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</tbody>
</table>
Welcome to the 2006 KSU Beef Stocker Conference. 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 Cargill Animal Nutrition 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.  Forces Shaping Change in the U.S. Beef Sector
            Jim Mintert, Kansas State University

11:15 a.m.  Impact of Added Value Programs on Beef Stocker Producers
            Leann Saunders, IMI Global, Inc.

12:00 Noon  Barbecue Lunch

1:00 p.m.  Breakeven Stocker Management Strategies
            Bryan McMurry, Cargill Animal Nutrition

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

    Utilization of Individual Stocker Information for Value
    Brad White, Kansas State University

    Are Stocker Implants Still Relevant for Targeted Quality Grade Programs?
    Chris Reinhardt, Kansas State University

    Animal ID Technology Performance – Realistic Expectations
    Dale Blasi, Kansas State University

    Variation in Forage Quality as it Relates to Stocker Performance
    KC Olson, Kansas State University and Pablo Guiroy, Cargill Animal Nutrition

5:00 p.m.  Tour of the new Beef Stocker Unit and evening barbecue
Forces Shaping Change in the U.S. Beef Sector

James Mintert, Ph.D.
Professor & Extension State Leader
Department of Agricultural Economics
Kansas State University

www.agmanager.info/livestock/marketing
jmintert@ksu.edu

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Forces Shaping Change
In The U.S. Beef Sector

Beef Demand
International Trade
Shifts in Optimum Firm Size
Ethanol
Putting It All Together
Beef Demand

A Picture of A Healthy Industry

U.S. Cattle Inventory
January 1, 1925-1975

A Shrinking Industry
Responding to a Lack of Profitability

Current inventory is about 26% smaller than in 1975
Measuring Changes In Beef Demand 1980-1998

Annual Retail Choice Beef Demand Index

Source: USDA, Dept. of Commerce & K-State Research & Extension
Price Deflated By CPI, 1980 =100 for Beef Demand Index

K-State Research & Extension

Beef Demand Decline Was Devastating

• What’s the linkage between retail beef demand & cattle producers?
  – Retailers demand for wholesale beef is derived from demand for retail beef products
  – Packer demand for fed cattle is derived from demand for wholesale beef products
  – Feedlot demand for calves & feeder cattle is derived from demand for fed cattle

K-State Research & Extension

Beef Demand Decline Was Devastating

• Who bore brunt of long-term beef demand decline?
  – Feedlots & beef processors?
    • No, margin operators adjusted to demand reductions
  – Answer: Cow-calf producers
    • How?
      • Lower returns for cow-calf producers
        – Labor
        – Land
        – Other capital

K-State Research & Extension
Measuring Changes In Beef Demand 1998-2004

Annual Retail Choice Beef Demand Index

Demand in '04 Was Up About 25% from 1998 Level

Source: USDA, Dept. of Commerce & K-State Research & Extension
Price Deflated By CPI, 1980 =100 for Beef Demand Index
www.agmanager.info

Measuring Changes In Beef Demand 1998-2005

Annual Retail Choice Beef Demand Index

Beef Demand During All of '05 Decreased About 4%
But Demand in '05 Was Still Up About 21% from 1998 Level

Source: USDA, Dept. of Commerce & K-State Research & Extension
Price Deflated By CPI, 1980 =100 for Beef Demand Index
www.agmanager.info

2nd Quarter Demand Index Fell About 10% Below A Year Ago

Retail Choice Beef Demand Index
April-June Quarter

Source: USDA, Dept. of Commerce & K-State Research & Extension
Price Deflated By CPI, 1980 =100 for Beef Demand Index
www.agmanager.info
Beef Demand Shifters
What’s been taking place recently?
- Low carb diet effect has worn off
- Consumer income growth slowing
- Expect more domestic demand weakness
- How do we turn this around?

Who Benefits Most from Beef Demand Increases?
- In the long run:
  - Cow-calf producers
- How?
  - Higher prices for calves & culls
    - Profitability Increases
    - Rise in profitability leads to industry expansion

Trade
- All trade is voluntary
- All trade is mutually beneficial
- International trade increases consumption possibilities
If Trade Is So Good, Why Is It Controversial?

- Free markets and free trade increase social welfare (benefits outweigh costs) for society at large
- But not all individuals and groups are made better off

Rapid Increase in Trade: Why?

- Huge benefits from specialization in comparative advantage and trade
- Floating (market-based) exchange rates: since 1973
- Tremendous advances in communication and transportation
- Free trade agreements: NAFTA, GATT, WTO

Result

- International trade stimulated economic growth

Increases in Trade Fueled Economic Growth

WORLD GDP (WTO)

Source: WTO
U.S. Has Been A Net Exporter Since 1981

Net Exports of U.S. Cattle, Beef, & By-Products 1973-2005

Year

Source: U.S. Dept. of Commerce & LMIC Net Exports = Exports - Imports

Top 5 Importers
Accounted for 91% of U.S. Exports

Top 10 Importers of U.S. Beef
Ranked by Value of Imports in 2003
Other Category: Consists of All Other Destinations

Source: USDA-FAS

U.S.-Canada Border Closure Led To Smallest Cattle Imports Since Late-1980’s

Annual U.S. Cattle Imports

Source: USDA
Cattle Imports from Canada Are Increasing But Remain Well Below 2002’s Record Levels

Beef Imports From Canada Decline

Result: U.S. Imports Falling Below 2005’s
Increases in Beef Industry Concentration

Cattle Feeding Concentration Increasing

1975
7 Major Feeding States
• 56,221 feedlots marketed 15 million cattle
• Average marketings/feedlot = 267 head
• Feedlots > 1,000 hd. (1,221 lots) marketed 74% of cattle
Source: USDA, Cattle On Feed
7 states = AZ, CA, CO, IA, KS, NE, TX

Fewer But Larger Cattle Feeders

1995
7 Major Feeding States
• 23,472 feedlots marketed 20.2 million cattle
• Average marketings/feedlot = 858 head
• Feedlots >1000 hd. (1,584 lots) marketed 93% of cattle
Source: USDA, Cattle On Feed
7 states = AZ, CA, CO, IA, KS, NE, TX
Even Fewer But Larger Cattle Feeders

