KSU BEEF STOCKER FIELD DAY

September 21, 2017
KSU Beef Stocker Unit

PROCEEDINGS
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<td><em>Dr. Derrell Peel, Oklahoma State University</em></td>
<td></td>
</tr>
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<td>Setting Calves up for Success this Fall</td>
<td>19</td>
</tr>
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<td><em>Dr. Peggy Thompson, Boehringer Ingelheim Professional Services</em></td>
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<td>A Different Intensive Early Stocking Strategy for Optimized Marketing</td>
<td>35</td>
</tr>
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<td><em>Dr. Keith Harmoney, K-State Agricultural Research Center, Hays, KS</em></td>
<td></td>
</tr>
</tbody>
</table>
Welcome to the 18th annual 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 Boehringer Ingelheim 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.  **Beef Cattle Outlook**  
            *Dr. Derrell Peel, Oklahoma State University*
11:15 a.m.  **Producer Panel: Implementing Cover Crops: How They Have Helped My Operation**  
            *Dr. Jaymelynn Farney, Kansas State University*  
            *Dr. Doug Shoup, Kansas State University*  
            *Shawn Tiffany, Herington, KS*  
            *Kelly Novak, Tampa, KS*  
            *Kevin Wellnitz, Neosho Rapids, KS*  
            *Harold Engle, Madison, KS*  
            *Moderator: Wes Ishmael, Contributing Editor, BEEF Magazine*
12:15 p.m.  Barbecue Brisket Lunch- View Posters
1:15 p.m.  **Setting Calves up for Success this Fall**  
            *Dr. Peggy Thompson, Boehringer Ingelheim Professional Services*
2:15 p.m.  **A Different Intensive Early Stocking Strategy for Optimized Marketing Opportunities**  
            *Dr. Keith Harmoney, K-State Agricultural Research Center, Hays, KS*
3:00 p.m.  Break
3:30 p.m.  **Break Out Sessions (30 minutes/breakout)**  
            Proper Dosing at the Chute  
            *Dr. A.J. Tarpoff, Kansas State University*  
            Why Vaccines Sometimes “Seem” to Fail  
            *Dr. Gregg Hanzlicek, Kansas State University*  
            Stocker and Backgrounding Budgets  
            *Robin Reid, Kansas State University*  
            Cover Crop Decision Tool  
            *Dr. Jaymelynn Farney and Dr. Doug Shoup, Kansas State University*
5:30 p.m.  Cutting Bull’s Lament 2017
Notes – Notes -- Notes
Beef Cattle Outlook

Dr. Derrell Peel
Oklahoma State University

2017 Market Setting

- Global
- U.S. Economy
- Agriculture
- Cattle Industry
Global and Macroeconomic Environment

- Changes
  - Political
  - Policy
- Uncertainty
  - Global Economy
  - U.S. Economy
  - Trade
    - Exchange Rates
- Volatility
  - Markets
  - Futures

Major Beef Market Factors

- Cattle Inventory and Beef Production
- Beef Demand
- International Trade
- Feed and Input Markets
- Forage Conditions

MED. & LRG. #1 STEER CALF PRICES
400-500 Pounds, Southern Plains, Weekly

Data Source: USDA-AMS Livestock Marketing Information Center
MED. & LRG. #1 FEEDER STEER PRICES
700-800 Pounds, Southern Plains, Weekly

Data Source: USDA-AMS
Livestock Marketing Information Center

SLAUGHTER STEER PRICES
Southern Plains, Weekly

Data Source: USDA-AMS
Livestock Marketing Information Center

BOXED BEEF CUTOUT VALUE
Choice 600-900 Lbs., Carcass, Weekly

Data Source: USDA-AMS
Livestock Marketing Information Center
SLAUGHTER COW PRICES
Southern Plains, 85-90% Lean, Weekly

Data Source: USDA-AMS
Livestock Marketing Information Center

U.S. Drought Monitor
September 12, 2017 (monitoring as of 8/14/2017)
U.S. Drought Monitor

U.S. Cattle Inventory
July 1

<table>
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<tr>
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<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>Jul as % of Jan</th>
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<td>All Cattle and Calves</td>
<td>98200</td>
<td>102600</td>
<td>109.6</td>
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<tr>
<td>Beef Cows</td>
<td>30500</td>
<td>32500</td>
<td>104.1</td>
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<td>Dairy Cows</td>
<td>9300</td>
<td>9400</td>
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<td>Beef Replacements</td>
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<td>4700</td>
<td>73.2</td>
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<td>Dairy Replacements</td>
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<td>Feeder Supply</td>
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<td>Cattle on Feed</td>
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<td>12800</td>
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<td>Calf Crop</td>
<td>34086.7</td>
<td>35082.7</td>
<td>36300</td>
<td>+3.5</td>
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</table>
Monthly Placements and Cattle on Feed
12 Month Moving Ave.

