The Current State of Market Cow Beef in the US

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What are market cows?

- Definition of market or cull cows
- Typical ranch culling ranges
  - 15 – 30%
- By-product of the beef and dairy industry, or not?
- Farm gate value of market cows
  - Up to 25% of ranch revenue

Market Cow Economics

- Account for 12 – 18% of beef slaughter
  - Beef cows and Dairy Cows
  -
- 5.3 million head slaughtered
  - 2.9 mil beef, 2.4 mil dairy
  -
- Approx. 13% of domestic beef supply
  - 3.4 billion pounds

USDA-NASS, 2007

Concerns for Research

- Lots of room for improvement
  - From the ranch to retail
- Improving the health, efficiency and pounds of product
- Increase the quality of beef produced for use beyond grinding

How Market Cow Audits are Conducted

- **Phase I** – Audits conducted in slaughter plants looking for defects in pens, slaughter and fab
- **Phase II** – Interviews with one FSIS employee and plant manager of each plant, issues and improvements
- **Phase III** – Audits of end users looking for subprimal and muscle defects (2007 only)
- **Phase IV** – Workshop with reps from all sides to discuss future strategies

NCBA, 1994

1994 Market Cow Audit

- Goal
  - National audit of non-fed (market) cows, carcasses and products to establish a baseline and identify target for future progress
  -
- Objectives
  - 1) Quantify number of defects and value
  - 2) Characterize found defects
  - 3) Determine strategies to reduce/eliminate defects
  - 4) Determine strategies to pursue

NCBA, 1994

1994 Major Defects

1) Excessive bruising
2) Excessive condemnation
3) Excessive brands
4) Small ribeyes (cows only)
5) Inadequate muscling (cows only)
6) Excessive external fat
7) Excessive live weight (bulls only)
8) Low dressing percentage
9) Advanced lameness
10) Frequent disease

- Includes bulls and cows

NCBA, 1994

Frequency of Cow Defects

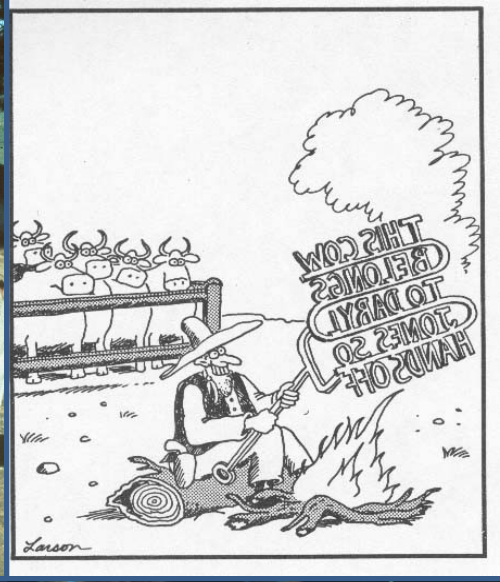
Carcass Weight Too low (< 400 lbs.)	14.4 %
Ribeye Area Too small (< 8 in^2)	31.1 %
Muscling Score Too low (≤ 2)	67.1 %
Fat Color Too yellow	41.0 %

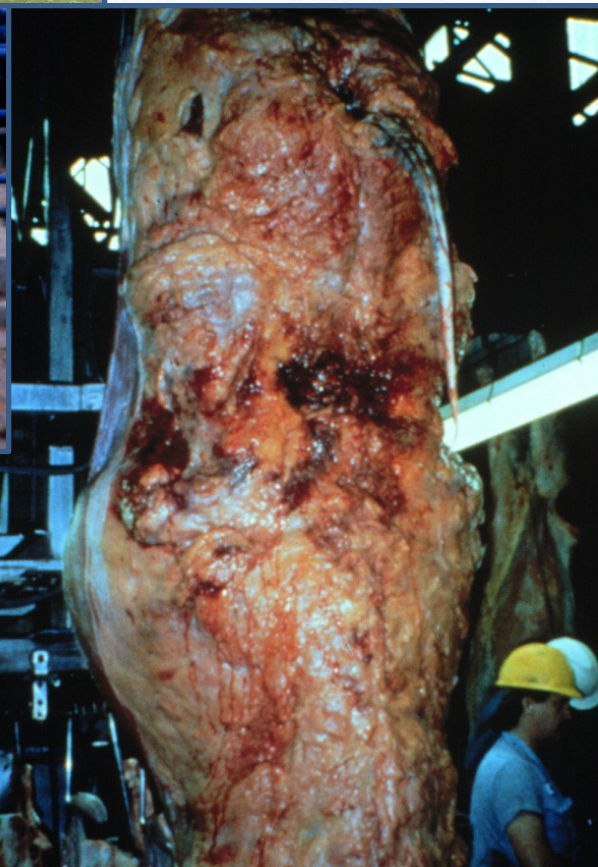
NCBA, 1994

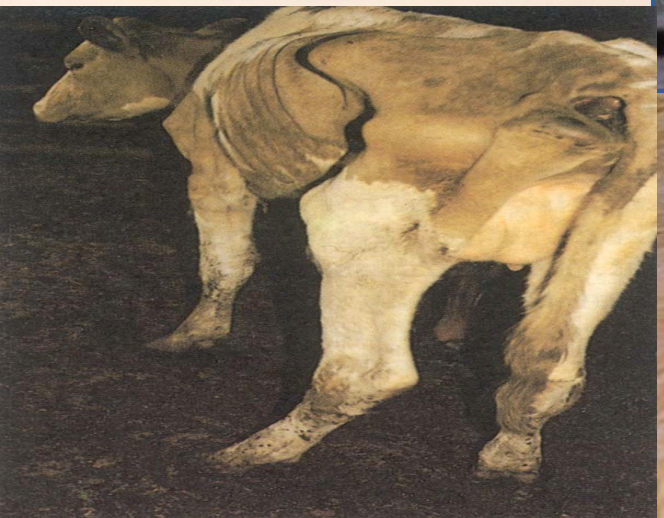
Workshop Suggestions for Future

1)Market more timely – Timing / Season
2)Market more timely – Lessen Disability
3)Market faster – Lessen Ocular Neoplasia
4)Market faster – Lessen Emaciation
5)Don't bruise
6)Don't brand
7)Prevent injection site lesions
8)Don't let cows get thin and emaciated

NCBA, 1994


THIS COW BELONGS TO DARYL HANUSCH
Larson





Methods to Increase Value

- 47.5% of cows had live muscle score of 2 or lower
  - 1 = lightly muscled, 5 = heavily muscled
- Increase REA (all muscle)
- Increase marbling (Quality)
- Change fat from yellow to white
- Increase Body Condition Score to 5-6
  - 1 - emaciated; 9 - extremely obese

NCBA, 1994


Eversole et al., 2000

1999 Market Cow Audit

- Packer thoughts since the 1994 Audit
  -
- 7 reported Quality stayed the same
- 4 thought Quality had improved
- 1 said Quality had declined
- Product yield, DP, BCS, and carcass leanness still major packer issues

NCBA, 1999

1999 Holding Pens (Live)

- Muscling
  - 44.4% of beef cows were inadequately muscled
  -
  - 72.5% of dairy cows were inadequately muscled
- Body Condition Score
  - 40.6% of beef cows below BCS 4
  - 57.5% of dairy cows below BCS 4

