FIELD DAY

September 24, 2009
KSU Beef Stocker Unit
Manhattan, Kansas

Proceedings

Department of Animal Sciences and Industry
Kansas State University
Table of Contents

Table of Contents ..................................................................................... 1
Welcome and Thank You ............................................................................ 2
Program Agenda ....................................................................................... 3
Buying and Selling Right............................................................................. 5
   Dr. Kevin Dhuyvetter, Kansas State University
Thinking Outside the Shots ...................................................................... 17
   Dr. Dan Thomson, Kansas State University
Cattle Financing in a Tight Credit Market .................................................. 33
   Gary Cotterill, Community National Bank, Chanute, KS
Producing Value-Added Cattle .................................................................. 45
   Brian Bertelsen, US Premium Beef
Weed and Woody Plant Control for Pastures ......................................... 55
   Dr. Walt Fick, Kansas State University
Utilization of Byproducts on Pasture .......................................................... 59
   Dr. Lyle Lomas, Kansas State University
Welcome to the 10th anniversary of the KSU Beef Stocker Field Day. We appreciate your attendance and support of this educational event. We are fortunate to have assembled an outstanding list of presenters and topics that we believe are relevant to your bottom line.

As always, if you have any questions on the program or suggestions for future topics, please let us know. Our strength in delivering relevant information lies in working closely with you, our stakeholder.

Sincerely,

Dale A. Blasi, PhD
Extension Beef Specialist
Department of Animal Sciences and Industry
College of Agriculture

THANK YOU

We would like to express a special “THANK YOU” to Bayer Animal Health for their support of today’s educational program and activities for the beef stocker segment. With their financial assistance, we are able to deliver the caliber of programming that today’s events have in store for you. Please take a moment to stop by their display to see the line of products that they have to offer.
9:30 a.m.  Registration/Coffee

10:15 a.m.  Introductions

10:30 a.m.  **Buying and Selling Right**  
*Dr. Kevin Dhuyvetter, Kansas State University*

11:15 a.m.  **Panel: Partnering with Feedlots – Who Brings What to the Table?**
*Jerry Bohn, Pratt Feeders*  
*Dan Dorn, Decatur County Feed Yard*  
*Jim Reeves, JMR Cattle Company*

12:00 Noon  Barbecue Lunch

1:00 p.m.  **Thinking Outside the Shots**  
*Dr. Dan Thomson, Kansas State University*

1:45 p.m.  **Panel: Negotiating Custom Grazing Arrangements**
*Mike Collinge, Hamilton, Kansas*  
*Tim Miser, Cottonwood Falls, Kansas*  
*Alan Hess, Alma, Kansas*

2:30 - 5:00 p.m.  **Breakout Sessions**

**Cattle Financing in a Tight Credit Market**
*Gary Cotterill, Community National Bank, Chanute, KS*

**Producing Value-Added Cattle**
*Brian Bertelson, US Premium Beef*

**Weed and Woody Plant Control for Pastures**
*Dr. Walt Fick, Kansas State University*

**Utilization of Byproducts on Pasture**
*Dr. Lyle Lomas, Kansas State University*

5:00 p.m.  Cutting Bull’s Lament BBQ and 10th Anniversary Celebration
Buying and Selling Right

Dr. Kevin Dhuyvetter
Kansas State University

Buying and selling “right”...

What exactly does “right” mean?

- Buy low – sell high ⇒ make lots of money!
  (Of course this doesn’t work for everybody as some are buying from those selling)
- As a seller, know what your buyers are looking for and strive to deliver it to them.
- As a buyer, recognize how the various traits and characteristics are valued and buy what best fits your program (i.e., your comparative advantage).

What drives/determines feeder calf prices?

Price

Genetic Characteristics
- Sex
- Breed
- Color
- Maternal Traits

Management Characteristics
- Weight gains
- Health
- Condition

Marketing Characteristics
- Lot Size
- Weight Uniformity
- Fill
- Market Location

Market Conditions
- Feed costs
- Economic Conditions
- Current prices

Numerous studies examining factors impacting feeder cattle prices...

- Factors Affecting Feeder Cattle Price Differentials - Western Journal of Agricultural Economics 1986 (Schreuder, T.C., J.R. Minter, F.K. Beadle, D. Bennewitz)
- Buying and Selling Feeder Cattle: The Impact of Selected Characteristics on Feeder Cattle Prices - Kansas Cooperative Extension Service Publication 1996
  http://www.ksre.ksu.edu
- Improving the Value of Your Calf Crop: The Impact of Selected Characteristics on Calf Prices - Kansas Cooperative Extension Service Publication 1994
  http://www.ksre.ksu.edu
  www.agric.okstate.edu/research/k/2000/02/54.htm
- Factors affecting the selling price of feeder cattle sold at Arkansas livestock auctions in 2005 - Journal of Animal Science 2005 (Beemster, B.L. and T.R. Traul)
- Buyer Preferences for Feeder Calf Traits - Oklahoma Agr. Exp. Station Service Publication 2005
  http://www.agr.okstate.edu/services/2005/100/051005.pdf
Several other factors impact price...

<table>
<thead>
<tr>
<th>Feeder Cattle Trait</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Frame</td>
<td>0.174</td>
<td>-1.674</td>
<td>-3.124</td>
</tr>
<tr>
<td>Medium Frame</td>
<td>Base</td>
<td>Base</td>
<td>Base</td>
</tr>
<tr>
<td>Small Frame</td>
<td>-13.02</td>
<td>N/A</td>
<td>3.194</td>
</tr>
<tr>
<td>Abnormal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy Muscled</td>
<td>1.838</td>
<td>2.035</td>
<td>2.475</td>
</tr>
<tr>
<td>Moderately Muscled</td>
<td>Base</td>
<td>Base</td>
<td>Base</td>
</tr>
<tr>
<td>Thin Muscled</td>
<td>-11.391</td>
<td>-7.224</td>
<td>N/A</td>
</tr>
<tr>
<td>Condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thin Flesh</td>
<td>2.721</td>
<td>-2.419</td>
<td>3.234</td>
</tr>
<tr>
<td>Average Flesh</td>
<td>Base</td>
<td>Base</td>
<td>Base</td>
</tr>
<tr>
<td>Fat Flesh</td>
<td>-3.024</td>
<td>-3.227</td>
<td>1.625</td>
</tr>
<tr>
<td>Hair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy</td>
<td>Base</td>
<td>Base</td>
<td>Base</td>
</tr>
<tr>
<td>Not Healthy</td>
<td>-5.793</td>
<td>-12.115</td>
<td>-7.82</td>
</tr>
<tr>
<td>Uniformity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uniform Lot</td>
<td>Base</td>
<td>Base</td>
<td>Base</td>
</tr>
<tr>
<td>Uneven Lot</td>
<td>-1.248</td>
<td>-3.154</td>
<td>-3.174</td>
</tr>
</tbody>
</table>

Source: Oklahoma Quality Beef Network (OQBN) auction sales

Factors impacting price change over time...

<table>
<thead>
<tr>
<th>Premium of VAC 45 vs. Not Vaccinated or Certified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premium, $/ctn</td>
</tr>
<tr>
<td>2003: -7.51</td>
</tr>
<tr>
<td>2002: 5.43</td>
</tr>
<tr>
<td>2001: 4.48</td>
</tr>
<tr>
<td>2000: 0.98</td>
</tr>
<tr>
<td>1999: -1.68</td>
</tr>
<tr>
<td>1998: -1.20</td>
</tr>
<tr>
<td>1997: -0.67</td>
</tr>
<tr>
<td>1996: 0.00</td>
</tr>
<tr>
<td>1995: 0.29</td>
</tr>
</tbody>
</table>

Source: King and Weaver – Superior Livestock Video Auctions
Motivation for updating previous work...