Cattle Slaughter
Federally Inspected, 1000 Head

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>% Change 2015 to 2016</th>
<th>% Change YTD 2016 to 2017</th>
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<tbody>
<tr>
<td>Steers</td>
<td>15331</td>
<td>16495</td>
<td>+7.6</td>
<td>+3.2</td>
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<tr>
<td>Heifers</td>
<td>7351</td>
<td>7698</td>
<td>+4.7</td>
<td>+11.4</td>
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<tr>
<td>Dairy Cows</td>
<td>2915</td>
<td>2885</td>
<td>-1.0</td>
<td>+3.7</td>
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<tr>
<td>Beef Cows</td>
<td>2236</td>
<td>2543</td>
<td>+13.7</td>
<td>+11.2</td>
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<tr>
<td>Bulls</td>
<td>462</td>
<td>494</td>
<td>+6.8</td>
<td>+13.5</td>
</tr>
<tr>
<td>Total</td>
<td>28296</td>
<td>30115</td>
<td>+6.4</td>
<td>+6.1</td>
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Latest data: September 2, 2017
Steer to Heifer Slaughter Ratio
12 month MA

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<th>Month</th>
<th>01/02/70</th>
<th>01/02/72</th>
<th>01/02/74</th>
<th>01/02/76</th>
<th>01/02/78</th>
<th>01/02/80</th>
<th>01/02/82</th>
<th>01/02/84</th>
<th>01/02/86</th>
<th>01/02/88</th>
<th>01/02/90</th>
<th>01/02/92</th>
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<th>01/02/96</th>
<th>01/02/98</th>
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<td>Steer</td>
<td>1.40</td>
<td>1.50</td>
<td>1.60</td>
<td>1.70</td>
<td>1.80</td>
<td>1.90</td>
<td>2.00</td>
<td>2.10</td>
<td>2.20</td>
<td>2.30</td>
<td>2.40</td>
<td>04/01/70</td>
<td>04/01/72</td>
<td>04/01/74</td>
<td>04/01/76</td>
<td>04/01/78</td>
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Latest: June 2017

STEER DRESSED WEIGHT
Federally Inspected, Weekly

<table>
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<th>Month</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
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<tr>
<td>Steer</td>
<td>920</td>
<td>940</td>
<td>960</td>
<td>980</td>
<td>1000</td>
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</table>

Data Source: USDA-AMS & USDA-NASS
Livestock Monitoring Information Center

2018 Meat Production and Consumption

<table>
<thead>
<tr>
<th></th>
<th>Production</th>
<th>Consum. Change</th>
<th>Consum. Per Capita</th>
<th>Consum. Change</th>
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<tbody>
<tr>
<td>2016</td>
<td>25221</td>
<td>Million Lbs.</td>
<td>+3.9</td>
<td>Million Lbs.</td>
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<tr>
<td>2017</td>
<td>26200</td>
<td>Million Lbs.</td>
<td>+1.8</td>
<td>Million Lbs.</td>
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<tr>
<td>2016-17</td>
<td></td>
<td>% Change</td>
<td></td>
<td>% Change</td>
</tr>
<tr>
<td>2018</td>
<td>27261</td>
<td>Million Lbs.</td>
<td></td>
<td>Million Lbs.</td>
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<tr>
<td>2017-18</td>
<td></td>
<td>% Change</td>
<td></td>
<td>% Change</td>
</tr>
<tr>
<td>2018</td>
<td>39209</td>
<td>Million Lbs.</td>
<td></td>
<td>Million Lbs.</td>
</tr>
<tr>
<td>2017-18</td>
<td></td>
<td>% Change</td>
<td></td>
<td>% Change</td>
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</tbody>
</table>

Beef: 2016 25221 Million Lbs. +3.9 2017 26200 Million Lbs. +1.8 2016-17 39209 Million lbs. +4.1

2017 projected; 2018 forecast
LMIC, August 27, 2017
CHOICE MINUS SELECT BEEF PRICES
Carcass Cutout Value 600-900 Lbs., Weekly

RETAIL BEEF PRICE
Monthly

RETAIL PRICE RATIOS
Monthly

Data Source: USDA-AMS, Compiled by LMIC
Livestock Marketing Information Center
BEEF PRODUCTION vs. BEEF COW INVENTORY
Inventory on January 1, U.S.

