through more efficient cattle or grazing management
        i. Dave Hamilton was in our group and estimated that he increased his production potential through his grazing system (small pastures, well distributed water, grazing in the growing season and dormant, etc.) by 25 to 33%.
    b. Drought management options
    c. Benefits of different grazing strategies when drought or other disturbances occur
    d. Reduce harvested feeds
    e. Options for grazing meadows and lowlands
    f. Year-round grazing systems
        i. Growing and dormant season options
3. Understanding annual variations in forage quality and how grazing management influences this
    a. Quantify variations in nutrient content
    b. Make real-time decisions in how to manage that content
    c. Understand the palatability of different grasses and nutrient content
    d. Precision supplementation to improve production
4. Adopting better management based on research
    a. Improve producer involvement
    b. Decision support tools

Table #3

1. Increase efficiency of forage and beef production
2. Adoption of what has been developed
    a. Effective extension
    b. Implementation assistance
    c. Peer groups networking
3. Production economics, business for optimum profit (do we need more animals?)
4. Stewardship of resources (e.g., control of invasive species)

Table #4

1. Benefits of staking of enterprises (forage crops, livestock, etc.); diversification of operation
2. Cash opportunities by incorporating/raising livestock
3. Information on addressing soil health concerns to allow farmers to improve their cropping system and incorporate livestock

Table #5

1. Tradition – don't want to change
2. Labor

3. Evaluation as a business
4. Diversity of operations
5. Transition in management, ownership
6. Effective use of technology
7. Product is a commodity
8. Infrastructure

Table #6

1. Economics of use of cover crops
2. Methods of grazing/supplementation
3. Nutrient management on range and pasture

Table #7

1. Sustainable production practices with consumer aspects
2. Integration of diversification on operations and research of systems
3. Adoption of research findings and technology

Table #8

- Opportunities to keep young people; transitioning
- Integration of crops-livestock
- Grass, pasture, and grazing management
- Telling the real story of beef production – quality product (animal welfare, rights)
- Research and extension
- Decision-support tool on integrated crops-livestock systems
- Availability and use of by-products
- Use of cover crops for grazing
- New forage options
- Policies, regulations, compliance issues, taxes
- Technology adoption
- Alternative enterprises
- Keeping land in ag production
- Maintaining access to markets, plants
- Government programs (CSP, EQIP)
- Water utilization

Table #9

1. Improve adaptation skills – adding enterprises
2. Better management of forage base including residues, cover crops, grazing management strategies, multiple-species grazing, grazing efficiency
3. Develop system to attract labor – pay, insurance, social connections to retain labor
4. Managing variability
    a. Managing means measuring

    b. Implications for plant and animal species due to climatic variability
5. Optimize cow size

<u>Integrated Crop-Livestock Systems:</u>

Table #1

1. Summer feed needs
    a. Cool-season pastures have a slump in performance during the heat of summer; utilizing annual forages or crop rotations to provide feed during this time
2. Using new technologies such as double-cropping forages into standing corn to increase forage production
3. Providing out-of-the-box options
    a. Eastern Nebraska operations can have a unique set of resources requiring unique and innovative plans to meet their needs.

Table #2

1. Knowledge and/or desire of incorporating cattle systems into predominantly farm operations
    a. Distance to cornstalks
    b. Finding someone who knows how to take care of cattle
    c. Making winter grazing of cornstalks worth their time and effort
    d. Winter weather risks and management options
2. Ways to increase the cow herd in Nebraska
    a. Type of animals
        i. Cow-calf or stocker
    b. Bailing or grazing of cornstalks
    c. Confined cow systems
3. Forage Systems
    a. Annual Forages
        i. Matching the best forage to the right animal
            1) Class of livestock
            2) Nutrition requirements
            3) Doesn't pay to feed high quality forage to an early gestation cow
            4) More animal production data on annual forages
    b. Perennial Forages
        i. Establishment in marginal lands
        ii. Grass variety selection for the most benefit
        iii. NRCS incentive programs that better fit the management of the livestock producer

Table #3

1. Beef systems using small pasture, crop residues, and annual forage crops
2. Economic driver as related to alternatives for resources; so we need to build drivers to increase growth of cattle in eastern Nebraska; there are gaps in knowledge and understanding

3. Adopt information of proven science and implementing based on the science; grazing removal and myths that are keeping research from being used
4. Know-how and infrastructure to accommodate livestock

Table #4

1. Define the thresholds between productivity and long-term sustainability (e.g., forage, financial/resources, reproduction efficiency, etc.)
2. More education on how to integrate forage crops in grazing systems
3. Labor management

Table #5

1. Reliable data for new production systems
2. Integration not top priority
3. More efficient use of existing forage and land
4. Winter labor
5. Infrastructure
6. Fear of crop sacrifice
7. Fragmentation
8. Convert cropland to forage production

Table #6

1. Water use
2. Risk management
3. People/transition (business); labor; opportunity for communication among agencies
4. Transport
5. Technology/tools/understanding

Table #7

1. Crop producers' misconceptions on crop residue utilization
2. Issues around drylotting cows (consumer understanding, DEQ, labor, weather)
3. Great producer (small beef producer) education
4. Testing ideas
5. Regional differences (water availability in fields, snowfall)

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Table #9

1. Inadequate summer forage
2. Need for greater time efficiencies due to cattle not being primary operation
    a. Reproduction efficiency
    b. Size prevents favorable economics
    c. Cows tie you down
3. Not reaching cattle producers with extension because it is a sideline business
    a. Loss of experience
    b. Loss of support structure (lenders)
    c. Lack of correct information
    d. Loss of infrastructure (fences and water)
    e. Livestock organization membership
4. Need to change calving away from farm workload