- Current economic environment makes each decision critically important for cattle producers
- Increase knowledge of link between prices and genetic, management, and marketing decisions
- Price effects of feeder cattle characteristics change with time - producers are wary of relying upon dated information when making decisions
- Historical results have not been available in a "user friendly" format for decision-making

Objectives of study...

- Assist cattle producers in identifying key factors impacting calf and feeder cattle prices
- Aid in analyzing the economic impact genetic, management, and marketing decisions have for individual operations
- Identify how manageable factors impacting prices have changed over time
- Develop a tool producers can use to incorporate research results into their decision-making process

Where are prices being determined?

- Dodge City
- Joplin

Personnel involved in study:
- Kevin Dhuyvetter, AGEC
- Lee Schulz, AGEC
- Karl Harmath, AGC
- Justin Waggoner, AGI

- Weekly transactions level beef calf and feeder cattle data
- Data collected by trained evaluators
- Kansas and Missouri Auctions
- Nov-Dec 2008 and Mar-Apr 2009
- 22 separate sales (8,000+ lots)

Information collected on each lot...

- Location
- Date
- Order in sale
- Number in lot
- Price
- Weight
- Sex
- Breed/color
- Frame size
- Muscle
- Fill
- Condition
- Health
- Uniformity
- Horns

2009 K-State Stocker Field Day
Manhattan, KS
Analyzing feeder cattle prices...

- Statistical analysis (hedonic model) used to identify premiums and discounts associated with various characteristics for representative lots of cattle
  - 8,168 lots analyzed (ranging from 1 to 287 head)
- Results indicate cattle producers can improve the prices they receive for feeder cattle and calves by closely monitoring a number of genetic, management, and marketing practices prior to and on the sale date.

Discount on bulls – is it justified?

- Receiving trials at the KSU Stocker Unit looking at steers versus bulls (and other factors)
  - (33 lots; 3,380 head; 65% bulls; 2006, 2007, and 2008)
- Average starting weight = 458 lbs
- Average days of receiving period head = 44 days
- Impact of castrating on ADG = 0.35
  - (impact positively related to starting weight, but not statistically significant)
- Ending weight = 597 lbs (bulls)
  - 603 lbs (steers)
### Discount on bulls – is it justified?

<table>
<thead>
<tr>
<th></th>
<th>Bull</th>
<th>Sire</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning weight, lb/head</td>
<td>450</td>
<td>450</td>
<td>0</td>
</tr>
<tr>
<td>Days on feed</td>
<td>64</td>
<td>64</td>
<td>0</td>
</tr>
<tr>
<td>Average daily gains, lb/day</td>
<td>2.94</td>
<td>3.22</td>
<td>-0.28</td>
</tr>
<tr>
<td>Ending weight, lb/head</td>
<td>607</td>
<td>603</td>
<td>-15</td>
</tr>
<tr>
<td>Expected selling price, $/lb</td>
<td>103.42</td>
<td>102.27</td>
<td>1.15</td>
</tr>
<tr>
<td>Value of animal, $/head</td>
<td>$801.22</td>
<td>$816.33</td>
<td>-5.11</td>
</tr>
<tr>
<td>Feeding cost of bulls, $/head</td>
<td>982.20</td>
<td>795.00</td>
<td>187.20</td>
</tr>
<tr>
<td>Other cost, $/head</td>
<td>65.00</td>
<td>65.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Total cost of gain, $/head</td>
<td>1111.46</td>
<td>1096.39</td>
<td>15.07</td>
</tr>
<tr>
<td>Desired profit, $/head</td>
<td>$10.90</td>
<td>$10.90</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Breakeven purchase price, $/head 100.13 $98.70 -1.43

*Feeding cost of gain for bulls is based on ckg for steer (combination of $148 and $168)
<table>
<thead>
<tr>
<th></th>
<th>ERA</th>
<th>Shear</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning weight, lbf/head</td>
<td>450</td>
<td>450</td>
<td>0</td>
</tr>
<tr>
<td>Days on feed</td>
<td>90</td>
<td>90</td>
<td>0</td>
</tr>
<tr>
<td>Average daily gain, lbf/day</td>
<td>2.64</td>
<td>2.39</td>
<td>-0.25</td>
</tr>
<tr>
<td>Ending weight, lbf/head</td>
<td>975</td>
<td>754</td>
<td>-221</td>
</tr>
<tr>
<td>Expected selling price, lbf</td>
<td>$90.00</td>
<td>$95.07</td>
<td>5.07</td>
</tr>
<tr>
<td>Value of animals, lbf/head</td>
<td>$890.10</td>
<td>$710.70</td>
<td>-179.40</td>
</tr>
<tr>
<td>Feeding cost of gain, lbf/head</td>
<td>$78.72</td>
<td>$70.00</td>
<td>-8.72</td>
</tr>
<tr>
<td>Other cost, lbf/head</td>
<td>55.00</td>
<td>55.00</td>
<td>0</td>
</tr>
<tr>
<td>Total cost of gain, lbf/head</td>
<td>$327.67</td>
<td>$327.11</td>
<td>0.56</td>
</tr>
<tr>
<td>Desired profit, lbf/head</td>
<td>$10.00</td>
<td>$10.00</td>
<td>0</td>
</tr>
<tr>
<td>Break-even purchase price, lbf</td>
<td>$195.50</td>
<td>$195.56</td>
<td>0.06</td>
</tr>
</tbody>
</table>

* Feeding cost of gain for both is based on 90 for shear (20% of $90 and 60 lbf)
### Genetic Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% of Breed</th>
<th>Price Change (Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angus</td>
<td>21.6</td>
<td>3.50*</td>
</tr>
<tr>
<td>Hereford</td>
<td>1.6</td>
<td>Base</td>
</tr>
<tr>
<td>Angus/Hereford</td>
<td>6.6</td>
<td>2.73*</td>
</tr>
<tr>
<td>Other English</td>
<td>7.9</td>
<td>0.46*</td>
</tr>
<tr>
<td>Other breeds</td>
<td>50.8</td>
<td>1.76*</td>
</tr>
<tr>
<td>Longhorn</td>
<td>3.7</td>
<td>-10.40*</td>
</tr>
<tr>
<td>Brahman</td>
<td>3.0</td>
<td>-0.76*</td>
</tr>
<tr>
<td>Dairy</td>
<td>0.6</td>
<td>-12.32*</td>
</tr>
<tr>
<td>Mixed breed</td>
<td>7.2</td>
<td>-0.82*</td>
</tr>
<tr>
<td>Color</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>40.6</td>
<td>2.48*</td>
</tr>
<tr>
<td>Red</td>
<td>12.8</td>
<td>Base</td>
</tr>
<tr>
<td>White</td>
<td>40.2</td>
<td>1.01*</td>
</tr>
<tr>
<td>Mixed color</td>
<td>5.2</td>
<td>3.00*</td>
</tr>
</tbody>
</table>

*Indicates statistical significance at 1% level

### Management Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% of Breed</th>
<th>Price Change (Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy</td>
<td>99.7</td>
<td>Base</td>
</tr>
<tr>
<td>Non-healthy</td>
<td>0.3</td>
<td>-5.21*</td>
</tr>
<tr>
<td>Hams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Hams</td>
<td>90.0</td>
<td>Base</td>
</tr>
<tr>
<td>Mixed hams</td>
<td>7.0</td>
<td>-0.76*</td>
</tr>
<tr>
<td>Hams</td>
<td>1.4</td>
<td>-1.16*</td>
</tr>
<tr>
<td>Condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very thin</td>
<td>0.1</td>
<td>-10.09*</td>
</tr>
<tr>
<td>Thin</td>
<td>16.3</td>
<td>-1.23*</td>
</tr>
<tr>
<td>Medium</td>
<td>77.0</td>
<td>Base</td>
</tr>
<tr>
<td>Fat</td>
<td>6.6</td>
<td>-2.96*</td>
</tr>
<tr>
<td>Wort</td>
<td>0.9</td>
<td>-4.87*</td>
</tr>
</tbody>
</table>

*Indicates statistical significance at 1% level

### Marketing Characteristics

![Graph showing the effect of lot size on price.](image_url)

- **Effect of Lot Size on Price**

  - Graph shows diminishing returns to increasing lot size.
  - Think about trade-offs between lot size and lot uniformity.