Livestock Marketing Information Center
2017 Beef Production projected;
2018 Production & Inventory forecast

US BEEF CONSUMPTION
Per Capita, Retail Weight, Annual

Data Source: USDA-NASS, Compiled & Analysis by LMIC
Major Beef Producing and Consuming Countries, 2017 Projected

<table>
<thead>
<tr>
<th>PRODUCTION</th>
<th>CONSUMPTION</th>
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<tr>
<td>1. USA</td>
<td>1. USA</td>
</tr>
<tr>
<td>2. Brazil</td>
<td>2. China</td>
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<tr>
<td>3. EU</td>
<td>3. EU</td>
</tr>
<tr>
<td>4. China</td>
<td>4. Brazil</td>
</tr>
<tr>
<td>5. India</td>
<td>5. Argentina</td>
</tr>
<tr>
<td>6. Argentina</td>
<td>6. India</td>
</tr>
<tr>
<td>7. Australia</td>
<td>7. Mexico</td>
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<tr>
<td>8. Mexico</td>
<td>8. Russia</td>
</tr>
<tr>
<td>9. Pakistan</td>
<td>9. Turkey</td>
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<td>10. Turkey</td>
<td>10. Pakistan</td>
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Source: USDA-FAS, Apr 2017

2017 FORECAST BEEF AND VEAL PRODUCTION
Carcass Weight

![Graph showing beef and veal production forecast (2017) for various countries.]

Data Source: USDA-FAS, Livestock Marketing Information Center

Major Beef Trading Countries, 2017 Projected

<table>
<thead>
<tr>
<th>EXPORTS</th>
<th>IMPORTS</th>
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<tbody>
<tr>
<td>1. India</td>
<td>1. USA</td>
</tr>
<tr>
<td>2. Brazil</td>
<td>2. China</td>
</tr>
<tr>
<td>3. Australia</td>
<td>3. Japan</td>
</tr>
<tr>
<td>4. USA</td>
<td>4. South Korea</td>
</tr>
<tr>
<td>5. New Zealand</td>
<td>5. Russia</td>
</tr>
<tr>
<td>6. Canada</td>
<td>6. Hong Kong</td>
</tr>
<tr>
<td>7. Uruguay</td>
<td>7. EU</td>
</tr>
<tr>
<td>8. Paraguay</td>
<td>8. Egypt</td>
</tr>
<tr>
<td>9. EU</td>
<td>9. Chile</td>
</tr>
<tr>
<td>10. Mexico</td>
<td>10. Canada</td>
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</tbody>
</table>

Source: USDA-FAS, Apr 2017
US BEEF AND VEAL EXPORTS
Carcass Weight, Monthly

Data Source: USDA-ERS & USDA-FAS
Livestock Marketing Information Center

U.S. Beef Exports

<table>
<thead>
<tr>
<th></th>
<th>2015 (1000 lbs.)</th>
<th>% Change 2014 to 2015</th>
<th>2016 (1000 lbs.)</th>
<th>% Change 2015 to 2016</th>
<th>% of Total Exports</th>
<th>YTD % Of 2016</th>
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<tbody>
<tr>
<td>Japan</td>
<td>538353</td>
<td>-18.7</td>
<td>655516</td>
<td>+21.7</td>
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<td>+25.7</td>
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<tr>
<td>Mexico</td>
<td>363023</td>
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<td>393811</td>
<td>+8.6</td>
<td>15.4</td>
<td>+6.5</td>
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<tr>
<td>Hong Kong</td>
<td>315784</td>
<td>-24.1</td>
<td>293693</td>
<td>-6.9</td>
<td>11.5</td>
<td>+9.2</td>
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<td>Canada</td>
<td>323774</td>
<td>-11.1</td>
<td>308234</td>
<td>-4.7</td>
<td>12.1</td>
<td>+1.6</td>
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<tr>
<td>S. Korea</td>
<td>318809</td>
<td>+5.9</td>
<td>454680</td>
<td>+42.6</td>
<td>17.8</td>
<td>+12.6</td>
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<tr>
<td>Total</td>
<td>2265950</td>
<td>-11.9</td>
<td>2549810</td>
<td>+12.6</td>
<td></td>
<td>+14.2</td>
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YTD: Jan-Jul

U.S. Beef Exports
Major Markets

YTD: Jan-Jul
Data Source: USDA-ERS & USDA-FAS, Compiled by LMIC
Livestock Marketing Information Center