NCBA, 1999

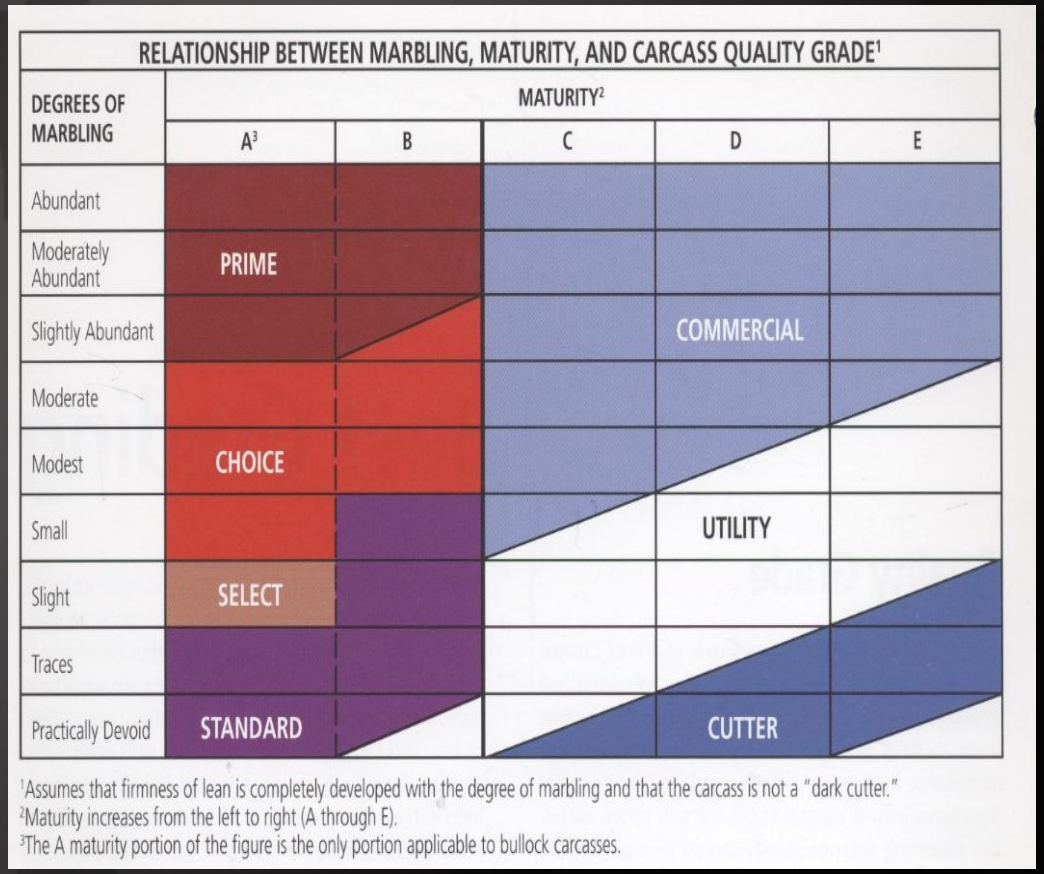
Cooler Audits (Carcass)

- Carcass weights
  - 43% of cow carcass too light
    - Less than 500 pounds
- Muscling
  - 89% of cows had lower than desirable muscle scores
- Fat
  - 31% of cows had fat that was too yellow for further processing

NCBA, 1999

Cow Carcass Quality

- **Quality**
- 34.3% of carcass were Canner/Cutter
- 49.3% of carcasses were Boner
- Almost all beef from these classes goes into trimming and grinding



NCBA, 1999

Value Left at the Ranch

Defect	$/Head '94	$/Head '94	$/Head '99	$/Head '99
Excess Fat	$17.74		$10.17	
Light Muscling	$14.43	$14.43	$18.70	$18.70
Condemnation Whole	$12.02		$4.14	
Hide Damage	$6.92		$6.27	
Condemnation Offal	$3.99		$4.49	
Bruising	$3.91		$2.24	
Light Weight	$3.12	$3.12	$1.28	$1.28
Birdshot	---		$0.52	
Yellow Fat	$2.27	$2.27	$6.48	$6.48
Parts Removed	$2.13		$9.72	
0-Tolerance	$1.87		$0.46	
Handling	$0.78		$0.56	
Injection Lesions	$0.66		$1.46	
Dark Cutter	$0.06		$1.41	
Antibiotic testing	---		$0.92	
Total	**$69.90**	**$19.82**	**$68.82**	**$26.46**

Latest Audit 2007

- Conducted in same manner as previous audits

- Included:
  - 23 Packing plants from 11 states
  - Represented 15,000 hd/d
  - 8 End users (further processors)
  - 7 Universities
  - 70 individuals

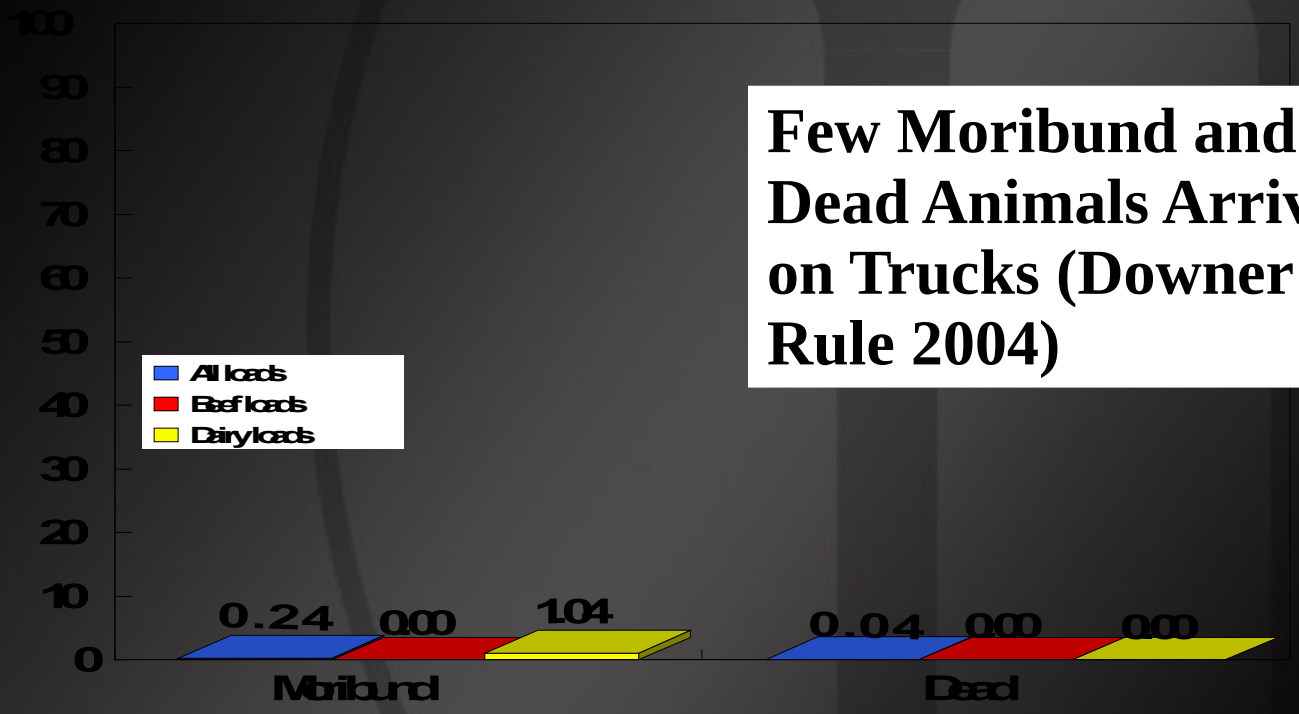
The following slides were adapted from and used with the permission of :