2004

7 Major Feeding States

- 14,932 feedlots marketed 20.4 million cattle
- Average marketings/feedlot = 1,369 head
- Feedlots >1000 hd. (1,632 lots) marketed 95% of cattle

Source: USDA, Cattle On Feed 7 states = AZ, CA, CO, IA, KS, NE, TX

Largest Cattle Feeding Firms, 2005

<table>
<thead>
<tr>
<th>Rank</th>
<th>Firm</th>
<th># of Lots</th>
<th>1-Time Cap. (head)</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>5 Rivers Ranch</td>
<td>10</td>
<td>811,000</td>
</tr>
<tr>
<td>2</td>
<td>Cactus</td>
<td>10</td>
<td>520,000</td>
</tr>
<tr>
<td>3</td>
<td>Cargill</td>
<td>4</td>
<td>300,000</td>
</tr>
<tr>
<td>4</td>
<td>Friona</td>
<td>4</td>
<td>275,000</td>
</tr>
<tr>
<td>5</td>
<td>AzTx</td>
<td>4</td>
<td>232,000</td>
</tr>
</tbody>
</table>

Source: Cattle Buyers Weekly

Which Size Category Is Gaining Market Share?

Share of U.S. Fed Cattle Marketings By Feedyard Size Category

Source: USDA, LMIC, K-State Research & Extension
Why Is Feedlot Concentration Increasing?

- Lower costs for larger firms
- Why?
- Larger firms in better position to utilize
  - Technology
  - Management skills
    - Labor management
    - Financial management
    - Marketing management
- Implication: Small & medium size feeders operate at a cost disadvantage

Beef Packing Sector
Concentration Increased Dramatically

- 4-Firm Concentration Ratio (CR4) increased from 41% to 78% during ‘80’s
  - Transition to large plant sizes was dramatic
  - 1972
    - 70% of all slaughter in plants handling less than 250,000 hd/year
    - 35% of all slaughter in plants handling less than 100,000 hd/year
  - 1992
    - 70% of all slaughter in plants handling over 500,000 hd/year
    - 4% of slaughter in plants handling less than 100,000 hd/year

Source: McDonald & Ollinger, 2005

Large Packing Plants Have Lower Costs

- Eliminating wage differentials across plant sizes provided incentive to build large packing plants
- Large plants paid higher wages in ‘60’s & ‘70’s
  - 1960-1972
    - Plant size 1% - wages 9% higher than mid-size plant
  - 1982
    - Plant size 1% - wages 6% higher than mid-size plant
  - 1992
    - Plant size 1% - no change in wages

Source: McDonald & Ollinger, 2005
What Motivated Shift to Large Plants in 1980's?

- Change in packing plant labor costs facilitated shift to larger plants in the Plains
  - 1978, 45% of meat product workforce was unionized
  - Union workers wages 29% > non-union workers
  - 1987, just 21% of workforce unionized
  - In 1960's & 1970's, meatpacking wages 14 to 18% > than manufacturing wages
  - 2002, meatpacking wages were 25% below manufacturing wages

Source: McDonald & Ollinger, 2005

Have Packing Industry Changes Been Good or Bad?

- Meat packing labor productivity increased
  - Index of output per hour rose 80% from 1970 to 1998
- 1970 -1998, inflation adjusted spread between live and wholesale beef prices declined 57%
- Technology & productivity improvements
  - reduced farm-wholesale price spread by $0.23/cwt.
  - boosted live cattle prices $1.75/cwt.

Source: Marsh & Brester, 2001

Have Packing Industry Changes Been Good or Bad?

Shift toward larger plant sizes reduced costs dramatically

<table>
<thead>
<tr>
<th>Year</th>
<th>Per Head Cost (1992$)</th>
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<tbody>
<tr>
<td>1977</td>
<td>$131.42</td>
</tr>
<tr>
<td>1992</td>
<td>$96.58</td>
</tr>
<tr>
<td>1997</td>
<td>$90.65</td>
</tr>
<tr>
<td>2002</td>
<td>$85.09</td>
</tr>
</tbody>
</table>

Source: McDonald & Ollinger, 2005
What About the Rest of the Food Supply Chain?

**Beef Packer & Retail Grocer Concentration**

2004 concentration levels (approximate)

<table>
<thead>
<tr>
<th>Top 4 Beef Packers</th>
<th>Top 4 Retail Grocers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(steer &amp; heifer slaughter)</td>
<td></td>
</tr>
<tr>
<td>82% Market Share</td>
<td>33% Market Share</td>
</tr>
<tr>
<td>Tyson</td>
<td>Wal-Mart (15%)</td>
</tr>
<tr>
<td>Cargill</td>
<td>Kroger (7%)</td>
</tr>
<tr>
<td>Swift &amp; Co.</td>
<td>Costco (6%)</td>
</tr>
<tr>
<td>National Beef</td>
<td>Albertsons (5%)</td>
</tr>
</tbody>
</table>

Sources: GIPSA-USDA, Cattle Buyers Weekly, and Supermarket News, Top 75 Grocery Retailers

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**Corn Prices & Ethanol**

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**3 Largest Corn Crops On Record**

Total U.S. Corn Production

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Source: USDA WASDE Report: 9.12.06

K-State Dept. of Ag Econ

www.agmanager.info

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K-State Research & Extension
But Corn Usage Has Been Growing Rapidly

![Graph showing U.S. Total Corn Usage](image)

- Source: USDA
- WASDE Report: 9.12.06

Ethanol Usage Growing Rapidly

![Graph showing Food, Alcohol, & Industrial Corn Usage](image)

- Source: USDA & KSU
- WASDE Report: 9.12.06

U.S. Will Need More Corn Acres
How Do We Get Them?