US BEEF AND VEAL EXPORTS
Carcass Weight, Annual

Data Source: USDA-ERS & USDA-FAS, Compiled by LMIC
Livestock Marketing Information Center

STEER HIDE AND OFFAL VALUE
Live Animal Basis, Weekly

Data Source: USDA-AMS
Livestock Marketing Information Center

US BEEF AND VEAL IMPORTS
Carcass Weight, Monthly

Data Source: USDA-ERS & USDA-FAS
Livestock Marketing Information Center
### U.S. Beef Imports

<table>
<thead>
<tr>
<th></th>
<th>2015 (1000 lbs.)</th>
<th>% Change 2014 to 2015</th>
<th>2016 (1000 lbs.)</th>
<th>% Change 2015 to 2016</th>
<th>% of Total Exports</th>
<th>2017 YTD % of 2016</th>
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<tbody>
<tr>
<td>Australia</td>
<td>1258266</td>
<td>+16.2</td>
<td>767142</td>
<td>-39.0</td>
<td>+25.4</td>
<td>-29.6</td>
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<tr>
<td>Canada</td>
<td>628397</td>
<td>+4.4</td>
<td>718063</td>
<td>+14.3</td>
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<td>+2.9</td>
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<tr>
<td>New Zealand</td>
<td>661287</td>
<td>+10.7</td>
<td>613121</td>
<td>-7.3</td>
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<td>-13.8</td>
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<tr>
<td>Mexico</td>
<td>391937</td>
<td>+26.4</td>
<td>493446</td>
<td>+25.9</td>
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<td>+34.1</td>
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<tr>
<td>Brazil</td>
<td>149580</td>
<td>+83.6</td>
<td>152142</td>
<td>+2.1</td>
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<td>+26.5</td>
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<tr>
<td>Total</td>
<td>3370484</td>
<td>+14.4</td>
<td>3015673</td>
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<td>-4.3</td>
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YTD: Jan-Jul

### U.S. Beef Imports Major Markets

#### 1990 to 2017

#### US BEEF AND VEAL IMPORTS

Carcass Weight, Annual

Data Source: USDA-ERS & USDA-FAS, Compiled by LMIC
Livestock Marketing Information Center

Beef Stocker 2017 Field Day

September 21, 2017

Page 14
**Average Annual Cattle Prices**

**Southern Plains**

Data Source: USDA-AMS, Compiled and forecasts by LMIC

Livestock Marketing Information Center

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**2017 Cattle Price Forecasts**

<table>
<thead>
<tr>
<th>Year</th>
<th>Feeder Steer Price (Southern Plains)</th>
<th>Fed Steer</th>
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<tbody>
<tr>
<td></td>
<td>5-600 lb. (%)/cwt.</td>
<td>7-800 lb. (%)/cwt.</td>
</tr>
<tr>
<td>2016</td>
<td>138.44 -32.0</td>
<td>129.07 -27.2</td>
</tr>
<tr>
<td></td>
<td>Annual 166.29 -33.8</td>
<td>145.61 -30.1</td>
</tr>
<tr>
<td>2017</td>
<td>157.38 -19.6</td>
<td>132.88 -17.3</td>
</tr>
<tr>
<td></td>
<td>I 170.49 -1.9</td>
<td>147.19 0.0</td>
</tr>
<tr>
<td></td>
<td>II 162.16 -3.7</td>
<td>147.14 2.7</td>
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<tr>
<td></td>
<td>III 148.13 +8.7</td>
<td>137.14 7.3</td>
</tr>
<tr>
<td></td>
<td>IV 159.16 -3.5</td>
<td>141.14 -2.5</td>
</tr>
<tr>
<td></td>
<td>Annual 150.16 -4.7</td>
<td>133.137 -4.9</td>
</tr>
</tbody>
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LMIC, September 1, 2017

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**Price-Weight Relationship**

Medium/Large No. 1 Steers, Kansas

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**Price-Weight Relationship**

*Medium/Large No. 1 Steers, Kansas*

<table>
<thead>
<tr>
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<td>400</td>
<td>$188.83</td>
<td>$755</td>
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<td>450</td>
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<td>600</td>
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<td>800</td>
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**Steer Price, Total Value and Value of Gain**

*September 18, 2017, Combined Kansas*

<table>
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<tr>
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<th></th>
<th></th>
<th></th>
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<tr>
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<td>$1.30</td>
<td>$1.25</td>
<td>$1.20</td>
<td>$1.15</td>
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</table>
Notes – Notes -- Notes
Setting Calves Up for Success this Fall

Dr. Peggy Thompson
Boehringer Ingelheim Professional Services

“Setting Calves Up For Success This Fall”

Peggy Thompson, DVM
Professional Services Veterinarian-Cattle
Boehringer Ingelheim Animal Health

Born and Raised

GEORGIA BULLDOGS
BETWEEN THE LINES
United States – Athens, Georgia
Prevention Works – Vaccines

- Disease prevention is key to animal health
- Prevention is preferable to treatment

True or False?