  - Graph indicates:
    - Lot size: 0 - 20
    - Lot size: 20 - 50
    - Lot size: 50 - 80
    - Lot size: 80 - 120
    - Lot size: 120 - 160

  - Price change: -0.54`
  - Price change: -0.54`
  - Price change: -0.54`
  - Price change: -0.54`
  - Price change: -0.54`
Marketing Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% of Pen</th>
<th>Price Change (wave)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight Uniformity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uniform lot</td>
<td>96.6</td>
<td>Boss</td>
</tr>
<tr>
<td>Non-uniform lot</td>
<td>1.2</td>
<td>-2.11*</td>
</tr>
<tr>
<td>FIV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very good</td>
<td>0.1</td>
<td>-3.60</td>
</tr>
<tr>
<td>Good</td>
<td>5.6</td>
<td>-4.99*</td>
</tr>
<tr>
<td>Average FIV</td>
<td>62.6</td>
<td>Boss</td>
</tr>
<tr>
<td>Full</td>
<td>30.8</td>
<td>-0.72*</td>
</tr>
<tr>
<td>Very full</td>
<td>0.2</td>
<td>-4.02*</td>
</tr>
<tr>
<td>Time of Sale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st quarter</td>
<td>34.7</td>
<td>Boss</td>
</tr>
<tr>
<td>2nd quarter</td>
<td>34.9</td>
<td>1.00*</td>
</tr>
<tr>
<td>3rd quarter</td>
<td>35.5</td>
<td>3.87</td>
</tr>
<tr>
<td>4th quarter</td>
<td>35.4</td>
<td>9.67</td>
</tr>
</tbody>
</table>

* indicates statistical significance at 2% level

What do premiums/discounts indicate...

- Lot size and uniformity are very important
- Breedcolor impact price
- Time of sale important (probably hard to manage)
- Dehorn and castrate early
- Market healthy cattle
- Stay away from extremes (frame, condition, fill)

Application of this information to your own operation

Decision tool developed
- K-State Feeder Cattle Price Analyzer.xls
  - Available on www.agmanager.info
  - www.agmanager.info/feeder_cattle/prices/feeder_cattle_price_analyzer.xls
- Excel spreadsheet developed to help producers identify how genetic, management, and marketing decisions can affect prices and net returns of representative lots of cattle and calves
  - Model predicted price calculated as a function of user identified characteristics
  - Partial budget capable of analyzing management decisions
Impact that sorting cattle into smaller (-) or more uniform (+) groups has on price...

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Row 1</th>
<th>Row 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color (predominant)</td>
<td>Red</td>
<td>Black</td>
</tr>
<tr>
<td>Weight (lbs)</td>
<td>500</td>
<td>600</td>
</tr>
<tr>
<td>Age (months)</td>
<td>12</td>
<td>18</td>
</tr>
</tbody>
</table>

Partial budget to look at net returns of making a change that affects price...

- Net returns are impacted by the amount and other numbers are calculated values.

Impact that a 45-day preconditioning has on price/return...

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Row 1</th>
<th>Row 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color (predominant)</td>
<td>Red</td>
<td>Black</td>
</tr>
<tr>
<td>Weight (lbs)</td>
<td>500</td>
<td>600</td>
</tr>
<tr>
<td>Age (months)</td>
<td>12</td>
<td>18</td>
</tr>
</tbody>
</table>
Impact that a 45-day preconditioning has on price/returns...

Future work...

• Collect more data (more locations and sales)
• Validate results where/when possible
• Provide the most up to date pricing information
• Update and revise tool with new research results and user feedback

Presentation is also posted on

www.agmanager.info –
Click on Contributors and then on Dr. Kevin Dhuyvetter
Evidence based approach to starting calves on feed.

D.U. Thomson, Ph.D., D.V.M.
Kansas State University
College of Veterinary Medicine

Translation: Big Freakin’ Wreck
Mortalities by cause.

What is the first question during high mortality episodes?

- Morbidity problem
- Case fatality problem – the drug quit working
- $\text{CFR} = \frac{\text{number treated that died}}{\text{total number treated}}$
Scenario

- A producer had 1% death loss last year and this year he had a 5% death loss. He wants to change drugs or veterinarians.
- Last year we pulled 10% of the population
- This year we pulled 50% of the population
- Last year CFR = 10%
- This year CFR = 10%

Scenario

- The drug worked the same this year as it did last year. Our problem is morbidity.
  - Source
  - Viral antigens
  - Weather
  - People
  - Prior nutrition
  - Transportation
  - Evenness of cattle

Feedlot consultant survey

- Completed Summer 2009
- Invited 23 feedlot consultants to participate
- These veterinarians supply consultation for 11,295,001 hd of feeder cattle annually
- Average 491,087 hd per practitioner
Factors affecting morbidity rates in newly arrived calves

Effects of initial weight on death loss of feeder cattle.

Pathognomonic

“Characteristic or indicative of a disease, denoting especially one or more typical symptoms, findings, or pattern of abnormalities specific for a given disease and not found in any other condition”

Stedman’s Medical Dictionary, 1995
One Order Buyer = 32 Sale Barns

74TF

1234
Adding on pens
- More large pens being built or were built?
- Increased number of add ons?
- How many days to build a pen?

Transportation
- Common place to haul cattle over 8 hours
- Air circulation in trailers
- Metal tops
- Smoke stacks

Weather and receiving pens?
- Water and a place to lay down.
Cattle flow

- The more new high risk cattle you have at a facility, the higher risk your low risk cattle become.
- Facilities and people
- Overwhelming the system
- Cattle market dictates cattle type and flow

Transitional diseases of beef industry

Which one is diseased?

Processing is not a timed event!
Metaphylaxis and feed grade antibiotics

- Best tool to control BRD

Questions
- Cattle Type
- Timing
- Combination of both

Vaccine recommendations by 23 consulting feedyard veterinarians

<table>
<thead>
<tr>
<th></th>
<th>High risk calves</th>
<th>Low risk calves</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBR</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>BVD Type 1</td>
<td>100%</td>
<td>95.6%</td>
</tr>
<tr>
<td>BVD Type 2</td>
<td>100%</td>
<td>95.6%</td>
</tr>
<tr>
<td>BRSV</td>
<td>65.2%</td>
<td>52.2%</td>
</tr>
<tr>
<td>PI3</td>
<td>60.9%</td>
<td>52.2%</td>
</tr>
<tr>
<td>Histophilus</td>
<td>21.7%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Moraxella bovis</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Mycoplasma bovis</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Leptospira</td>
<td>4.2%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Clostridium</td>
<td>60.9%</td>
<td>56.6%</td>
</tr>
<tr>
<td>Mannheimia</td>
<td>73.9%</td>
<td>0%</td>
</tr>
<tr>
<td>Pasteurella</td>
<td>34.8%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Terrell, Thomson et al. 2009

Current research on Mycoplasma diagnosis and vaccine efficacy
It’s gonna be a wreck when.....