![Graph showing U.S. Corn Planted Acreage](image)

- Source: USDA
- WASDE Report: 9.12.06

K-State Research & Extension
It Will Take Higher Prices To Push Acreage Higher

U.S. Average Corn Price

<table>
<thead>
<tr>
<th>Year</th>
<th>Avg. Farm Price ($/BU.)</th>
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<tbody>
<tr>
<td>73</td>
<td>$1.50</td>
</tr>
<tr>
<td>75</td>
<td>$1.70</td>
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<td>77</td>
<td>$1.90</td>
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<td>83</td>
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<td>99</td>
<td>$3.30</td>
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<td>01</td>
<td>$3.50</td>
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</table>

Source: USDA

Where Are Corn Prices Headed?
Higher Corn Prices Spell Trouble for Livestock Producers

Kansas Monthly Corn Prices

<table>
<thead>
<tr>
<th>Year</th>
<th>Corn Price ($/bu.)</th>
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<tbody>
<tr>
<td>75</td>
<td>$1.25</td>
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<tr>
<td>77</td>
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<td>81</td>
<td>$1.75</td>
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<td>03</td>
<td>$4.00</td>
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<tr>
<td>05</td>
<td>$4.25</td>
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</table>

Source: USDA-Kansas Agricultural Statistics & K-State Research & Extension

Where Are We Headed?

Trade
- U.S. strength is in high quality beef products
- Other countries may have comparative advantage in cow-calf production
- Exports to Pacific Rim ramping up in '07
- Regaining market share could take several years
- Consumer incomes in importing countries are key to long-run growth in exports
Where Are We Headed?

Beef Packing Sector

- Lower costs encouraged growth of large packing plants
- Lower costs, procurement, marketing and food safety advantages have all encouraged growth of large firms
- Bulk of gains from transition to large plants & firms have already been realized
- Future developments likely to be in more vertical alliances or integration
- Small packing plants operate at huge cost disadvantage
  - Future Beef (Winfield, KS) - Bankrupt
  - Iowa Quality Beef Supply Network (Tama, IA) - Bankrupt

Where Are We Headed?

Beef Demand

- Low-Carb Diet Fad Has Run Its Course
- Weaker Domestic Demand Lies Ahead
- Strengthening Export Markets Could Help Offset Domestic Weakness
- Opportunities abound for innovators

Prices Could Wind Up Record High Again in '06

K-State Research & Extension
Feeders In '05 Averaged A Record High of $112/cwt. Prices in '06 Could Wind Up Near '05's Average

Dodge City, KS 700-800 Lb. Steer Prices

Source: AMS-USDA, Dodge City, KS & KSU, 2006 forecast based upon CME futures 8.11.06

Record High Calf Prices Again In '05 Cycle Peak in '05 & '06

Dodge City, KS 500-600 Lb. Steer Prices

Source: AMS-USDA, Dodge City, KS & KSU, 2006 Forecast

CHINESE PROVERB

• If you want happiness for an hour, – take a nap.
• If you want happiness for a day, – go fishing.
• If you want happiness for a week, – take a vacation.
• If you want happiness for a year, – inherit a fortune.
• If you want happiness for all your life, – help others.
Impact of Added Value Programs
On Beef Stocker Producers

Leann Saunders
IMI Global, Inc.

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What Do I Do? Where Do I Focus?

• Who is your customer?
• What is it that your customer expects?
• How can you add value?

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It All Starts With the Consumer

• Food production practices, they want to know more
  – WHO, WHAT, WHEN WHERE?
• Brands establish specifications
• Brands must differentiate to survive
• Verification of Claims
  – Source Verification
  – Age Verification
  – “All Natural” and “Organic” Movement
  – Humanely Handled
  – Local
• Creating an Emotional Connection

Promoting Consumer Confidence – Credence Attributes

• Credence—Acceptance as true or valid
• Attribute—genetics, health, management, etc…
• “Many valuable animal attributes are not evident to the naked eye or specialized equipment”

Jim Riemann Of Certified Angus Beef®

• 18% of all US beef retailers carries one of the 63 brands certified by the USDA
• Two years ago, 26 certified brands used “Angus” in their name; in 2006 there are 46
• In the last six months, CAB has created two “brand extensions”—CAB Natural and CAB USDA Prime

Source: Jim Riemann at Beef Australia, May 2006
**Natural Foods Phenomenon**

- "If you can't beat them join them. That seems to be the consensus among conventional retailers when it comes to the natural foods phenomenon."
- Whole Foods and Wild Oats have been realizing growth rates of 15% annually. "That's not a fad, but a trend", says Alan Warren, Ukrop's Supermarkets.

**Degrees of "Natural"**

- "Minimally processed, no artificial ingredients"
- "Tested for Antibiotics and Pesticides"
- "No added hormones and No antibiotics for the last 120 days"
- "No added hormones and No antibiotics EVER"—"Never, Ever"
- USDA Non-Hormone Treated Cattle Program (NHTC)

**No added Hormones, No Antibiotics**

<table>
<thead>
<tr>
<th>Ground Beef</th>
<th>King Sooper's (private label)</th>
<th>Coleman's (&quot;Never, Ever&quot;)</th>
<th>Laura's Lean</th>
<th>Coleman's (&quot;Never, Ever&quot;)</th>
<th>King Sooper's (private label)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice Tender Aged</td>
<td>Lower 1/3 Choice</td>
<td>$11.00/lb</td>
<td>$12.99/lb</td>
<td>$13.99/lb</td>
<td>$15.99/lb</td>
</tr>
</tbody>
</table>

**Source:** Gary C. Smith (Colorado State University) June 2006
The Organic Trend

- Meat/poultry/fish is the fastest-growing segment of the organic food market—projected to jump 15% to $12.5 billion in sales in 2006 (National Marketing Institute, 2006).

  Source: Meat and Seafood Merchandizing, March 2006

- NCBA’s figures showed a 17.2% average growth rate in natural/organic beef sales last year versus 3.3% growth for total beef sales.

  Source: Aldrich, Dow Jones Newswires – posted on www.CattleNetwork.com 7/6/06

The Organic Trend

- The growing popularity of organic and natural beef may have a lot to do with perception,
  “But boy, is it ever getting traction, no matter the price.”

  Dr. Gary C. Smith

  Source: Aldrich, Dow Jones Newswires – posted on www.CattleNetwork.com 7/6/06
Valuable Export Customers

Verification Programs Required to Export

- EV - Export Verification
- USDA PVP - Process Verified Program
- USDA QSA - Quality Systems Assessment
  - Age (30 month of age or less for most countries)
  - Japan (20 months of age or less)
  - Europe (No-Hormone Treated Cattle)
Percentage of World Beef Market

Source: USMEF Presentation (FAS Figures, 2006)

More Than a Food Purchase

- Increasing global concern regarding “authority buying” (e.g., 41% of all EU food purchasers want to know the “who”, “what”, “where” and “when” of food production).
- Increasing global concern about “animal welfare” (of particular concern are confinement and transport).
- Increasing global concern in “social responsibility” (e.g., enteric methane production by ruminants, holistic resource management, environmental/ecological sustainability).