Dr. Dan Hale – TAMU

NCBA

Lead research organizations for project

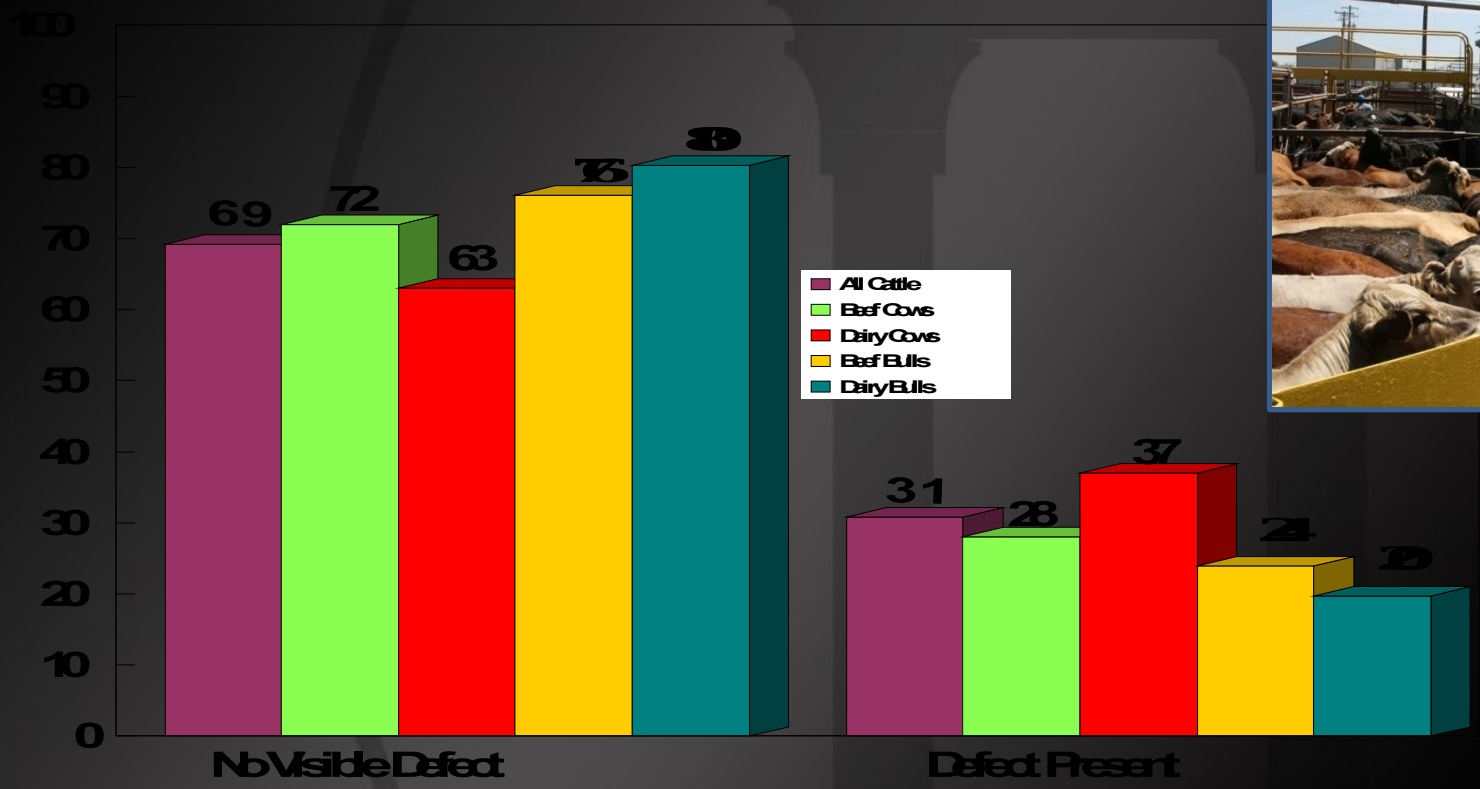
Frequency Distribution of Dead/Moribund Cattle



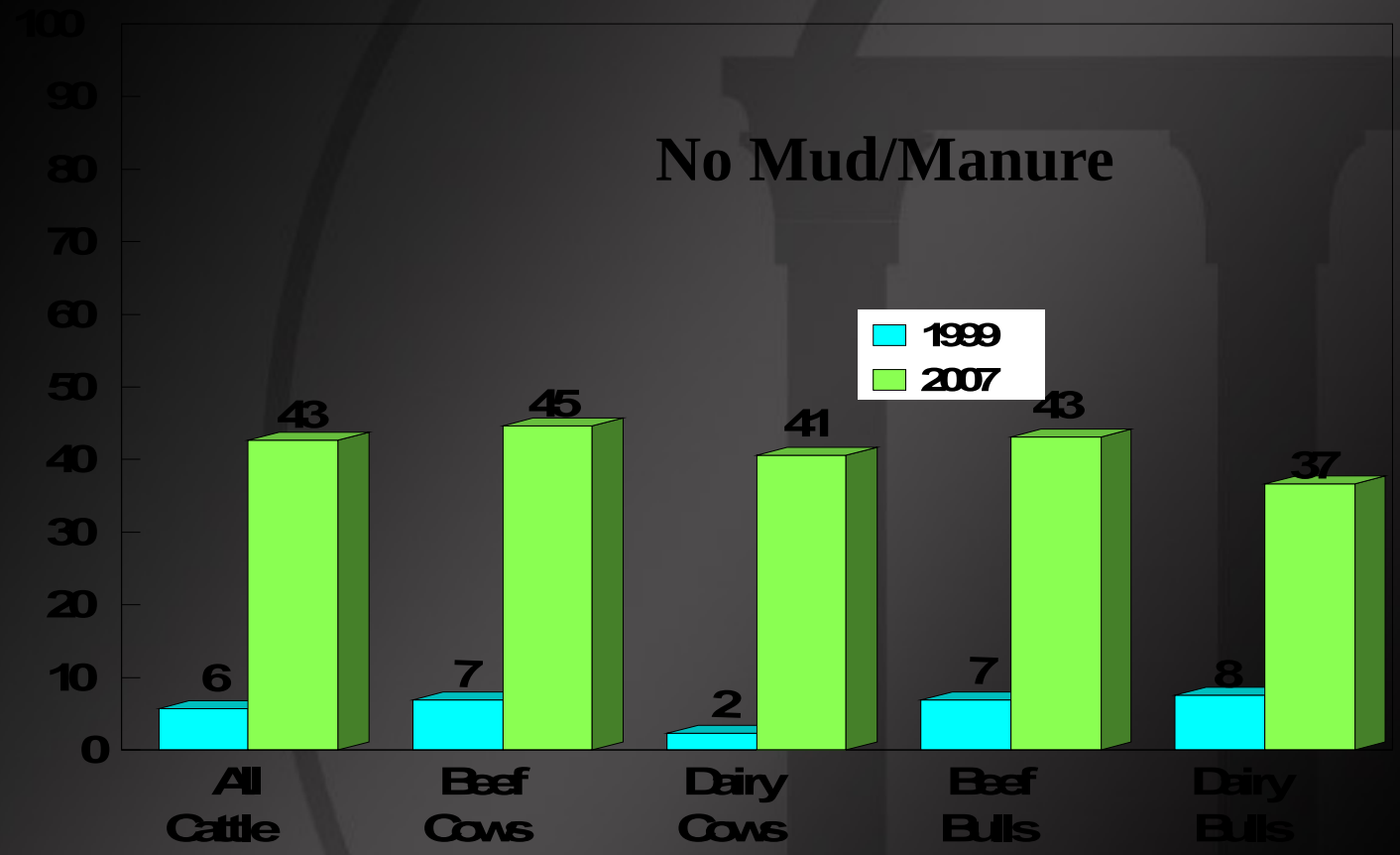
Few Moribund and Dead Animals Arriving on Trucks (Downer Rule 2004)