Effects of intact males on arrival

- Bulls have 140% higher morbidity rates than steers
- Bulls have 142% higher mortality rates than steers
- Bulls have 163% higher railer rates than steers

Renfro et al., 2004
Castration trials

- Method
  - Banding vs. knife cut
  - Prefer knife cut
  - Lidocaine vs. no lidocaine

- Timing
  - Arrival - best
  - Delayed 2 weeks – too many in hospital
  - Delayed to 1st reimplant - staggy

When and Why did the animal die?

Case Fatality Rate

Problem

“WHICH WAY DID HE GO?”
Three lung score categories

- None
  - No visible lung lesions

- Moderate
  - Visible lung lesions
    - Scars, fibrin tags, consolidation, etc.

- Severe
  - Lung missing due to severe adhesions

1,690 head Northern calves
In yr = 553

Lung scores of cattle pulled for respiratory disease

- 26% of the cattle on the trial were pulled for respiratory disease

- 62% of the cattle that were pulled for respiratory disease had lung lesions

- Characteristics of lung lesions
  - 57% of the lung lesions were moderate
  - 43% of the lung lesions were severe

Lung scores of cattle not pulled for respiratory disease

- 74% of the cattle were never pulled for respiratory disease

- 43% of the cattle not pulled for respiratory disease had lung lesions

- Characteristics of the lung lesions
  - 67% of these lung lesions were moderate
  - 33% of these lung lesions were severe
Areas of concern

- We treated 87 head of cattle that never had lung lesions
  - Baytril is $2.65/cwt ($15.90/dose on 600 lb. calf)
  - We spent $1,383.30 on cattle that weren't sick

- We didn't treat 527 head of cattle that had lung lesions
- We didn't treat 172 head of cattle with severe lung lesions

What did the lung lesions cost us?

<table>
<thead>
<tr>
<th>Item</th>
<th>None</th>
<th>Moderate</th>
<th>Severe</th>
<th>SEM</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial wt, lb.</td>
<td>553</td>
<td>552</td>
<td>552</td>
<td>4.7</td>
<td>.80</td>
</tr>
<tr>
<td>Reimplant, lb.</td>
<td>888</td>
<td>875</td>
<td>845</td>
<td>8.5</td>
<td>.01</td>
</tr>
<tr>
<td>Final wt, lb.</td>
<td>1333</td>
<td>1321</td>
<td>1280</td>
<td>12.8</td>
<td>.01</td>
</tr>
<tr>
<td>Carcass</td>
<td>863</td>
<td>855</td>
<td>829</td>
<td>8.5</td>
<td>.01</td>
</tr>
<tr>
<td>QG</td>
<td>8.4</td>
<td>8.3</td>
<td>8.3</td>
<td>.12</td>
<td>.42</td>
</tr>
<tr>
<td>YG</td>
<td>3.7</td>
<td>3.6</td>
<td>3.4</td>
<td>.10</td>
<td>.01</td>
</tr>
</tbody>
</table>

Therapy thoughts

- Don’t use multiple day therapies - CFR
  - Which would you pick?

- Most drugs are labeled for 48 to 72 hrs some longer

- As we increase treatments, we increase risk of death

- Average number of days to retreatment
Ancillary therapy

- Banamine
- B vitamins
- Vitamin C
- Dexamethasone
- Recover
- IBR vaccine
- Probiotics
- AVC closed door on Friday – no evidence for any.

Retreatment and death loss rates in calves treated for BRD with or without flunixin meglumine.

Linsenmeyer, Thomson, et al., 2009

Which ancillary therapies do the consulting veterinarians recommend?

Terrell, Thomson et al. 2009
I gave him $2000 worth of medicine and he still died!!!!!

Terminology for clinical data and BRD

- **Fatal Disease Onset (FDO)**
  - The day of first treatment of case that subsequently died or day of death if never treated.
- **Treatment Death Interval (TDI)**
  - Time interval in days between day of first treatment and death
- **Day of Death in Feedyard (DOD)**
  - Days after arrival to death

Fulton, 2003

Clinical data and treatment for BRD cases

<table>
<thead>
<tr>
<th>Case or agent</th>
<th>FDO, d</th>
<th>TDI, d</th>
<th>DOD, d</th>
</tr>
</thead>
<tbody>
<tr>
<td>All BRD</td>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>Fibrinous pneumonia</td>
<td>28</td>
<td>29</td>
<td>57</td>
</tr>
<tr>
<td>M. haemolytica</td>
<td>16</td>
<td>24</td>
<td>40</td>
</tr>
<tr>
<td>P. Multocida</td>
<td>24</td>
<td>38</td>
<td>62</td>
</tr>
<tr>
<td>Mycoplasma</td>
<td>26</td>
<td>26</td>
<td>55</td>
</tr>
</tbody>
</table>

Fulton, 2003
What's most the important factor for predicting feedlot morbidity or mortality

<table>
<thead>
<tr>
<th>Mean</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle health risk</td>
<td>1.32</td>
</tr>
<tr>
<td>Weather patterns</td>
<td>3.18</td>
</tr>
<tr>
<td>Amount and quality of labor</td>
<td>3.41</td>
</tr>
<tr>
<td>Receiving nutrition program</td>
<td>3.86</td>
</tr>
<tr>
<td>Class of antibiotic use for metaphylaxis</td>
<td>4.36</td>
</tr>
<tr>
<td>Class of Antibiotic use of treatment</td>
<td>5.64</td>
</tr>
<tr>
<td>Brand of Vaccine</td>
<td>6.23</td>
</tr>
</tbody>
</table>

Terrell, Thomson et al. 2009

Preconditioning and backgrounding is more than a marketing tool!

- Preconditioning for the feedyard
- Premium or deductions
- Animal Welfare in Europe
- Would you send an eighth grader to college?
- Do you vaccinate kindergartners on the first day of school?

THANKS!!!!!!!
As Bankers, we try and look at each request in an analytical, unbiased and economic manner to allow us to provide good underwriting for each request.

We refer to the 5 C’s of lending:

1. Character
2. Capacity
3. Collateral
4. Capital
5. Condition
With the aforementioned in mind, we can then move forward with our review of the customer needs, such as:

1. What are your buying methods?
   - Several sources vs age source verified

2. What are your production plans?
   - Short season vs Full Season
   - What is your Veterinary protocol?
   - Do you rely on your Veterinary for their expertise?

3. What are your marketing plans?
   - Sell @ the ranch, sale, etc.
   - Who are you marketing thru?
4. Risk protection

- Forward contract
- Futures
- Futures option

Can you afford to be without some form of risk protection?

Know your Breakeven and react accordingly.

Use a KSU enterprise analysis or some format to identify Breakeven.

Know your cost of gain.
Place emphasis on working capital to weather a storm.

What are your Bio security plans?

What are your physical security plans?
**Tax Returns**

1. Trends?

2. D.S.C. Debt Service Coverage? Global

3. D.S.C. 1.15 or better.

---

**Debt Service Coverage**

Having debt service coverage @ 1.30 allows for funding or partial funding of capital items and faster equity growth. The larger the total borrowing the greater the DSC should be.

\[
\text{D.S.C.} = \text{Adjusted Gross Income} + \text{Depreciation Expense} + \text{Interest Expense} - \text{Family Living Expense} = \text{Available for debt service}
\]

**IE**

\[
\begin{align*}
85,000 & \quad \text{A.G.I.} \\
+ 50,000 & \quad \text{Depreciation} \\
+ 24,000 & \quad \text{Interest Expense} \\
= 159,000 & \quad \text{Sub Total} \\
- 40,000 & \quad \text{Family Living} \\
119,000 & \quad \text{Available for debt service} \\
- 91,538 & \quad \text{Scheduled P/I includes c/c, etc} \\
27,462 & \quad = \text{DSC 1.30} \\
DSC @ 1.15 \text{ minimum}
\end{align*}
\]

*In this example maximum P/I would be 103,478 @ 1.15 DSC*
**Balance Sheet**
1. Debt leverage
2. Working Capital & Current ratio
3. Debt structure
4. Liquidity
   * Current Ratio = CA divided by CL
   * IE 185,000 divided by 133,000 = 1.33:1
   * Working Capital = CA - CL
   * IE 185,000 - 133,000 = 52,000
5. Consider diversification of your assets to include non ag.