Source: Ruben Rose (MLA) Beef Australia, May 2006, excerpt from Dr. Gary Smith’s Slides (Colorado State University)

KNOW YOUR CUSTOMER!!
My dad, Mel Coleman Sr., Allen (founder of Petaluma Poultry) and I strongly share a belief that if our lands are properly managed, watersheds and wildlife benefit along with humans. That's why this year we started a decade-long cause-related partnership with two of the most respected non-profit organizations in the country – American Farmland Trust (AFT) and American Forests (AF) – by founding the Coleman Eco-Project 2015. The next 10 years will be dedicated to joint efforts designed to improve and preserve the environment, and to strengthen the future of American agriculture.

Source: www.colemannatural.com, June 2006

“**We care about more than just selling our products,**” The Coleman family and company have always been dedicated to preserving the environment.”

This year natural/organic and conventional grocery retailers Wild Oats Markets, Dorothy Lane Markets, Knowlan’s, the North Atlantic region of Whole Foods Markets and select A&P stores will display a tear pad with a UPC code that will permit customers to make a one-dollar contribution at each store checkout to the Coleman Eco-Project 2015.

Source: www.americanforest.org, June 2006
“Story Meat”

“On the Meyer Company Ranch in Montana, the ranch hands are in the saddle from 5am until past sundown, seven days a week. Their Angus cattle roam free across the ranch’s 37,000 acres of wilderness, which they share with grizzly bears, mountain lions, and wolves. And the commitment to humane treatment of the herd and environment awareness is unlike anything you’ll find on a ranch this size anywhere in the USA.”
“Trends to Track”

- #1 Continued Growth Of Brands
- #2 More Beef with a Story
- #3 More Detailed Meat Labels
- #4 More Specialty Meat Products
- #5 Consumers Want to Know How You Produced It
- #6 Convenience is Still Key

Source: BEEF, May 2006

Determine Your Fit

- Know the buyer’s needs—Align with a System
- Establish a target based on market demands
  - Pre-conditioning
  - Pi-Free
  - Source Verified
  - Age Verified
  - All Natural
  - Non-Hormone Treated Cattle for Europe
  - Breed Specific
  - Humanely Handled
  - Animal Identification and Traceability (Identity Preservation)

The More Options the More Value

<table>
<thead>
<tr>
<th>Source and Age</th>
<th>Natural</th>
<th>VAC 45</th>
<th>Pi-Free</th>
<th>Historical Performance</th>
<th>Humanely Handled</th>
<th>Breed Claim</th>
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<tbody>
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<td>Source VAC 45</td>
<td></td>
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Verifying Claims - Requires Quality Management Systems

- USDA PVP - Process Verified Programs
- USDA QSA – Quality Systems Assessment Programs
  - Source and Age
  - NHTC (No Hormone Treated Cattle)
  - No Antibiotics
  - Just the beginning

Your Quality Management System …

Must be an Auditable System

Quality System Requirements

- Communicate Requirements
- Approve Suppliers (Supplier Evaluations)
- Transfer of information with "groups"
- Preserve Identity
  - DOCUMENTED PROCEDURES!!
    - RECEIVING
    - IDENTIFICATION AND TRACEABILITY
    - SHIPPING
    - HOW I HANDLE NON-CONFORMING CATTLE
Quality System Requirements

• Employee Training
• Customer Focus/Satisfaction
• Continuous Improvement
• Records to Support Identity Preservation
  – Cattle Movement Records
  – Health Records
  – Feed Records
  – Receiving, Shipping, Processing, etc…
• Monitoring and Measuring
• You are a Supplier—you will be evaluated

Quality System/PVP or QSA REVEALED

Annual audits to Verify your system

Current Practices & Management Documented

Business as usual - maybe even BETTER

Value of Program Compliant Tag (PCT)

• Allows cattle to move through non-QSA and PVP approved locations
• Sorted, sized and sexed—create optimal marketing groups
• Serves as unique individual animal identifier
• Buyers must access individual animal age information
Where Do I Start?

- Align with a system interested in value-added cattle based on your best target opportunities.
- Look at your own QSA or PVP or look at those companies that already have approved programs:
  - Feedlot's with approved programs
  - States
  - Marketing (Superior, Livestock Markets)
  - IMI Global has an approved program (source, age, NHTC)

www.usverified.com
Can’t Improve Upon, What You Can’t Measure

• “With intensive management we see a $250 difference between the best and worst animal in the lot” Warren Weibert, SE Cooperative Producer Summit, May 2006

Source: Meat and Seafood Merchandizing, March 2006

“Listen, Listen, Listen

“If every part of the beef production chain will work together and listen to the demands of each other, we have a much better chance of producing something the consumer will keep buying”

Gary Smith, MT Stockgrowers Magazine
“The consumer will place greater demands on the livestock producer to tell them where their food came from and how it was produced.....

...FAILURE TO RESPOND TO THIS DEMAND IS NOT AN OPTION.”

Dr. John Paterson, ILC—2003, Houston Texas
Functions of Stocker Segment

1. Grow calves in preparation for the finishing or feedlot phase.
2. Develop calves of small biological type prior finishing.
3. Supply chain management for feed yards to control the seasonal flow of cattle, and capture seasonally low prices for calves.

The key to 1 and 2 is that per unit cost of production must be lower than can be achieved in a background operation.