Frequency Distribution of Visible Defects on Cattle

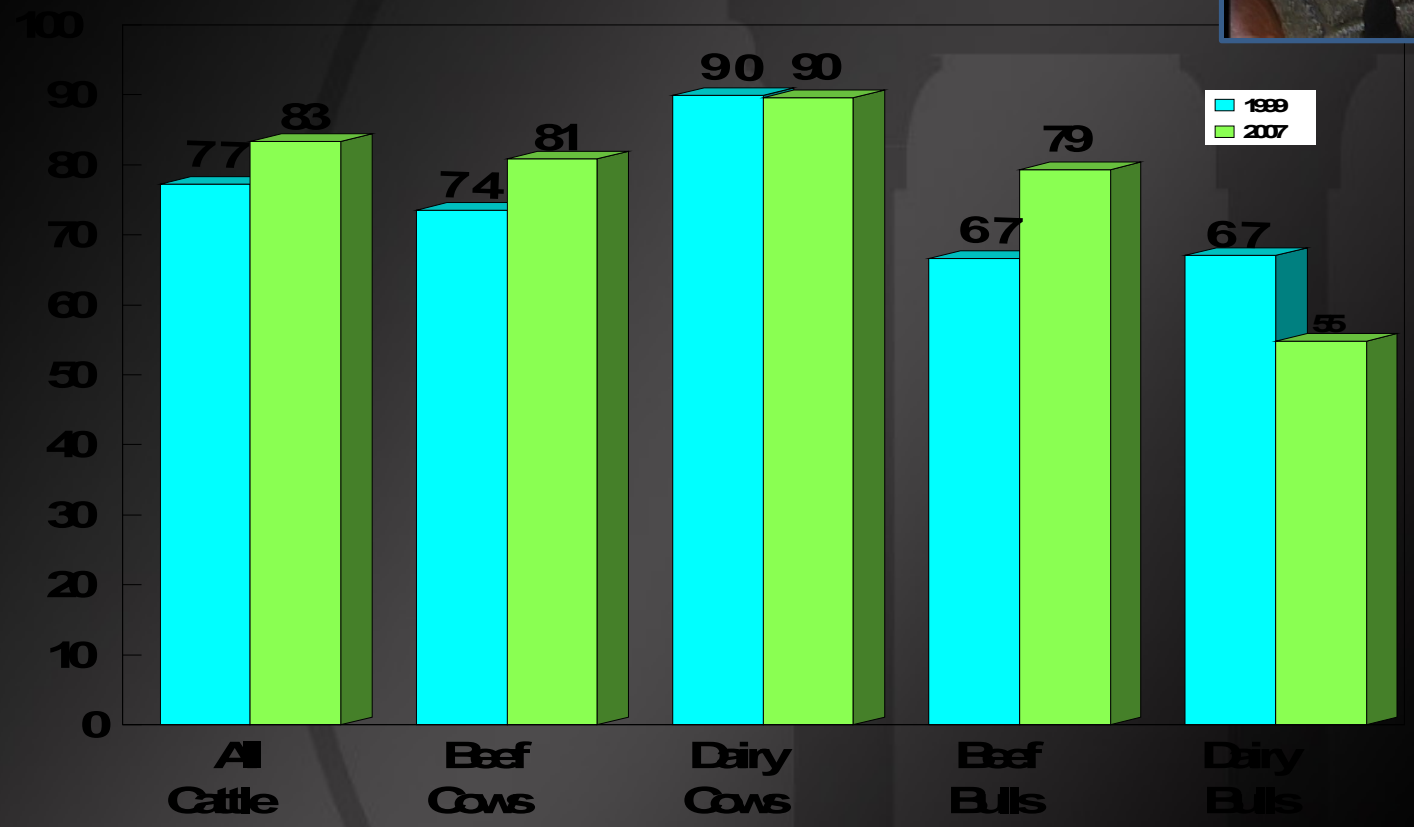
Dairy Cows had the Most Visible Defects Compared to the Other Gender/Cattle Type Groups



Frequency Distribution of No Mud/Manure for 1999 vs. 2007

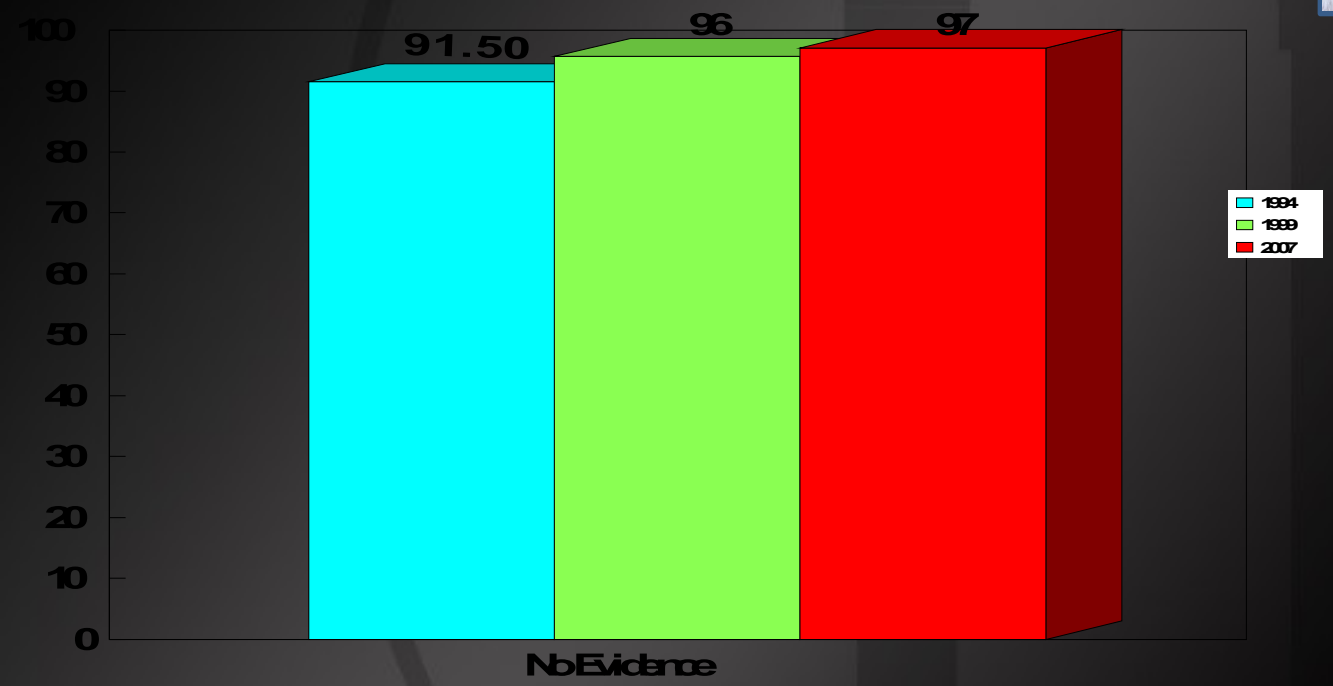


Frequency Distribution of No Horns for 1999 vs. 2007



Frequency Distribution of Cattle with No Evidence of Cancer Eye Across All Audits