- Do vaccines protect animals (calves) from disease?
Vaccination is One Part of Preventive Medicine

- Vaccines do not protect from disease
- Immune system protects from disease
- Vaccines trigger an immune system response
- If at a later time the animal is exposed, the immune system can more rapidly respond to the pathogen

Terminology

- **Vaccination** = administering a vaccine to an animal (procedure)
- **Immunization** = mount an immune response against a particular antigen (pathogen)
  - Is dependent upon the animal to respond to the vaccine
  - Many factors may prevent or interfere with a protective immune response from developing

Bovine Respiratory Disease

- Most common, economically important disease of calves
Why So Much Fuss Over Respiratory Tract Viruses?

- Can damage mucosa of upper resp tract ➔ ↓ physical barrier
- Can be immunosuppressive
- Predispose to secondary bacterial infections!

Effect of BVDV PI Calves

“70% to 100% of susceptible nonvaccinated calves become infected after exposure to PI calves.”

Effect of BVDV PI Calves

“Exposure to a PI calf was defined as housing in the same pen with or a pen adjacent to a PI calf, which resulted in exposed cattle having a 43% greater risk for respiratory tract disease, compared with cattle that were not exposed to a PI calf. Exposed cattle also had greater risk for treatment of respiratory tract disease and received more treatments than cattle that were not exposed.”


BVDV PI Subgenotypes

21,743 calves sampled


Bacterial Pneumonia

– the disease

- *Mannheimia haemolytica* bacteria are normal inhabitants of the nasal passages of cattle
- Following stress, viral infection, etc..... *Mannheimia haemolytica* multiply and invade the lungs
- Rapidly growing *Mannheimia haemolytica* organisms produce a **leukotoxin** – white blood cell destruction >>> lung tissue damage
Risk Factors Associated with BRD

Weaning, nutrition, environment, parasites, transport, commingling, etc…
Risk Factors Associated with BRD

Inadequate Passive Transfer

3 TIMES more likely to be treated for BRD in the feedlot

(Wittum & Perino, 1995)

Risk Factors Associated with BRD

• Bulls 3.32 times more likely to have BRD than steers
  • (Richeson, 2013)

Risk Factors Associated with BRD

• Starter rations containing ≥ 75% concentrate
Immune System Function

- Vital parts
  - Energy
  - Protein
  - Copper, selenium, zinc,
  - Vitamin A, D, E

Dr Jeff Hall, Utah State Univ

Prevention Starts on the Farm

Newly weaned, non-vaccinated calves are:
- Stressed
- Exposed to new pathogen isolates
- Minimal or no protection
- Not able to develop maximal immunity
- High risk of developing pneumonia

Vaccine Goals

- Vaccination $\Rightarrow$ Immunity
- Immunity $\Rightarrow$ Disease resistance
- Disease resistance $\Rightarrow$ Improved performance
- Improved performance $\Rightarrow$ Increased potential revenue/profits
Vaccine Goals

- Goal = Raise the level of immunity (resistance) in the herd to prevent severe disease outbreaks
- Reduces the occurrence of outbreaks with high morbidity and/or mortality
  - ↓ # of animals that exhibit clinical disease and/or minimize clinical disease in some to allow a more rapid recovery
- Not all animals will be protected – some individuals may still get sick/die

Disease Resistance

<table>
<thead>
<tr>
<th>Level of Resistance</th>
<th>Number of Animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
</tbody>
</table>

Disease Resistance following Vaccination

<table>
<thead>
<tr>
<th>Level of Resistance</th>
<th>Number of Animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
</tbody>
</table>

Vaccinate
Risk Categories

• Low-Risk
  – preconditioned
  – castrated (healed)
  – dehorned (healed)
  – vaccinated
    • resp viral vaccines
    • ? blackleg shot (most programs include)
    • ? pasteurella shot (most programs include)
  – weaned
    • not walking fence or bawling
    – bunk broke

Risk Categories (cont.)