Gross Margin

700 lb. Feeder Steers

<table>
<thead>
<tr>
<th>500 lb.</th>
<th>700 lb.</th>
<th>800 lb.</th>
<th>900 lb.</th>
<th>1000 lb.</th>
<th>1100 lb.</th>
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</thead>
<tbody>
<tr>
<td>$1.10</td>
<td>$115.00</td>
<td>$160.00</td>
<td>$185.00</td>
<td>$220.00</td>
<td>$255.00</td>
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<td>$1.20</td>
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<td>$100.00</td>
<td>$125.00</td>
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<td>$65.00</td>
<td>$100.00</td>
<td>$135.00</td>
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<tr>
<td>$1.40</td>
<td>$0.00</td>
<td>$35.00</td>
<td>$70.00</td>
<td>$105.00</td>
<td>$140.00</td>
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<td>$1.50</td>
<td>$20.00</td>
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<td>$90.00</td>
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<tr>
<td>$1.60</td>
<td>$5.00</td>
<td>$40.00</td>
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<td></td>
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<tr>
<td></td>
<td>(35.00)</td>
<td>(85.00)</td>
<td>(50.00)</td>
<td>(15.00)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(135.00)</td>
<td>(100.00)</td>
<td>(65.00)</td>
<td>(30.00)</td>
<td>(30.00)</td>
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</table>
# Gross Margin

## 600 lb. Feeder Steers

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<tr>
<th>Size</th>
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<th>$0.05</th>
<th>$0.10</th>
<th>$0.15</th>
<th>$0.20</th>
<th>$0.25</th>
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</thead>
<tbody>
<tr>
<td>400 lb. Steer Calves</td>
<td>$1.10</td>
<td>$1.30</td>
<td>$1.50</td>
<td>$1.70</td>
<td>$1.90</td>
<td>$2.10</td>
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<tr>
<td>500 lb. Steer Calves</td>
<td>$1.20</td>
<td>$1.40</td>
<td>$1.60</td>
<td>$1.80</td>
<td>$2.00</td>
<td>$2.20</td>
</tr>
<tr>
<td>600 lb. Steer Calves</td>
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<td>$1.50</td>
<td>$1.70</td>
<td>$1.90</td>
<td>$2.10</td>
<td>$2.30</td>
</tr>
</tbody>
</table>

## 500 lb. $1.40 $700

## 400 lb. $1.50 $600

<table>
<thead>
<tr>
<th>Weight</th>
<th>Cost</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 lb.</td>
<td>$1.40</td>
<td>$700</td>
</tr>
<tr>
<td>400 lb.</td>
<td>$1.50</td>
<td>$600</td>
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</table>

## 700 lb. $1.10 $770

## 600 lb. $1.20 $720

<table>
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<tr>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>700 lb.</td>
<td>$770</td>
</tr>
<tr>
<td>600 lb.</td>
<td>$720</td>
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</table>

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**Beef Stocker 2006 Conference**

**September 28 2006**

**Page 39**
# Gross Margin

<table>
<thead>
<tr>
<th>Cost</th>
<th>Price</th>
<th>Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>$600</td>
<td>$720</td>
<td>$120</td>
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<tr>
<td>$700</td>
<td>$770</td>
<td>$70</td>
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</tbody>
</table>

# Breakeven COG

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<thead>
<tr>
<th>Weight</th>
<th>Margin</th>
<th>$/lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 lb.</td>
<td>$70</td>
<td>$.35</td>
</tr>
<tr>
<td>400 lb.</td>
<td>$120</td>
<td>$.60</td>
</tr>
</tbody>
</table>

Note: 200 lbs. of gain in a 100 day grazing period

# Profit/Loss

<table>
<thead>
<tr>
<th>Weight</th>
<th>Grazing</th>
<th>Processing</th>
<th>Vet/Med</th>
<th>Mineral</th>
<th>Hay</th>
<th>Interest - Cattle</th>
<th>Total Cost</th>
<th>Profit/Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 lb.</td>
<td>$50.00</td>
<td>$12.00</td>
<td>$2.00</td>
<td>$6.00</td>
<td>$5.60</td>
<td>$10.79</td>
<td>$86.39</td>
<td>$33.15</td>
</tr>
<tr>
<td>400 lb.</td>
<td>$50.00</td>
<td>$12.00</td>
<td>$4.00</td>
<td>$6.00</td>
<td>$5.60</td>
<td>$9.25</td>
<td>$86.85</td>
<td>$33.15</td>
</tr>
</tbody>
</table>

Note: 200 lbs. of gain in a 100 day grazing period
### Cost of Gain

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<thead>
<tr>
<th></th>
<th>500 lb.</th>
<th>400 lb.</th>
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</thead>
<tbody>
<tr>
<td>Total Cost</td>
<td>$86.39</td>
<td>$86.85</td>
</tr>
<tr>
<td>Total Gain</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Cost/lb. of gain</td>
<td>$.43</td>
<td>$.43</td>
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</tbody>
</table>

### Profit/Loss

<table>
<thead>
<tr>
<th></th>
<th>500 lb.</th>
<th>400 lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed</td>
<td>$96.00</td>
<td>$90.00</td>
</tr>
<tr>
<td>Processing</td>
<td>$12.00</td>
<td>$12.00</td>
</tr>
<tr>
<td>Veterinary</td>
<td>$2.00</td>
<td>$4.00</td>
</tr>
<tr>
<td>Interest</td>
<td>$12.48</td>
<td>$10.88</td>
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<tr>
<td>Total Cost</td>
<td>$122.48</td>
<td>$116.88</td>
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<tr>
<td>Profit/Loss</td>
<td>$27.52</td>
<td>$53.12</td>
</tr>
</tbody>
</table>

**Backgrounding Scenario:**
- 500 lb. calf at 3.5#ADG
- 400 lb. calf at 3.0#ADG

---

**Beef Stocker 2006 Conference**

*September 28, 2006*
Cost of gain

<table>
<thead>
<tr>
<th></th>
<th>500 lb</th>
<th>400 lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stacker</td>
<td>$.43</td>
<td>$.43</td>
</tr>
<tr>
<td>Backgrounding</td>
<td>$.35</td>
<td>$.39</td>
</tr>
<tr>
<td></td>
<td>$.08</td>
<td>$.04</td>
</tr>
</tbody>
</table>

Lowering cost of gain

- Not necessarily lowering total cost
- Lowering incremental cost
- Apply Marginal Cost/Marginal Return principle to performance enhancing inputs

Marginal Cost

- The cost incurred to produce one additional unit of output.
- The cost to produce one additional pound of live weight (beef).
Marginal Return

- The price received for one additional unit of output.
- The price received for one additional pound of live weight (beef).