Bovine Ocular Neoplasia is on a downward trend since 1994



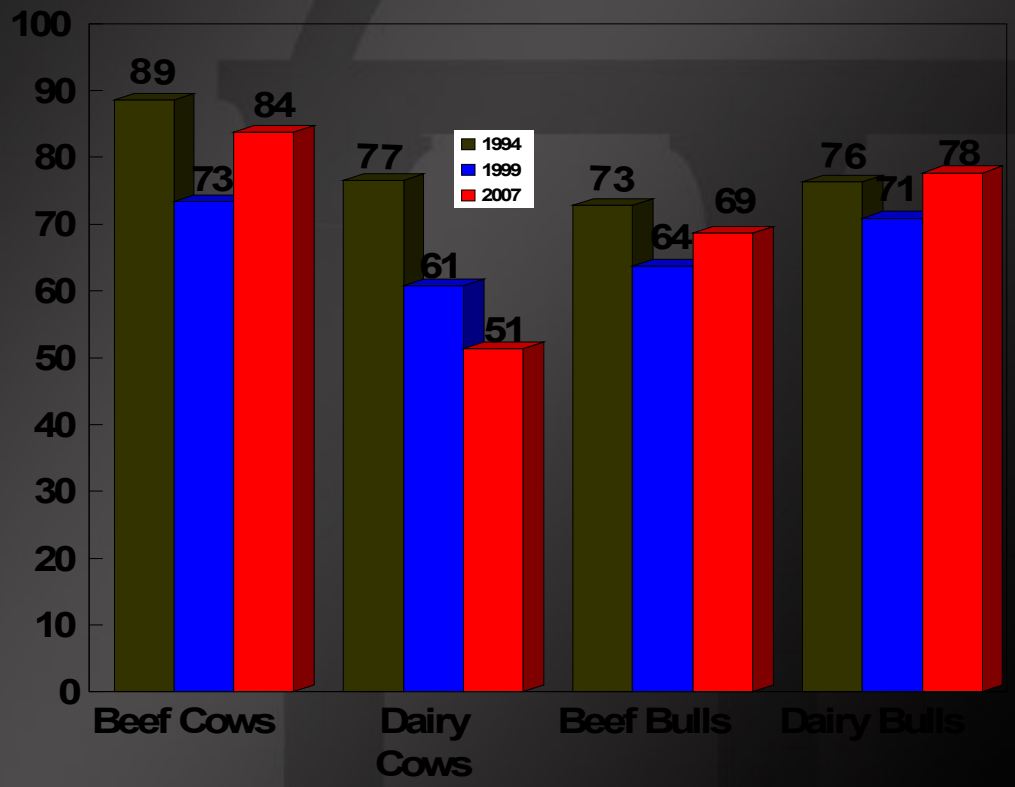
Frequency Distribution of Knots

Dairy Cows had more Knots in the Neck and Shoulder than Beef Cows

Frequency Distribution of Cattle that were Not Lame - Across all Audits

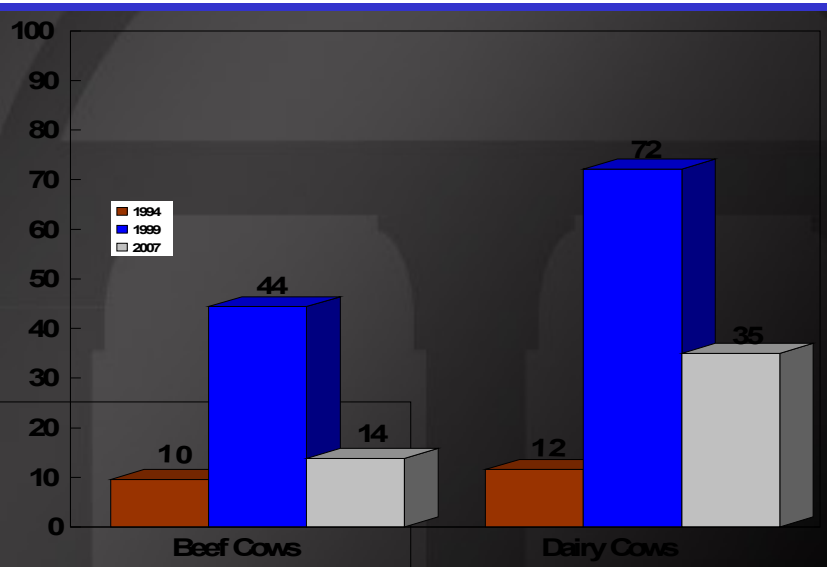
Fewer Beef Cows were Lame than in 1999

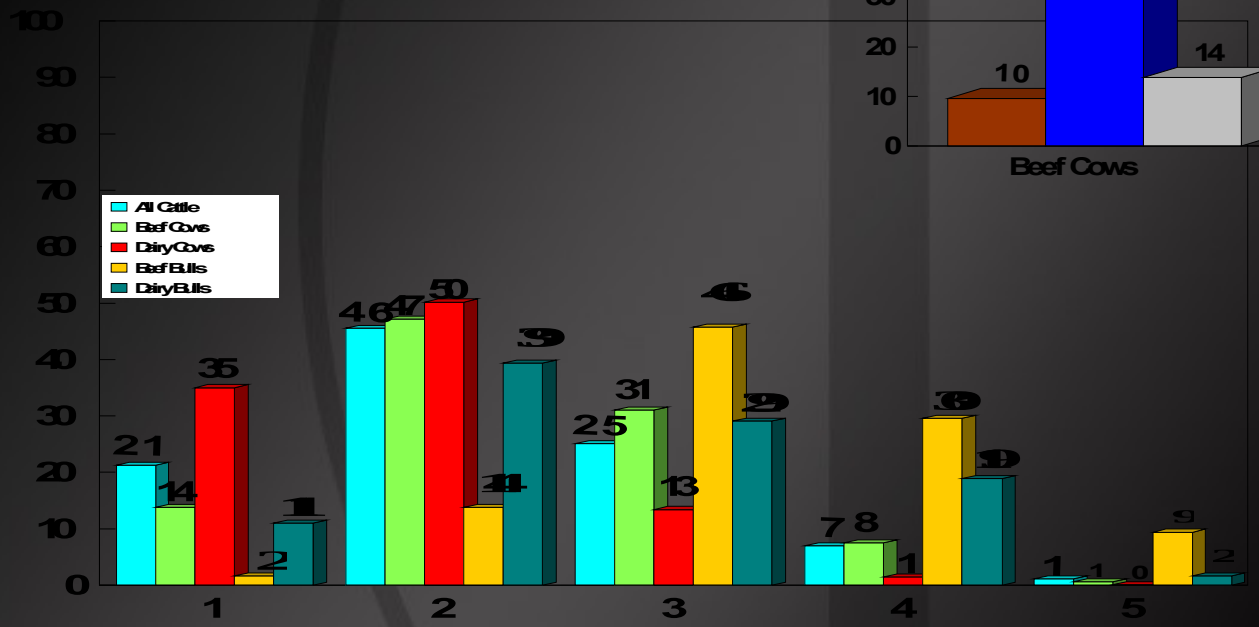
More Dairy Cows were Lame than in 1999 and 1994



Frequency Distribution of Muscle Scores and % Light Muscled Cows Across All Audits

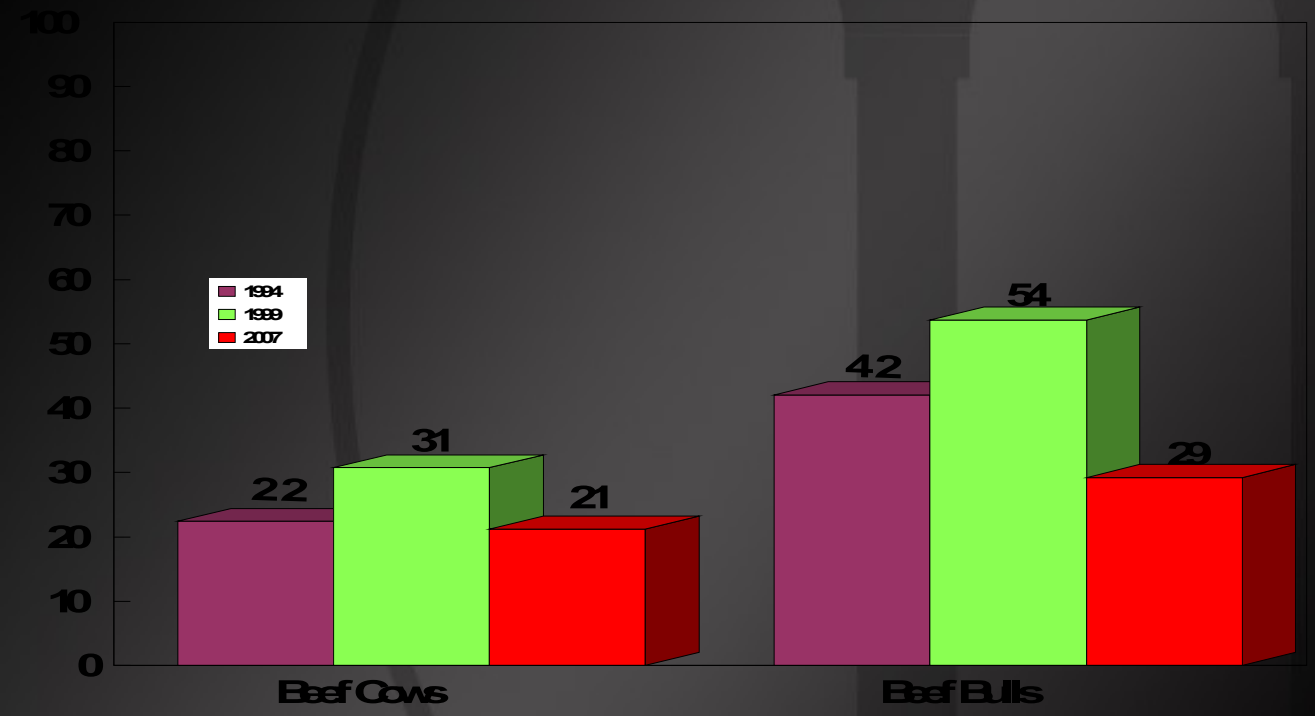
- Fewer Light Muscled Cows compared to 1999