• High-Risk, Exposed
  – generally put together cattle (small farms, 1 or > auction markets)
  – commingled
    • ↑ exposure to pathogens
    • added stress (nutrition, social, etc.)
  – many may be sick upon arrival

Arrival Considerations

• Let cattle settle down & relax
• Stress: decreases immune response
• Provide good quality hay
• Provide clean water
Processing Considerations

- Process 12 – 24 hours
- PI test?
- Viral vaccine- IBRV, BVDV I & II, PI3, BRSV
- Recent data = in certain situations may delay viral vaccinations
- Mannheimia haemolytica?
- 7 way Blackleg?
- Dewormer
- Metaphylaxis?
- Work cattle quietly

Things to Consider before Purchase

- Work with your veterinarian on an arrival vaccination protocol
- Work with your nutritionist on a receiving/starter ration

What about Maternal Antibodies?

Pyramid ® 5 vaccination of 4-5 week old calves:
0% death loss in vaccinates
33% death loss no vaccine
significantly less clinical signs
positive weight gain advantage 14 & 21 days post-challenge
Long Haul High Risk Calves

- May consider…

Study Design

- 5179 high-risk crossbred heifer calves
  - OK & TX origin, 8/25/2015 through 10/15/2015
  - 624 lb ave (602-650 lb range)
  - large commercial feedlot in western KS
- Cattle penned by treatment group:
  - 15 x 4-pen replicates (60 pens total) ~ 85 head/pen
- Calves randomized at processing chute

FEED REVIEWED

Effects of delayed respiratory viral vaccine and/or inclusion of an immunostimulant on feedlot health, performance, and carcass merits of auction-market derived feeder heifers

K.G. Rogers, DVM, MD; Williams, DVM, HS; B.D. Barnes, DVM, MS, L.J. Sears, DVM

Veterinary Research and Consulting Services, LLC, Owasso, OK 74055

Center for Veterinary Research and Education, Kansas State University Manhattan, KS 66506

Corresponding author: Dr. K.G. Rogers, work@fesc.com
Study Groups

<table>
<thead>
<tr>
<th>Treatment</th>
<th>On Arrival</th>
<th>30 DOF ± 5</th>
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</thead>
<tbody>
<tr>
<td>Arrival Pyramid® (AP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrived Pyramid® + Prepose® SQ + Pyramid® 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrived Pyramid® + Zelate®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrived Pyramid® + Prepose® SQ + Pyramid® 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed Pyramid® (DP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed Pyramid® + Prepose® SQ + Pyramid® 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed Pyramid® + Zelate®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed Pyramid® + Prepose® SQ + Pyramid® 5</td>
<td></td>
<td></td>
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</table>

Courtesy of Del Miles

Health performance @ 60 DOF

<table>
<thead>
<tr>
<th>DP</th>
<th>AP</th>
<th>APZ</th>
<th>P. value Pyr.</th>
<th>P. value Zel.</th>
<th>P. value P+Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Calves (pens)</td>
<td>1296 (15)</td>
<td>1290 (15)</td>
<td>1295 (15)</td>
<td>1300 (15)</td>
<td>-</td>
</tr>
<tr>
<td>BRD 1 Treatment, %</td>
<td>22.92</td>
<td>23.17</td>
<td>22.92</td>
<td>21.78</td>
<td>0.70</td>
</tr>
<tr>
<td>BRD 2 Treatments, %</td>
<td>3.38</td>
<td>3.33</td>
<td>3.46</td>
<td>3.87</td>
<td>0.04</td>
</tr>
<tr>
<td>BRD 3 Treatments, %</td>
<td>4.34</td>
<td>4.58</td>
<td>3.35</td>
<td>3.95</td>
<td>0.35</td>
</tr>
<tr>
<td>BRD Case Fatality, %</td>
<td>11.86</td>
<td>14.03</td>
<td>8.61</td>
<td>11.63</td>
<td>0.16</td>
</tr>
<tr>
<td>Mortality, %</td>
<td>2.85</td>
<td>3.45</td>
<td>1.98</td>
<td>2.54</td>
<td>0.19</td>
</tr>
<tr>
<td>Overall Mortality, %</td>
<td>3.76</td>
<td>3.79</td>
<td>2.15</td>
<td>2.79</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Courtesy of Dave Renter