MC/MR Principle

- Continue to increase inputs until MC is equal to MR
- In reality we will likely curtail inputs short of MC=MR

Marginal Return

- The per lb. price you will be paid for your cattle at sale time
- For a:
  - 700 lb. feeder steer that is $1.10
  - 600 lb. feeder steer that is $1.20
• Let's use an example of an input that is common among top producers.
• Balanced mineral with growth promoting additives.

**Marginal Cost**

- Assumptions:
  - Mineral cost: $600/ton
  - Mineral intake: .2 lb./day
  - Production increase: .25 lb./ADG

\[
\frac{600}{2000} \times .2 = \$0.06/day
\]

**Assumption:**

Production increase: .25 lb./ADG

1 lb./.25 lb. per day = 4 days

\[
\$0.06/day \times 4 \text{ days/lb.} = \$0.24/lb
\]
**MC < MR**

| Marginal Return | $1.10/lb. |
| Marginal cost   | $.24/lb.  |
| Net Return      | $.86/lb.  |

Net ROI 358%

---

**Profit increase per head**

Value Gain - 25lbs. * $1.10/lb. $27.50
Per head cost $6.00
Per head net return $21.50

Net ROI 358%

---

**Backgrounding Model**

- Understanding the economics
  - Lowering COG
  - Increasing stocking rate
  - Profit potential
- Increase options
- Evaluate for incorporation
Summary Points

- Consider lighter starting weights
- Calculate spreads
- MC/MR
- ROI of inputs
- Evaluate backgrounding model
Utilization of Individual Stocker Information for Value

Brad White, DVM, MD
Kansas State University,
College of Veterinary Medicine

Key Points
- Stocker calves are managed as groups, yet individual identification provides more information to the farm decision maker.
- Individual animal information can be used to divide health and performance figures into relevant sub-groups for further analysis.
- Animal health records are a significant component of the decision process regarding diagnosis and treatment plan formulation, and individual animal identification facilitates evidence based decisions.

Individual Identification in the Stocker Systems
Animals entering the stocker unit are often identified by group or sale lot. Individuals may be designated by farm tags, or have new unique numbers placed at arrival. Cattle are managed as groups, but individual identification offers management benefits to the operational decision makers. Electronic identification facilitates record keeping on individual animals and offers advantages related to data entry and management.

Performance and health statistics are important to the profitability of the stocker operation. The utility of individual animal identification is not to use the information solely for decisions about that calf, but rather to divide the data into relevant sub-groupings for analysis. Classification of individual animal data into groups should be based on areas where management decisions impact outcomes. An example includes response rates to a specific therapy in a distinct class of cattle. Performance based on animal type or source may also be used to generate specific breakeven purchase values calculated by historical data.

Evidence-Based Animal Health Decisions
Any good health program is in constant evolution and improvement based on the cycle of implementation, evaluation, change and repeat. Evaluation is based on good records including diagnosis evaluations, treatment response rates, disease rates, and necropsy findings.

Our ability to maintain good health statistics on the animals starts at initial processing or on arrival. Each group of calves entering the facility should be recorded along with initial procedures performed to these animals. Accurate processing records are important to enable us to maintain quality controls and evaluate product performance. This is also important because the administration of many products induces a withdrawal time on each set of calves and proper records makes compliance with withdrawal times possible.
Recording the number of head, where they came from and which pen they were placed in is critical for determining disease and mortality incidence rates. These numbers can be maintained with minimal time and effort.

Bovine Respiratory Disease (BRD) is the primary cause of morbidity and mortality in the preconditioning yard. Cattle illness creates expenses related to death loss, treatment cost, and reduced performance (gain, feed efficiency). Evaluation of number of animals pulled from the pen is an important tool for continual improvement of diagnosis techniques. Rectal temperature can provide a quick, general guide for assessment of pulling patterns. A good rule of thumb is 5-10% of the pulls with a rectal temperature of 104°F or less. If more than 10% has a lower temperature, there may have been too many animals pulled or the diagnosis may not be infectious respiratory disease. If all the pulls have a rectal temperature of 105°F or higher then it is likely that there are more animals in the pen that need to be segregated and treated. If only a handful of the animals pulled for treatment have a fever, we may have misdiagnosed illness in some of the animals and pulled too many.

Pen morbidity and mortality rates are good gauges for level of illness within the group of calves. These rates can be benchmarked against other groups of similar type animals on the farm and through the industry to evaluate health performance. Individual animal treatment records are important not only for evaluating animal response, but also for ensuring adherence to drug withdrawal guidelines. All individual treatments should be recorded on a daily basis including the date, animal treated and the drugs administered. It may also be helpful to institute a simple visual measure such as notching an ear tag or placement of a special treatment identification to determine how many times an animal has been treated.

The first treatment response rate is an important number when evaluating efficacy of the initial treatment regime. This number is calculated by dividing the number of animals retreated by the number of first pulls. This reveals the retreatment rate; conversely first treatment response rate is one minus the retreatment rate. Ideally, the first treatment response rate should be greater than 80%. The rate may be below the target due to: ineffective treatment selection, misdiagnosis of the disease condition, or delayed intervention (failed to notice until too late).

The treatment interval is the distance between the first and second treatment (although it may be calculated using any two successive treatments). The average treatment interval is influenced by the drug selected at the first treatment and the presence or absence of a post-treatment moratorium. Excessively long treatment intervals on a pen basis may indicate disease clearance and reinfection. Long treatment intervals on individuals may indicate a calf which never fully recovered from the initial insult and was not retreated until disease had progressed.

The Case Fatality Rate (CFR) is also a good method to evaluate both disease identification and treatment regime. CFR is calculated by dividing the mortality number by the number of animals treated. Ideally, the CFR is in the 6-8% range depending on the type and risk level of the animals. A higher CFR could indicate poor treatment selection, misdiagnosis of disease, or delayed identification of sick animals. A low CFR could mean that too many calves were pulled and treated and the health program is economically inefficient.
Stocker operations differ significantly in management techniques and health programs. The utility of individual animal identification is to improve the decision process related to evaluation of health and performance records. Electronic identification minimizes the labor required for data entry and management, but is not necessary for an operation to maintain individual calf records.
Are Stocker Implants Still Relevant for Targeted Quality Grade Programs?