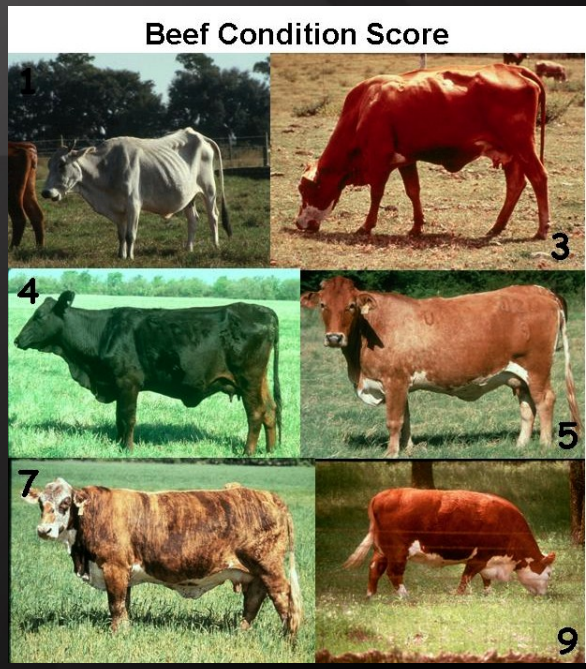




Frequency Distribution of Moderate (Score of 5) Conditioned Beef Cattle Since 1994

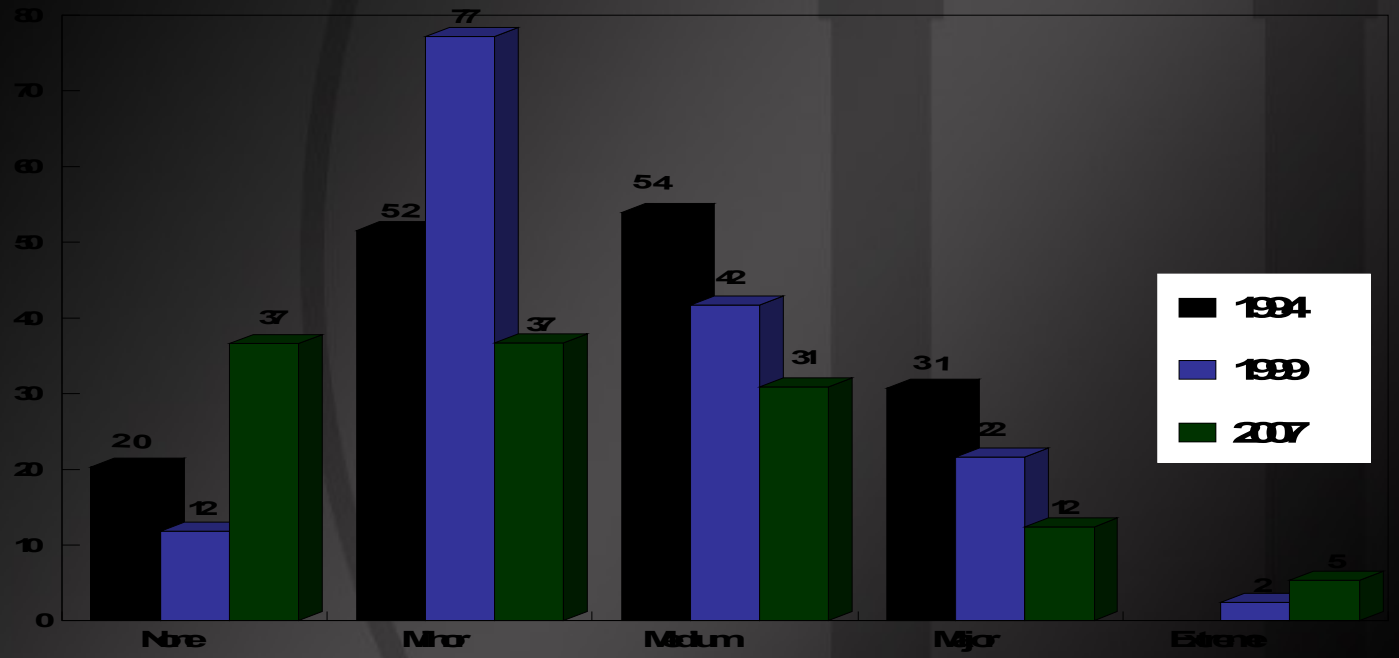
Less Moderately Conditioned Beef Cows and Bulls Since 1999