**Solvency Issues**
Debt / Asset Ratio = Total Farm Liabilities
Total Farm Assets
IE 317,000 divided by 772,000 = 0.4106
(41.06%)
Higher the ratio the greater the risk

**Solvency Issues**
Equity / Asset Ratio = Total Farm Equity
Total Farm Assets
IE 455,000 divided by 772,000 = 0.5893
(58.93%)
The higher the ratio the better (more capital supplied by owner and less by creditors.)
**Solvency Issues**

Debt/Equity Ratio = \[
\frac{\text{Total Farm Liabilities}}{\text{Total Farm Equity}}
\]

IE 317,000 divided by 455,000 = 0.6967

(69.67%)

The lower the percentage the better

**Solvency Issues**

*Loan to Value or L.T.V. on stockers*

75% or less (25%) owner equity

Owner can provide additional collateral to margin the 25%

**Financial Efficiency Ratios**

Operating Expense Ratio =

\[
\frac{\text{Total Operating Expense} - \text{Depreciation Expense}}{\text{Value of Farm Production}}
\]

IE 138,000 divided by 216,000 = 0.6388

(63.88%)

The lower the percentage the better
*Financial Efficiency Ratios

Depreciation Expense Ratio =
\[
\frac{\text{Depreciation Expense}}{\text{Value of Farm Production}}
\]

IE 20,000 divided by 216,000 = 0.9259 (9.25%)

Look at repairs vs depreciation

*Financial Efficiency Ratios

Interest Expense Ratio =
\[
\frac{\text{Interest Expense}}{\text{Value of Farm Production}}
\]

IE 16,000 divided by 216,000 = .0740 (7.4%)

*Financial Efficiency Ratios

Total Expense Ratio =
\[
\frac{\text{Total Farm Expense}}{\text{Value of Farm Production}}
\]

IE 174,000 divided by 216,000 = .08055 (80.55%)

The lower % the better
What are financial ratios used for:

- Evaluate the condition of a business as a unit and it's risk bearing ability
- Single ratios can be misleading
  - IE Younger operators can have larger interest expense ratios
- However the younger operator may show a more desirable return to equity because of their lower equity base.
- Individual ratios help lenders identify the strength and weakness of a business
- Also ratios will tell us the indication of progress in a business

Summary:

- Inspections on Stockers once each six months

Summary:

- Branding is very helpful for ID perfection
Summary:
- Banks are extremely reluctant to do “split” lending in Livestock Portfolio.

Summary:
- Multiple lenders with the same borrower are opposed to lending on similar collateral.
- Purchase money interest and senior perfection is the preferred method.
- Multiple lenders with same entity can present a challenge for lenders.
- Bottom line is: If you are going to use multiple lenders:
  - Use one for RE
  - Use one for L/S
  - Use one for Machinery

Summary:
- What about operating line?
  - Collateral to one of the previous
Summary:

- Excess loan value in a line with a borrower to be monitored for guidance line purposes

- Look for a lender you are comfortable with. IE same as your Doctor
- Look for a Bank large enough to handle your total needs. What is their lending limit?
- Be sure of Structure
  - IE stockers 1 yr
  - Cows 5-7 yr dependent on age
  - RLOC - should -0- out during the term of the loan
  - time P/I to come due 15-30 days after anticipated sales

- Incorporate risk management into all phases of your business
  - Futures
  - Future Options
  - Forward Contract
  - Life insurance coverage - Consider naming lenders as assignee as their interest may appear.
Management succession in place?
Provide tax return & financial statement in a timely manner
Consider diversification of your assets
Know your credit score
What would a 2% rate increase do to your cash flow? Rate shock?

Pricing of Cattle Money based on:
• Compensating balances
• Net worth of borrower
• Length of rate lock
• Margin in cattle vs total line
• Collateral condition, type & quality

THANK YOU
Producing Value-Added Cattle

Brian Bertelsen
Director of Field Operations
866-877-2525
www.uspremiumbeef.com

What is VALUE?

It is having:
the right product at
the right time in
the right place in
the right quantity at
the right price.

It’s demand relative to supply at a given moment.
Adding & Capturing Value

• What is value?
  – Is it already there?
  – Do you need to add it?
• Is there a demand?
• What is the risk?
• Move closer to the consumer
• What is the market value for the next user?

What has VALUE?

• Grid value
• General (commodity) value
  – Volume
  – Location
• Both
  – Health, Growth, Efficiency
  – Certified Attributes
  – Genetics (reputation)

USPB Average Total Grid Premium

<table>
<thead>
<tr>
<th>Year</th>
<th>Dollars Per Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>F98</td>
<td>$5</td>
</tr>
<tr>
<td>F99</td>
<td>$10</td>
</tr>
<tr>
<td>F00</td>
<td>$15</td>
</tr>
<tr>
<td>F01</td>
<td>$20</td>
</tr>
<tr>
<td>F02</td>
<td>$25</td>
</tr>
<tr>
<td>F03</td>
<td>$30</td>
</tr>
<tr>
<td>F04</td>
<td>$35</td>
</tr>
<tr>
<td>F05</td>
<td>$27.42</td>
</tr>
<tr>
<td>F06</td>
<td>$31.85</td>
</tr>
<tr>
<td>F07</td>
<td>$31.85</td>
</tr>
<tr>
<td>F08</td>
<td>$31.85</td>
</tr>
<tr>
<td>F09</td>
<td>$31.85</td>
</tr>
</tbody>
</table>

KS plants only
Factors Affecting Premiums

- Quality Grade
- Carcass Yield (Dressing %)
- Yield Grade
- Out-Weights
- Special Programs
- Uniformity

Where Premiums Come From

<table>
<thead>
<tr>
<th>Premiums</th>
<th>Grid only subtotal = $23.92/head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Grade</td>
</tr>
<tr>
<td>Yield or</td>
<td>Dress%</td>
</tr>
<tr>
<td>Grade</td>
<td>Out Weight</td>
</tr>
<tr>
<td>Gender</td>
<td>Age &amp; Source</td>
</tr>
<tr>
<td>Natural</td>
<td></td>
</tr>
</tbody>
</table>

The U.S. Premium Beef Grid

High Marbling
Big bullseye
Marbling ‘Pathway’

Caloric intake and Growth

What has Grid VALUE?

1. Marbling (creating premium)
   a. The marbling ‘pathway’ of calories
   b. Many factors
2. Preventing/limiting discounts
   a. Out weights
      i. Placement weight
      ii. Steer/Heifer
   b. Uniformity
      i. Outliers
      ii. Outcome groups
      iii. Yield Grade (body composition)
3. Verification (rewards)
Relationship between Marbling, Maturity and Quality Grade

<table>
<thead>
<tr>
<th>Maturity</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marbling</td>
<td>Abundant</td>
<td>Abundant</td>
<td>Moderately Abundant</td>
<td>Prime</td>
<td>Moderately Abundant</td>
</tr>
<tr>
<td>Weight</td>
<td>Slightly Abundant</td>
<td>Commercial</td>
<td>Secondary Choice</td>
<td>Small</td>
<td>Moderate</td>
</tr>
<tr>
<td>Health</td>
<td>Small</td>
<td>Slight</td>
<td>Moderate</td>
<td>Select</td>
<td>Select</td>
</tr>
<tr>
<td>Vaccinate, Minerals, Vitamins, Nutrients</td>
<td>Traces</td>
<td>Standard</td>
<td>Practically Devoid</td>
<td>Practically Devoid</td>
<td>Practically Devoid</td>
</tr>
</tbody>
</table>

Marbling Factors - 1

- Genetic Potential
  - Heritability = 0.29 – 0.45
    - Minick, ISU, 2001; MacNeil, 2008 JAS 86:2518
- Lifetime management (lifetime achievement)
  - Maintain health (healthy immune system)
    - Vaccinate, minerals, vitamins, nutrients
  - Reduce stress
    - Weaning, castration, dehorning
    - Environmental
    - Low stress animal handling & transportation
    - Deworming
Marbling Factors - 2

• Lifetime management
  – Manage calories (marbling ‘pathway’)
    • Nutrition (calories)
    • Don’t graze too long / manage placement weight
    • Supplement when needed (added grid premium?)
    • Implant carefully
      – Potential carryover effects
      – Relative to nutrition
  – Vitamins
    • Sunlight (vit. D) - seasonal effects
    • Lush forage (vit. A) - wheat pasture ?