Chris Reinhardt
Kansas State University
Animal Sciences and Industry

Implants and the Modern Age: Value-based Marketing

Reasons for Not Implanting Stocker Cattle
- Beef Stocker 2000 Survey - KSU
- 10% of respondents do not implant
  - #1 No perceived benefit
  - #2 Natural beef program
  - #3 Price of implants
  - #4 Lack of facilities
**Effect of Weaning Implant**

Platter et al., 2001

**Effect of Weaning Implant**

Platter et al., 2001

**Effect of Backgrounding Implant**

Ralgro or Synovex, Platter et al., 2001
Effect of Backgrounding Implant

Life-Time Implant Effects on Quality Grade

<table>
<thead>
<tr>
<th>Implant Treatment</th>
<th>Marbling Score&lt;sup&gt;a&lt;/sup&gt;</th>
<th>&lt; Low Choice, %</th>
<th>Low Choice, %</th>
<th>Prem. Ch + Pr, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedlot Entry Reimplant</td>
<td>485</td>
<td>30</td>
<td>34</td>
<td>36</td>
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<tr>
<td>Reimplant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weaning Backgrounding</td>
<td>457</td>
<td>31</td>
<td>43</td>
<td>26</td>
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</tbody>
</table>

<sup>a</sup>Adjusted to a common fat thickness

Platter et al., 2001

Life-Time Implant Effects on Consumer Taste Panel

<table>
<thead>
<tr>
<th>Implant Treatment</th>
<th>W.B. Shear Force, kg.</th>
<th>Tenderness Like/Dislike&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Juiciness Like/Dislike&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Overall Satisfaction&lt;sup&gt;b&lt;/sup&gt;</th>
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<tbody>
<tr>
<td>Feedlot Entry Reimplant</td>
<td>3.95</td>
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<td>3.91</td>
<td>.650</td>
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<tr>
<td>Reimplant</td>
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</tr>
<tr>
<td>Weaning Backgrounding</td>
<td>4.10</td>
<td>3.76</td>
<td>4.04</td>
<td>.650</td>
</tr>
</tbody>
</table>

<sup>a</sup>1 = like extremely and 9 = dislike extremely
<sup>b</sup>0 = not satisfied and 1 = satisfied

Platter et al., 2001

Ralgro or Synovex, Platter et al., 2001
### Subsequent Feedyard Performance Summary

<table>
<thead>
<tr>
<th>Reference</th>
<th>Grass type</th>
<th>Pasture Implant Treatment</th>
<th>Feedyard ADG/Feed Efficiency</th>
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</thead>
<tbody>
<tr>
<td>Kuhl, 1997</td>
<td>Summer</td>
<td>Control</td>
<td>3.38/6.85</td>
</tr>
<tr>
<td>Eng, 1997</td>
<td>Summer</td>
<td>Rev-G</td>
<td>3.47/6.76</td>
</tr>
<tr>
<td>Grant, 1993</td>
<td>Summer</td>
<td>Control</td>
<td>3.44/6.66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rev-G</td>
<td>3.48/6.69</td>
</tr>
<tr>
<td>Paisley, 1997</td>
<td>Dormant</td>
<td>Control</td>
<td>3.03/7.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rev-G</td>
<td>3.16/7.63</td>
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<tr>
<td>Greene, 1998</td>
<td>Dormant</td>
<td>Control</td>
<td>3.63/-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rev-G</td>
<td>3.65/-</td>
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<td>Johnson, 1999</td>
<td>Summer</td>
<td>Control</td>
<td>4.23/6.17</td>
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<tr>
<td></td>
<td></td>
<td>Rev-G</td>
<td>4.15/6.40</td>
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<td>Larson, 1999</td>
<td>Summer</td>
<td>Control</td>
<td>3.97/6.20</td>
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<td>Rev-G</td>
<td>3.91/6.56</td>
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<td>Average</td>
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<td>RG vs C</td>
<td>3.26/6.52</td>
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<td>3.27/6.66</td>
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### Subsequent Quality Grade

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<thead>
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<th>Grass type</th>
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<th>Percent Choice</th>
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<td>Control</td>
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<tr>
<td>Eng, 1997</td>
<td>Summer</td>
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<td>Summer</td>
<td>Control</td>
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<td></td>
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<td>Rev-G</td>
<td>43.9</td>
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<td>Dormant</td>
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<td></td>
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<td>Control</td>
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<td>Rev-G</td>
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<td>Summer</td>
<td>Control</td>
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<td>Rev-G</td>
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<td>Summer</td>
<td>Control</td>
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<td>Rev-G</td>
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<td>RG vs C</td>
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<td></td>
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### Subsequent Feedyard ADG/F:G

<table>
<thead>
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<th>Reference</th>
<th>Pasture Implant</th>
<th>Control</th>
<th>Ralgro</th>
</tr>
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<tr>
<td>Brazle, 1996</td>
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<td>3.74</td>
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<tr>
<td>Brazle, 1996</td>
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<td>3.78</td>
<td>3.52</td>
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<td>Grigsby, 1988</td>
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<td>2.63</td>
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<tr>
<td>Rush, 1989</td>
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<td>2.89/7.7</td>
<td>2.88/7.5</td>
</tr>
<tr>
<td>Mader, 1985</td>
<td></td>
<td>2.71/6.74</td>
<td>2.79/6.99</td>
</tr>
<tr>
<td>Brethour, 1981</td>
<td></td>
<td>3.60</td>
<td>3.81</td>
</tr>
<tr>
<td>Hutcheson, 1987</td>
<td></td>
<td>2.72/7.55</td>
<td>2.79/7.72</td>
</tr>
<tr>
<td>Simms, 1988</td>
<td></td>
<td>3.19/6.5</td>
<td>3.15/6.7</td>
</tr>
<tr>
<td>Kuhl, 1997</td>
<td></td>
<td>3.38</td>
<td>3.39</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td>3.19</td>
<td>3.19</td>
</tr>
</tbody>
</table>
Implants and Finished Weight

- Implants increase the growth curve
- Increasing dose increases weight at a common body fatness.
- Compare cattle of equal fatness if evaluating grade differences.
- Implants do not change the amount of fat required to reach Choice.
Variation in Forage Quality as it Relates to Stocker Performance