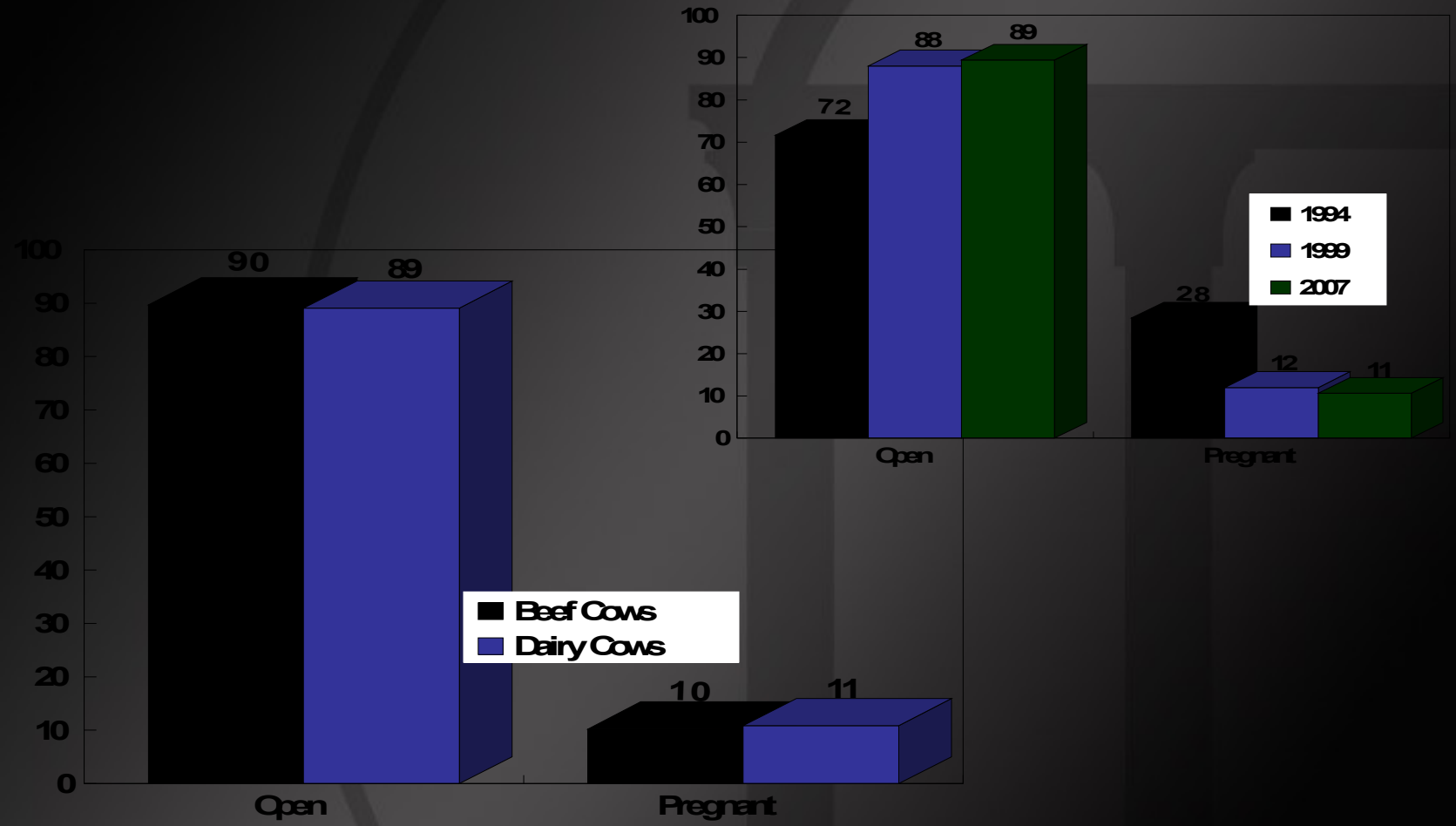


Bruising Severity Frequency Distribution%

All Cattle
1999 - 11.8% No Bruises
2007 - 36.6% No Bruises



Frequency Distribution of Fetal Calf Prevalence



Top quality challenges facing the market cow and bull beef industry

	1999 Quality Challenge
1	Bruises
2	Antibiotic Residues
3	Birdshot/Buckshot
4	Arthritic Joints
5	Yield
6	Condition/Leanness
7	Condemnation Rate

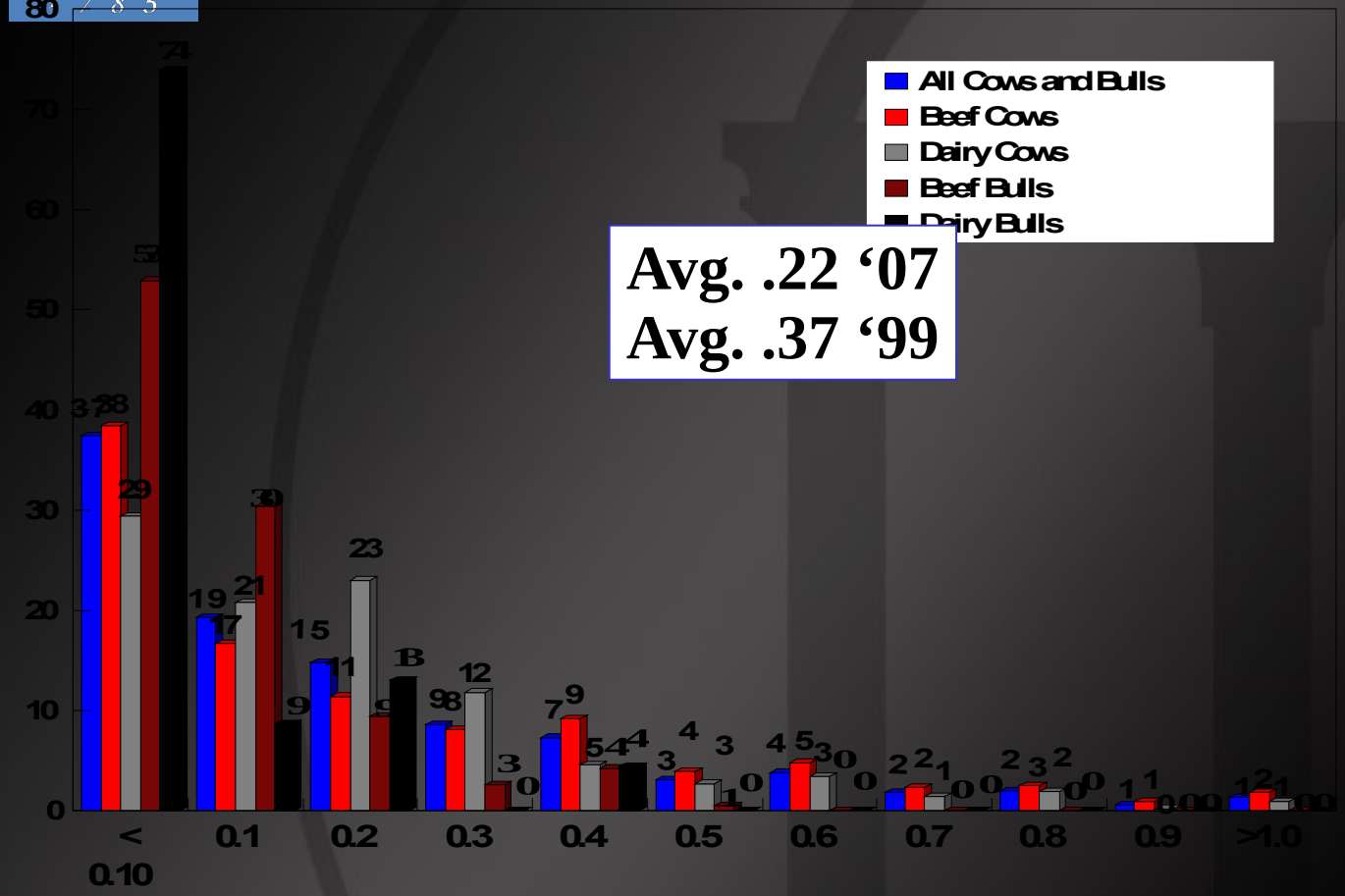
	2007 Quality challenges
1	Food safety
2	Market availability/Economic issues
3	Animal welfare and handling issues
4	Poor conditioning/nutrition
5	Antibiotic residues
6	Bruises
7	Hide damage
8	Lameness/soundness
9	Condemnation rates/downers
10	Injection site prevalence and location

**Highlighted = Present in 1999 and 2007 Interviews

Carcass Weight Frequency Distribution%

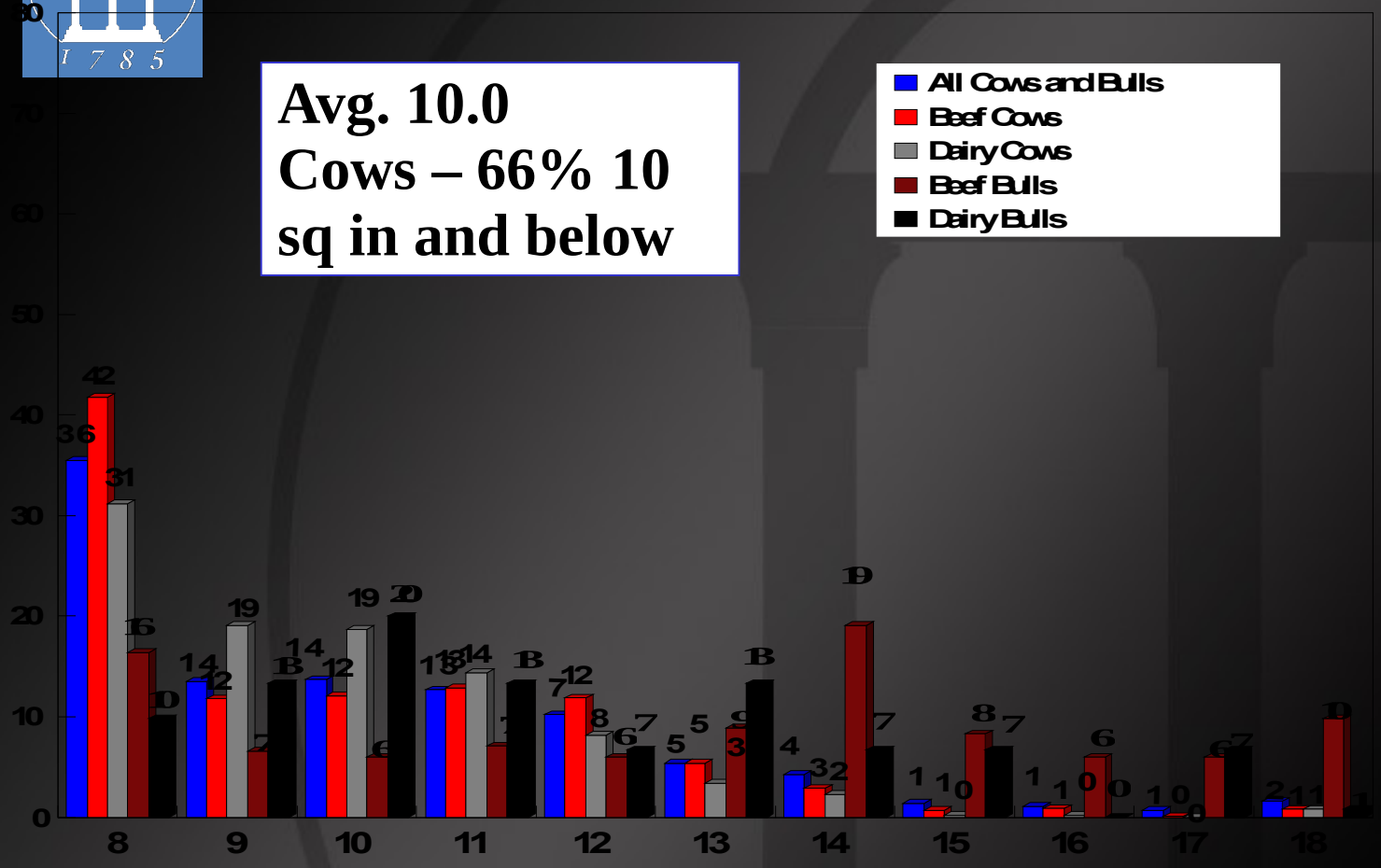
Beef Cow 634.9
Dairy Cows 648.8
Beef Bulls 873.1
Dairy Bulls 927.9