Marbling Factors - 3

• Lifetime management
  – Feedstuffs
    • Corn (high starch) or by-products (low starch)
    • Marbling ‘pathway’
    • Fat cell proliferation at young age (mask genetics)
  – Age: Calves vs. Yearlings
    – Cattle do NOT have to be old to marble.
    – Marbling ‘pathway’
      • Total days of excess calories to store as Mb.
      – Must compare at equal body composition

Marbling Rewards

<table>
<thead>
<tr>
<th></th>
<th>$/cwt (HCW)*</th>
<th>$/head**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice/Select spread</td>
<td>$7.49</td>
<td>$29.96</td>
</tr>
<tr>
<td>Prime</td>
<td>$17.91</td>
<td>$73.24</td>
</tr>
<tr>
<td>Certified Angus Beef (CAB)</td>
<td>$3.34</td>
<td>$56.68</td>
</tr>
<tr>
<td>Black Canyon Prem. Res.</td>
<td>$1.84</td>
<td>$44.68</td>
</tr>
</tbody>
</table>

* Actual USPB grid input values for delivery week ending 9/19/09
** Assumes 800 lb carcass; Choice reward is compares a Choice carcass to base price of 50% Choice; Prime, CAB & BCPR values are additive to the Choice reward

** Assumes 800 lb carcass; Choice reward is compares a Choice carcass to base price of 50% Choice; Prime, CAB & BCPR values are additive to the Choice reward.
### Feedlot Placement Weight

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>HEIFER LOTS</th>
<th>STEER LOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>7 wt 8 wt 9 wt</td>
<td>7 wt 8 wt 9 wt</td>
</tr>
<tr>
<td>Out Wt, lb.</td>
<td>1224 1301 1344</td>
<td>1323 1358 1396</td>
</tr>
<tr>
<td>HCW</td>
<td>783 831 859</td>
<td>847 870 894</td>
</tr>
<tr>
<td>Yield, %</td>
<td>63.94 63.91 63.88</td>
<td>64.03 64.02 64.06</td>
</tr>
<tr>
<td>CH &amp; PR</td>
<td>70.61 75.98 81.59</td>
<td>65.19 68.25 66.01</td>
</tr>
<tr>
<td>Hardbone</td>
<td>0.38 0.61 1.17</td>
<td>0.12 0.10 0.10</td>
</tr>
<tr>
<td>Over 30</td>
<td>1.12 1.50 3.28</td>
<td>0.95 0.99 0.70</td>
</tr>
<tr>
<td>YG 4&amp;5</td>
<td>8.93 14.45 20.09</td>
<td>7.74 8.81 9.27</td>
</tr>
<tr>
<td>Avg YG</td>
<td>2.50 2.67 2.84</td>
<td>2.48 2.55 2.57</td>
</tr>
<tr>
<td>Heavy</td>
<td>0.54 2.58 4.76</td>
<td>3.80 5.22 7.59</td>
</tr>
<tr>
<td>Out Wt, $/hd</td>
<td>$-1.15 $-3.62 $-6.67</td>
<td>$-5.29 $-7.19 $-10.52</td>
</tr>
<tr>
<td>Subtotal, $/hd</td>
<td>$22.96 $24.35 $17.00</td>
<td>$23.52 $24.18 $20.52</td>
</tr>
</tbody>
</table>

---

### Age & Source Verification

- **Premiums in the marketplace**
  - $35 per head, fed cattle – USPB
  - Large differences between packers
  - $1.50 per cwt on calves – Superior Video
  - Consecutively at $35 for 18 months
  - Commitment through May, 2010

- **Future Demand**
  - Traceback (source verification)
  - When will the border open wider?
Examples of Program Compliant Tags

Visit www.uspremiumbeef.com for valuable fact sheets

Our Requirements

- Under 21 months at harvest
- Approved at ‘Ranch level’
- Delivered from approved feedlot supplier
- A visual ear tag is mandatory
- L300 shipping document

Specific delivery times
EID is NOT mandatory

Certification / Verification

- Age & Source – Japan (also state of origin)
- Breed
- Natural (variable degrees)
- NHTC (non hormone treated cattle) - Europe
- Preconditioned
- Humanely raised
- Management practices
- PI – BVD tested
- DNA tested
General Cattle Type Differences

ENGLISH
- higher marbling (QG)
- less YG 1’s & 2’s
- more YG 4’s
- less heavyweights
- lower yield

EXOTIC
- lower marbling (QG)
- more YG 1’s & 2’s
- less YG 4’s
- more heavyweights
- higher yield

What are you going to produce?

- Commodity beef
- Value added beef
  - Branded beef label
  - Natural
  - Age & Source Verified
  - Marbling
Where do you fit in?

- What do you produce?
  - Strengths, weaknesses, attributes
- Know what you have
- Survey options
- Create & cultivate relationships
- Learn what has value
- Re-evaluate

Challenges & Opportunities

Life is full of challenges. Some people choose to call them opportunities.

- They both come from outside your operation
Weed and Woody Plant Control for Pastures

Weed and Woody Plant Control for Pastures

A common perception is that plants not grazed by livestock are weeds. Many of these so-called weeds are usually broadleaf plants more properly referred to as forbs. Weeds are plants growing out of place and may be forbs or grasses. Annual weeds of concern include Japanese brome, prairie threeawn, and broomweed. Perennial weeds include Baldwin ironweed, western ragweed, and goldenrods. A couple of noxious weeds that are problems on rangeland and pasture are musk thistle and sericea lespedeza. Woody vegetation considered undesirable for planned use of an area can be referred to as brush. These woody plants include shrubs such as buckbrush, smooth sumac, and roughleaf dogwood. Trees such as eastern redcedar, osageorange (hedge), and common honeylocust can become problems on grazing land.

Woody plants are not always undesirable as they do provide shade, winter protection, and cover. Cattle and sheep do eat some browse but deer and goats consume a larger percentage of their diet as browse. Livestock seek out shade during hot days during the summer. Properly located, trees can help distribute animals to underutilized areas of a pasture. Trees located near water often cause animals to loaf in these areas and may contribute to decreased water quality. Shelterbelts can be useful for winter protection and provide important habitat for many wildlife species. Although cattle are primarily grass eaters they do consume a significant amount of forbs in their diet at certain times of the year.