Health performance at close-out

<table>
<thead>
<tr>
<th>DP</th>
<th>AP</th>
<th>APZ</th>
<th>P. value Pyr.</th>
<th>P. value Zel.</th>
<th>P. value P+Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRD 1st treatment, %</td>
<td>26.03</td>
<td>25.50</td>
<td>25.18</td>
<td>25.16</td>
<td>0.82</td>
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<tr>
<td>BRD Retreat Risk, %</td>
<td>37.95</td>
<td>43.50</td>
<td>36.17</td>
<td>44.35</td>
<td>0.01</td>
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<tr>
<td>BRD Case Fatality, %</td>
<td>15.41</td>
<td>16.06</td>
<td>15.20</td>
<td>15.11</td>
<td>0.14</td>
</tr>
<tr>
<td>Mortality, %</td>
<td>3.61</td>
<td>4.36</td>
<td>2.65</td>
<td>3.36</td>
<td>0.15</td>
</tr>
<tr>
<td>Overall Mortality, %</td>
<td>5.35</td>
<td>5.88</td>
<td>3.79</td>
<td>5.02</td>
<td>0.13</td>
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<tr>
<td>BRD Oats, % (Dead+Removal)</td>
<td>4.17</td>
<td>4.98</td>
<td>3.47</td>
<td>4.21</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Courtesy of Dave Renter
Conclusions for this Study

- No differences in final performance
- Delaying the MLV vaccine for 30 d resulted in a significant decrease in the number of calves requiring additional treatment for BRD
- The inclusion of Zelnate® consistently improved survivability
A duration of immunity of 217 days has been demonstrated against respiratory disease caused by BVDV type 1b. Vaccination provides a protective effect against the development of post-challenge viremia and leukopenia.

Things to Remember when using Vaccines

Thank You and What Questions Do You Have?
Notes – Notes -- Notes
A Different Intensive Early Stocking Strategy for Optimized Marketing Opportunities

Dr. Keith Harmoney
K-State Agricultural Research Center, Hays, KS

Kansas – 52.3 million acres of land -

- over 17 million acres of permanent range and pastureland
The Primary Use and Goal

Efficient beef production per acre—
to get maximum individual gain from the
greatest number of animals

Relationship of Stocking Rate, Animal Production, and Economic Return

Season-Long Stocking (SLS)
- stocking animals on one pasture
  for the entire grazing season (5-6 months)
**Season-Long Stocking**
- 1X moderate stocking rate and density for the growing season
- Selectivity of most nutritious plants and plant parts, important for late season gains
- Individual animal gains of 230-250 lbs
- Production per acre from 50-65 lbs

**Intensive-Early Stocking (2X IES)**
- Stocking 2X the season-long number of animals during the early grazing season (2.5 – 3.0 months)
- Animal density greatest when grass is most nutritious
- Reduces some selectivity, ≈70% of area grazed
- Early season animal gains equal to SLS
- Production per acre greater than SLS in the east, equal to SLS in the west
Intensive-Early Stocking (2X IES) with prescribed spring burning

- Same stocking attributes as 2X IES

- High forage quality, no carryover residual forage at spring turnout
- Greater animal intake
- Improved individual animal performance and production per acre over 2X IES

Modified IES (1.6X + 1)

- Stocking 1.6X the season-long number of animals during the early grazing season (2.5 – 3.0 months), reducing density to 1X during the late season

Modified IES (1.6X + 1)

- Utilize positive components of both SLS and 2X IES systems to maintain individual performance and increase production per acre

- 1.6X animal density for first half of growing season, heaviest animals removed at mid-season
- 1X animal density the last half of growing season

- Animal density greatest when grass is most nutritious
- Allows more animal selectivity late in the season
### Season-Long Stocking vs. Modified IES (1.6X+1)

**Hays, 2002-2008**

<table>
<thead>
<tr>
<th></th>
<th>Early Season (~May 1-July 15)</th>
<th>Late Season (~July 15-Oct 1)</th>
<th>Beef</th>
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<tbody>
<tr>
<td></td>
<td>ADG (lb)</td>
<td>Total Gain (lb)</td>
<td>ADG (lb)</td>
</tr>
<tr>
<td>SLS</td>
<td>1.71&lt;sup&gt;a&lt;/sup&gt;</td>
<td>128&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.35&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>IES 1.6X+1</td>
<td>1.54&lt;sup&gt;b&lt;/sup&gt;</td>
<td>115&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.37&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