Fat Thickness Frequency Distribution%

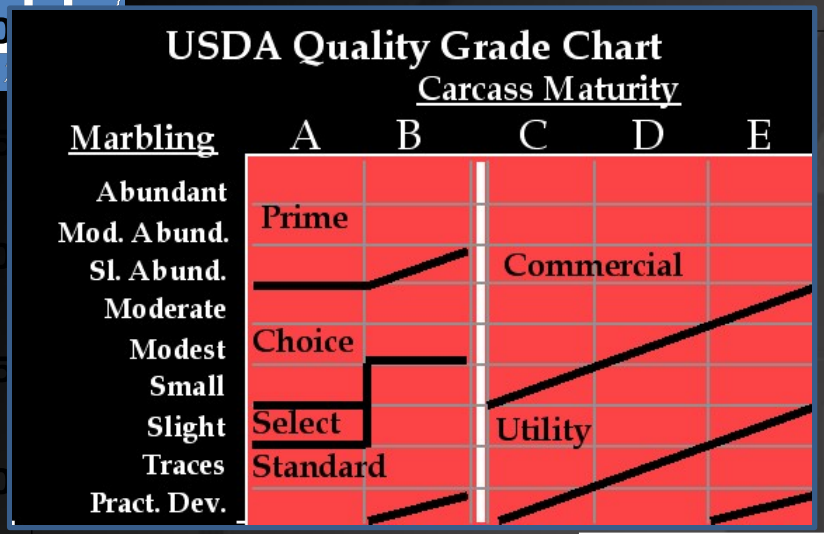


Ribeye Area

Avg. 10.0
Cows – 66% 10 sq in and below



Quality Grade Frequency Distribution%

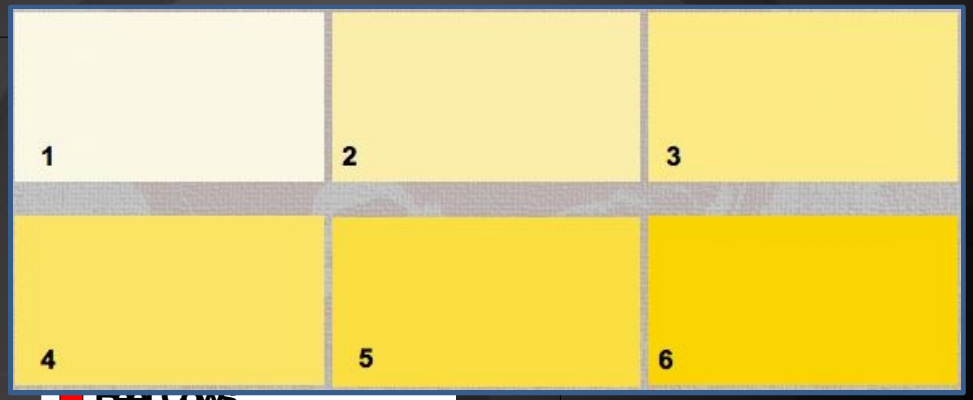


Muscle Score Frequency Distribution%

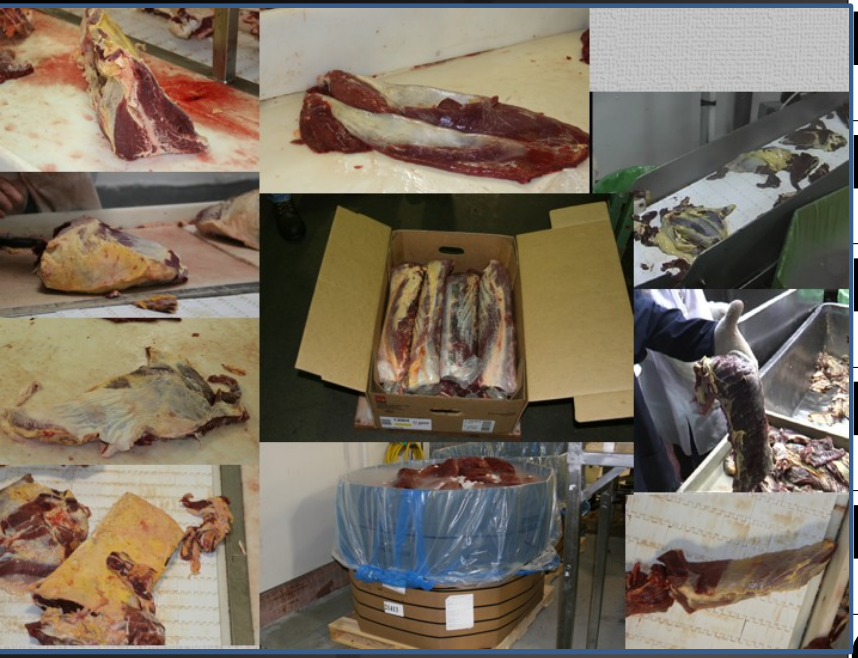
Avg. 2.06

Fat Score Frequency Distribution%

Avg. 2.7 ‘07: 3.8 ‘99



Percent of Plants Fabricating Subprimals from Cow and Bull



Primal Region	% of Plants
Rib	100
Loin	100
Round	85.7
Flank	85.7
Chuck	57.1
Brisket	14.3

Most Hindquarter subprimals were 100% Lean: Likely used for Grinding

Reported as % of plants that submitted fabrication information

% of Plants that Produce Each Item

Product	1999 %	2007 %
Ribeye	74	100
Tenderloin	79	100
Knuckle	37	86
Flank	74	86
Inside Round	42	79
Strip Loin	68	71
Top Sirloin Butt	5	71
Chuck Tender	16	57
Eye of Round	42	57
Bottom Round	37	50
Chuck Roll	16	28.6
Bottom Sirloin Flap	21	28.6
Brisket	21	21
Shortloin	32	14
Clod	16	14
Tri-Tip	11	14

What do we still need to look at?

- Cow condition
- Fat color
- Live and carcass muscling
- Cow quality
  - younger age
  - Increase marbling

What we are doing at UGA

- Feeding cull cows for 84 d on concentrate ration
  - Increase weight, muscle, marbling, BCS, DP, REA
  - Improve lean maturity, lean color and fat color
  - Increase the weights of key muscles used in further processing
  - Increase overall boning yields
  - Increase carcass fat to acceptable level (.25)
  - Increase overall value to producer and industry ($60/hd)
  -

➢ Stelzleni, 2007; Stelzleni et al. 2008









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http://www.beefboard.org/news/factsheets.asp