Reduction of fire frequency contributes to invasion by woody plants in many grasslands. Shrubs and trees will invade sites with deeper soils and more moisture first. Thus, lowlands and slopes are invaded before the uplands with shallow or claypan soils. Other factors influencing the invasion of woody plants include climatic fluctuations and seed transport by animals, wind, and water. Some unpalatable broadleaf species will invade grasslands due to overgrazing, but many of these species are opportunistic and respond more to weather patterns.
Factors Affecting Brush/Weed Control

• life cycle of plant
• stage of growth
• density and cover
• weather

Methods of Control

• grazing management
• prescribed burning
• mechanical
• chemical
• biological

Benefits of Brush/Weed Control

• increased forage production/availability
• easier livestock handling
• wildlife habitat manipulation
• increased water yields from watersheds
• clear area for other practices such as seeding
• reduction in fuel associated with damage from wildfires

Summary

Proper grazing management and prescribed burning will keep most invasive plant species from becoming a problem. Scattered individuals of shrubs and trees are not likely to be an economic detriment to forage production and livestock grazing. The time to control unwanted woody and herbaceous plants that are known to be invasive is when they first show up. Broadcast application of herbicides for control of broadleaf weed control is rarely recommended unless grazing distribution is affected. Integrated control using mechanical, biological, chemical, and/or prescribed burning methods will be the most effective approach to managing woody plant populations. It is important to analyze why these species invade rather than just treating the symptom of a problem.
Defoliation of buckbrush, Baldwin ironweed, and western ragweed 3 months post treatment.

<table>
<thead>
<tr>
<th>Herbicide^1</th>
<th>Rate/acre</th>
<th>Buckbrush</th>
<th>Ironweed</th>
<th>Ragweed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D ester</td>
<td>4 pt</td>
<td>72</td>
<td>100</td>
<td>95</td>
</tr>
<tr>
<td>Cimarron Plus</td>
<td>0.5 oz</td>
<td>60</td>
<td>42</td>
<td>5</td>
</tr>
<tr>
<td>Chaparral</td>
<td>2 oz</td>
<td>36</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>Chaparral</td>
<td>3 oz</td>
<td>55</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Chaparral + 2,4-D ester</td>
<td>2 oz + 2 pt</td>
<td>66</td>
<td>98</td>
<td>98</td>
</tr>
<tr>
<td>Untreated</td>
<td>--</td>
<td>1</td>
<td>9</td>
<td>0</td>
</tr>
</tbody>
</table>

^1 Herbicides applied June 8, 2009

<table>
<thead>
<tr>
<th>Weed/Brush Species</th>
<th>Labeled herbicides</th>
<th>Example Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baldwin ironweed</td>
<td>e, f, g, h, k</td>
<td>Grazon P+D @ 2 pt/acre</td>
</tr>
<tr>
<td>Goldenrod</td>
<td>a, b, c, d, e, f, h, i</td>
<td>Cimarron Max (0.5 oz + 2 pt/acre)</td>
</tr>
<tr>
<td>Western ragweed</td>
<td>a, e, f, g, h, k</td>
<td>2,4-D LVE @ 3 pt/acre</td>
</tr>
<tr>
<td>Musk thistle</td>
<td>a, b, c, d, e, f, g, h</td>
<td>Milestone @ 3 fl oz/acre</td>
</tr>
<tr>
<td>Sericea lespedeza</td>
<td>b, c, d, i, j, k</td>
<td>Escort XP @ 0.5 oz/acre</td>
</tr>
<tr>
<td>Buckbrush</td>
<td>a, b, d, l</td>
<td>2,4-D LVE @ 4 pt/acre</td>
</tr>
<tr>
<td>Roughleaf dogwood</td>
<td>e, i, k, l</td>
<td>Surmount @ 0.5%</td>
</tr>
<tr>
<td>Smooth sumac</td>
<td>a, e, f, i, j, k, l</td>
<td>2,4-D @ 2-3 pt/acre</td>
</tr>
<tr>
<td>Honeylocust</td>
<td>f, g, i, j, k</td>
<td>Surmount @ 3-4 pt/acre</td>
</tr>
<tr>
<td>Osage orange (hedge)</td>
<td>b, i, j, k</td>
<td>5% Remedy Ultra in diesel (basal)</td>
</tr>
</tbody>
</table>

Herbicides

a. 2,4-D         g. Milestone
b. Escort XP      h. ForeFront R&P
c. Cimarron Max   i. Surmount
d. Cimarron Plus  j. Remedy Ultra
e. Tordon 22K     k. PastureGard
f. Grazon P+D     l. Spike 20P
WHY SUPPLEMENT GRAZING CATTLE?

• Forage supplies are limited.
• Forage is deficient in one or more nutrients.
• Delivery of feed additives for animal health, parasite control, etc.
• To increase body weight gain.
• Value of supplementation is expected to exceed the cost.

CONSIDERATIONS

Nutrient requirement of cattle
Nutrient content of by-product
  Crude protein (DIP & UIP)
  Energy (starch)
  Mineral content (deficiency or toxicity)
Palatability
Storage and handling properties (wet or dry)
Delivered cost
COMMON BY-PRODUCTS

<table>
<thead>
<tr>
<th>Feed</th>
<th>TDN %</th>
<th>CP%</th>
<th>UIP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat midds</td>
<td>83</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Soybean hulls</td>
<td>80</td>
<td>12</td>
<td>42</td>
</tr>
<tr>
<td>Corn gluten</td>
<td>80</td>
<td>24</td>
<td>25</td>
</tr>
<tr>
<td>Distillers grains</td>
<td>88</td>
<td>30</td>
<td>73</td>
</tr>
<tr>
<td>Shelled corn</td>
<td>88</td>
<td>10</td>
<td>55</td>
</tr>
</tbody>
</table>

DISTILLERS GRAINS (DDG)

- By-product of the ethanol industry
- 1.4 million tons of DDG/year in Kansas
- 1 bushel of corn yields
  - 2.7 gallons of ethanol
  - 18 lbs DDGS
  - 18 lbs carbon dioxide

DDG NUTRIENT COMPOSITION

- 3X nutrient value of corn
- 25% crude protein (>30%)—high by-pass
- 9% crude fat (11%)
- High phosphorus (0.83%)
- Complements nutrient composition of mature forages to meet requirements of grazing cattle
- Highly palatable
DDG FEEDING CONSIDERATIONS

- High phosphorus
  - Potential problem in feedlot – nutrient management (3-4 X requirement)
  - Asset for grazing cattle
- High sulfur
  - From grain and sulfuric acid
  - Can be toxic when DDG fed at high levels
- Antibiotic residue?
  - Used in ethanol production

WET VS. DRY

<table>
<thead>
<tr>
<th>Date</th>
<th>Wet (35%DM) $/ton $/lb DM</th>
<th>Dry (88%DM) $/ton $/lb DM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 08</td>
<td>63.50 0.09</td>
<td>195 0.11</td>
</tr>
<tr>
<td>May 09</td>
<td>46.00 0.07</td>
<td>135 0.08</td>
</tr>
<tr>
<td>Sept. 09</td>
<td>35.50 0.05</td>
<td>100 0.06</td>
</tr>
</tbody>
</table>

- The delivered cost per lb of DM is equal between wet and dry distillers grain for a 25 ton load hauled 59 miles @ $3.00 per loaded mile.

SUPPLEMENT CONVERSION

- Amount of supplement required for each additional lb of gain over that of unsupplemented control steers
- Amount of supplement fed/(Gain of supplemented steers – gain of unsupplemented control steers)
SMOOTH BROMEGRASS
2005-2007

- Steer calves grazed from April 6 to October 3 (180 days)
- Continuous stocking rate of 0.8 steer per acre or 1.25 acres per steer (473 lb)
- Supplemented with 0, 0.5, or 1.0% body weight DDG/head/day (as-fed) – group fed meal in bunks

Three replicates (pastures) of each treatment.
- Steer gains and available forage were measured and the amount of DDG fed was adjusted every 28 days.
- No feed additives or implants were used during the grazing phase.