### Steer Performance on Native Range 2002-2008, Hays

- **Steer gain (lb/acre):**
  - SLS
  - IES 1.6X+1

- **Return Dollars ($/acre):**
  - SLS
  - IES 1.6X+1

*NS* indicates no significant difference.
**Carcass Comparison**

<table>
<thead>
<tr>
<th>Trait</th>
<th>SLS</th>
<th>1.6X+1</th>
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</thead>
<tbody>
<tr>
<td>Feedlot Start Wgt, lbs.</td>
<td>846</td>
<td>794</td>
</tr>
<tr>
<td>Finished Wgt, lbs.</td>
<td>1394</td>
<td>1333</td>
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<tr>
<td>Carcass Wgt, lbs.</td>
<td>868</td>
<td>825</td>
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<tr>
<td>Marbling Score</td>
<td>5.54</td>
<td>5.27</td>
</tr>
<tr>
<td>Dressing %</td>
<td>64.5</td>
<td>63.9</td>
</tr>
<tr>
<td>Feedlot Gain, lbs.</td>
<td>546</td>
<td>539</td>
</tr>
<tr>
<td>Ribeye area, in²</td>
<td>13.4</td>
<td>13.0</td>
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<tr>
<td>Days on Feed</td>
<td>150</td>
<td>147</td>
</tr>
<tr>
<td>Number of Head</td>
<td>278</td>
<td>446</td>
</tr>
<tr>
<td>Net Value, $/head</td>
<td>46.00</td>
<td>38.92</td>
</tr>
</tbody>
</table>

**End of Growing Season Biomass, Hays**

![Graph showing biomass data over the years](image)

**Blue and Sideoats Grama Composition on Short Grass Rangeland**

![Graph showing proportion data over the years](image)
Proportion

**Buffalograss and Sedge Composition on Short Grass Rangeland**

![Graph showing the composition of buffalograss and sedge over time.](image)

\[ R^2 = 0.0105 \]

\[ R^2 = 0.1009 \]

\[ R^2 = 0.2713 \]

\[ R^2 = 0.5245 \]

---

**2X IES + Late Season Grazing (2X IES+LSG)**

- Utilize positive components of both SLS and 2X IES systems to maintain individual performance and increase production per acre
- 2X animal density for first half of growing season, half of the animals removed at mid-season
- 1X animal density the last half of growing season
- A System that alternates years between 2X IES and 2X IES+LSG

---

**Steer Performance on Native Range 2007-2016, Manhattan**

![Graph showing steer performance over time.](image)
Main benefits of Modified IES (1.6X+1) or 2X IES+LSG System

- Increased beef lb/acre produced (26% at Hays, 43 and 23% at Manhattan)

- Increased net returns/acre (19% at Hays, 75 and 18% at Manhattan)

- No change in vegetative production the year after modified stocking or late season grazing
Other benefits of Modified IES (1.6X+1) or 2X IES+LSG System

- Potential for light stockers to put on more weight
- Lessens marketing risk
- Opportunity to market in other production sectors
Lessens Risk

- The Modified IES system had a greater net return/acre than SLS for 22 of the 25 years.

- A previous 2X IES+LSG system had a greater net return/acre in 30% of the years, yet never had the lowest net return compared to SLS and 2X IES.
-Use replacement heifers in IES, fixed time AI and early ultrasound, late season graze those settled AI.

Comparison of SLS and Modified IES 1.6X+1 with Heifers

<table>
<thead>
<tr>
<th></th>
<th>May Heifer BW</th>
<th>July Heifer BW</th>
<th>October Heifer BW</th>
<th>Early Gain lb/acre</th>
<th>Total Gain lb/acre</th>
<th>FSCR %</th>
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</thead>
<tbody>
<tr>
<td>SLS</td>
<td>772</td>
<td>909</td>
<td>987</td>
<td>34</td>
<td>54</td>
<td>52</td>
</tr>
<tr>
<td>MIES</td>
<td>770</td>
<td>900</td>
<td>980</td>
<td>52*</td>
<td>73*</td>
<td>44</td>
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</table>

Comparison of SLS and Modified IES 1.6X+1 with Heifers
-Residual Pasture Dry Matter Availability

<table>
<thead>
<tr>
<th>Heifer Stocking Treatment</th>
<th>July</th>
<th>October</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLS MIES SLS MIES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lb/acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2174 2052 1986 1974</td>
<td></td>
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</tbody>
</table>
Potential use in the cow/calf sector?

Conclusions
- Using a different IES system with late season grazing has potential to increase beef production and net returns per acre
- Can achieve this production increase and also lessen marketing risk
- May be able to expand this stocking strategy to other classes of cattle

The Primary Use and Goal
Efficient beef production per acre—to get maximum individual gain from the greatest number of animals

Continue to test strategies to make beef production more efficient