KC Olson
Kansas State University, Animal Sciences & Industry
And
Pablo Guiroy
Cargill Animal Nutrition

Forage Quality and Stocker Performance

KC Olson
Kansas State University

Forage Quality

- Factors Affecting Forage Quality
- Manipulating Forage Quality
- Diet Selection
- Stocker Performance
1. Maturity

Plant Factors Affecting Forage Quality

2. Species

Plant Factors Affecting Forage Quality

Change in Protein and Fiber Concentration of Mixed Grass Prairie Forage Grazed by Steers

(Adams et al., 1987)
Plant Factors Affecting Forage Quality

1. Maturity
2. Species
3. Plant Part

Most Nutritious: leaves
Intermediate: leaves and stems
Least Nutritious: lower stems

Species and Plant Parts
• Legumes/forbs are generally more digestible than grasses
• Leaves are typically more digestible than stems from the same plant type
• The magnitude of the difference depends on stage of maturity and plant species
• Greater difference in legume stem and leaf with maturity due to lignin distribution

Manipulating Forage Quality
Manhattan, KS August 7, 2006
(Composition = Native Tallgrass Prairie)

<table>
<thead>
<tr>
<th>Ungrazed Forage</th>
<th>Grazed Forage (Regrowth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude Protein</td>
<td>Crude Protein</td>
</tr>
<tr>
<td>12.9</td>
<td>+ 3.9</td>
</tr>
<tr>
<td>ADF</td>
<td>ADF</td>
</tr>
<tr>
<td>30.8</td>
<td>- 4.3</td>
</tr>
<tr>
<td>NDF</td>
<td>NDF</td>
</tr>
<tr>
<td>60.4</td>
<td>- 6.7</td>
</tr>
</tbody>
</table>

Adapted from Van Soest, 1982
Diet Selection

- Grazing animals consistently select a diet of greater nutritional quality that the average of the forage on offer.
- This is the result of the animal selecting specific plant species and plant parts to eat.
- Selection is driven by:
  - Plant Palatability
  - Plant Growth Form
  - Cattle Experience
Stocker Performance

- Stocker Steer Body Weight and Rate of Gain

<table>
<thead>
<tr>
<th>Body Weight, lbs.</th>
<th>Net Energy, Mcal/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>550</td>
<td>8.0</td>
</tr>
<tr>
<td>600</td>
<td>13.0</td>
</tr>
<tr>
<td>650</td>
<td>18.0</td>
</tr>
<tr>
<td>700</td>
<td>23.0</td>
</tr>
<tr>
<td>750</td>
<td>28.0</td>
</tr>
<tr>
<td>800</td>
<td>3.0</td>
</tr>
</tbody>
</table>

3.0 lb Average Daily Gain
2.0 lb Average Daily Gain
1.0 lb Average Daily Gain

Strategic Supplementation

- When is Supplementation Appropriate?
  - Understand the Process of Diet Selection
  - Learn to intervene based on body condition / growth performance - the primary management tool
  - Resist the urge to intervene based on forage condition alone - secondary management tool

- What are the Goals of Supplementation?
  - Promote forage intake and digestion
  - Add nutrients to the diet that are limiting ruminal activity
  - Add nutrients to the diet that are limiting growth

- What Nutrients Usually Limit Productivity?
  - Protein – primary
  - Energy – secondary
  - Minerals and Vitamins - tertiary
Stocker Supplementation

Getting The Most Out Of

Your Forage

Pablo J. Guiroy
Cargill Animal Nutrition

Types of Supplementation

- Energy
- Protein
- Mineral
Energy Supplementation

Rouquette and Vendramini, 2006 Texas A&M

- Characteristics
  - Replaces pasture in diet
  - Typical intake supplementation
    2 to 8 lb daily intake
  - Can reduce forage digestibility
  - Strategic use recommended
  - High stocking rates

Lowest total gain per acre

Best potential economic return

NutreBeef
Energy Supplementation

- When to consider
  - Profitable return
  - Total gain objectives
  - Insufficient supply of forage
    - High stocking rate
    - Reduced forage growth

- Increase performance strategy

- The key to a positive return for energy supplementation is:
  1. High stocking rates that challenge forage supply.
  2. Short term strategic use during periods when the quantity of forage is limited and reducing ADG.
Protein Supplementation

- When to consider
  - Ample forage supply
  - Low quality forage < 12% (summer or hay) that affects forage digestibility and total dry matter intake

Protein Supplementation

Cargill Research Study at KSU Beef Stocker Unit, Spring/Summer 2006

Each date represents the average of three samples obtained following the KSU Agronomy Department recommendations for pasture sample collection.

Protein Supplementation

- Summer pasture strategic gain response

Supplemented ADG
Spring Summer Fall ADG
The key to a positive return for protein supplementation is:

1. Ample forage with highly soluble protein and limited by-pass (winter annual pastures).
2. Long and Short term strategic use during periods when forage quantity is high but quality is low.

Mineral Supplementation

- **Macro**
  - Calcium
  - Phosphorus
  - Magnesium
  - Sulfur
  - Potassium
  - Sodium

- **Micro**
  - Copper
  - Zinc
  - Manganese
  - Cobalt
  - Selenium
  - Iodine

Each date represents the average of three samples obtained following the KSU Agronomy Department recommendations for pasture sample collection.

The graph shows the needed requirement for 1 lb/day gain (NRC, 1996) and the needed requirement for 2 lb/day gain (NRC, 1996).
Mineral Supplementation

- Characteristics
  - Compliments pasture
  - Lowest intake supplementation
  - 2 to 4 oz daily intake
  - Increases energy metabolism
  - Lowest cost

- When to consider
  - Any time cattle are grazed

- Summer pasture gain response
Mineral Supplementation

• The key to a positive return for mineral supplementation is:

  1. A mineral balanced for the type of forage (winter or summer) with an Ionophore.
  2. Fed continuously.
  3. Adequate consumption.

Bottom Line

• Energy
  – Strategic use when forage quantity is limited
  – Increase stocking rate and total gain per acre

• Protein
  – Strategic use when forage quantity is ample and quality is low

• Mineral
  – Continuous use in all stocker programs

Stocker Supplementation

Strategic supplementation of your stockers pays dividends and will make them profitable…
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”