FINISHING PHASE

- Steers were implanted with Synovex-S.
- Steers were fed a finishing diet of 80% ground milo, 15% corn silage, and 5% supplement (DM basis) for 124 days.
- Steers were slaughtered and carcass data were collected.
SMOOTH BROMEGRASS
2005-2007 (180 days of grazing)

<table>
<thead>
<tr>
<th>DDG (%BW/hd/day)</th>
<th>0</th>
<th>0.5</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final wt, lb</td>
<td>738a</td>
<td>844b</td>
<td>871c</td>
</tr>
<tr>
<td>Gain, lb</td>
<td>266a</td>
<td>371b</td>
<td>398c</td>
</tr>
<tr>
<td>Daily gain, lb</td>
<td>1.48a</td>
<td>2.06b</td>
<td>2.21c</td>
</tr>
<tr>
<td>Gain/acre, lb</td>
<td>213a</td>
<td>297b</td>
<td>318c</td>
</tr>
<tr>
<td>Total DDG intake, lb</td>
<td>0</td>
<td>607</td>
<td>1211</td>
</tr>
<tr>
<td>Daily DDG intake, lb</td>
<td>0</td>
<td>3.4</td>
<td>6.7</td>
</tr>
<tr>
<td>DDG conversion</td>
<td>----</td>
<td>5.9</td>
<td>10.0</td>
</tr>
</tbody>
</table>
### FINISHING PERFORMANCE (124 days)

<table>
<thead>
<tr>
<th>DDG (%BW/hd/day)</th>
<th>0</th>
<th>0.5</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily gain, lb</td>
<td>3.85a</td>
<td>3.67a,b</td>
<td>3.51b</td>
</tr>
<tr>
<td>Feed:gain</td>
<td>6.73a</td>
<td>7.22b</td>
<td>7.63b</td>
</tr>
<tr>
<td>Hot carcass wt, lb</td>
<td>727a</td>
<td>783b</td>
<td>795b</td>
</tr>
<tr>
<td>Yield grade</td>
<td>2.7a</td>
<td>3.0b</td>
<td>3.1b</td>
</tr>
<tr>
<td>Percent Choice</td>
<td>69</td>
<td>69</td>
<td>72</td>
</tr>
<tr>
<td>Marbling score</td>
<td>SM26</td>
<td>SM40</td>
<td>SM54</td>
</tr>
</tbody>
</table>

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### OVERALL PERFORMANCE (304 days)

<table>
<thead>
<tr>
<th>DDG (%BW/hd/day)</th>
<th>0</th>
<th>0.5</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total gain, lb</td>
<td>742a</td>
<td>824b</td>
<td>832b</td>
</tr>
<tr>
<td>Daily gain, lb</td>
<td>2.45a</td>
<td>2.72b</td>
<td>2.74b</td>
</tr>
<tr>
<td>Total DDG intake, lb</td>
<td>0</td>
<td>607</td>
<td>1211</td>
</tr>
</tbody>
</table>

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### SMOOTH BROMEGRASS

- DDG supplementation increased grazing gains.
- Supplement conversion was more efficient for 0.5% than 1.0% level (5.9 vs. 10.0).
- DDG supplementation had no effect on quantity of available forage.
SMOOTH BROMEGRASS

• Steers supplemented with DDG during the grazing phase were heavier at slaughter and yielded heavier carcasses.
• Steers that were not supplemented with DDG during the grazing phase had higher finishing gain, lower slaughter weight and hot carcass weight, lower feed:gain, and lower yield grade than those that received 1.0% DDG.

• Steers that were supplemented with DDG during the grazing phase had higher overall gains than those that received no supplement.
• Overall gain was similar between 0.5% and 1.0% levels
• If ownership of cattle were retained to slaughter, the 0.5% level would be more profitable than the 1.0% level.

NATIVE GRASS
2005

• Epp et al. 2007, Manhattan, KS
• Big bluestem and Indian grass were dominant species, little bluestem and side oats grama were subdominant species.
• Yearling steers (573 lb) grazed from May 1 to August 3 (95 days)
• Pastures were double stocked (250 lb/acre for 90 days)
First 45 days (May 1-June 14)

- No supplement was fed.
- Oxytetracycline was offered in a mineral mix that was fed free-choice to control foot rot and pinkeye.

Last 50 days (June 15 – Aug. 1)

- Steers were supplemented with 0, 0.25, 0.5, or 0.75% body weight DDG/head/day (DM basis) – pellets fed in bunks
- Level of supplement was adjusted every 14 days based on a projected gain of 2.0 lb/head/day.
- DDG from grain sorghum
  - 34.6% crude protein
  - 8.8% crude fat

NATIVE GRASS (2005)

<table>
<thead>
<tr>
<th>Date</th>
<th>Crude Protein(%)</th>
<th>ADF(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>12.5</td>
<td>35.5</td>
</tr>
<tr>
<td>June</td>
<td>10.0</td>
<td>38.0</td>
</tr>
<tr>
<td>July</td>
<td>7.6</td>
<td>39.0</td>
</tr>
</tbody>
</table>

All samples were collected during the last week of each month.
### NATIVE GRASS - 2005

<table>
<thead>
<tr>
<th>DDG (%BW/hd/day)</th>
<th>0</th>
<th>0.25</th>
<th>0.50</th>
<th>0.75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final wt., lb</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>792</td>
<td>813</td>
<td>819</td>
<td>833</td>
</tr>
<tr>
<td>Gain, lb</td>
<td>219</td>
<td>240</td>
<td>246</td>
<td>260</td>
</tr>
<tr>
<td>Daily gain, lb</td>
<td>2.31</td>
<td>2.53</td>
<td>2.59</td>
<td>2.74</td>
</tr>
<tr>
<td>Total DDG intake, lb</td>
<td>0</td>
<td>98</td>
<td>170</td>
<td>258</td>
</tr>
<tr>
<td>Daily DDG intake, lb</td>
<td>0</td>
<td>2.0</td>
<td>3.4</td>
<td>5.2</td>
</tr>
<tr>
<td>DDG conversion</td>
<td>---</td>
<td>4.7</td>
<td>6.3</td>
<td>6.3</td>
</tr>
</tbody>
</table>

### FINISHING PERFORMANCE

<table>
<thead>
<tr>
<th>DDG (%BW/hd/day)</th>
<th>0</th>
<th>0.25</th>
<th>0.50</th>
<th>0.75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily gain, lb</td>
<td>3.77</td>
<td>3.58</td>
<td>3.68</td>
<td>3.36</td>
</tr>
<tr>
<td>Feed:gain</td>
<td>5.71</td>
<td>6.49</td>
<td>5.93</td>
<td>6.12</td>
</tr>
</tbody>
</table>

### NATIVE GRASS

- All levels of DDG supplementation resulted in greater grazing gains than the unsupplemented control.
- Highest grazing gain was obtained with the 0.75% level.
- Supplement conversion was most efficient at the 0.25% level.
- Supplement conversion was similar between the 0.50 and 0.75% levels.
NATIVE GRASS

- Steers that received no supplement during the grazing phase had higher finishing gains and more efficient feed conversion than those that were supplemented with DDG.
- Finishing performance was lowest for steers that were supplemented with 0.75 DDG during the grazing phase.

SUMMARY

- Supplementation with DDG can improve gain of grazing stocker cattle.
- Supplement conversion is usually more efficient at lower levels of DDG supplementation.
- The optimum level of DDG for grazing stocker cattle is 0.5% BW daily.

- Supplementation of grazing stocker cattle with DDG may reduce gain and efficiency of feed conversion during the finishing phase.
- Supplement conversion, supplement cost, and cattle market will determine the optimum level of supplementation.
QUESTIONS?
Be sure to visit the BeefStockerUSA website at:

www.beefstockerusa.org

An information site for stocker producers presented by Kansas State University Research and Extension:

Department of Animal Sciences & Industry
Food Animal Health and Management Center
College of Veterinary Medicine

“Knowledge for Life”