

**IOWA BEEF TENDERNESS AND CARCASS EVALUATION PROJECT**

A sire progeny testing program for Iowa cattle producers.  
Coordinated and partially funded by the



**Iowa Beef Center**

In cooperation with the  
**TRI-COUNTY STEER CARCASS FUTURITY**

Delivery Date: Wednesday, December 6, 2000


**Dr. Daryl Strohhahn**  
Iowa Beef Center







### Highlights 2002 Tenderness Project

- Delivery - December 6  
113 head  
Average weight: 596  
Condition score: 4.1
- On test - January 9  
Average weight: 716 lbs  
Warmup ADG: 2.99 lbs
- Mid test weighing and re-implant March 4  
Average weight: 894 lbs.  
37 day Test ADG: 3.63 lbs  
ADG from delivery: 3.34 lbs





### Highlights 2002 Tenderness Project, continued

- 1st Harvest - May 7th  
65 Head
- 2nd Harvest - June 11th  
48 head

### Highlights 2002 Tenderness Project, continued



- Average days on feed: 205
- Average Final Weight: 1176 lbs
- Average ADG: 3.56 lbs
- Average Feed to Gain: 6.47 lbs.
- Sire Ranges:  
Final Wt: 1011 to 1326  
Wt Ratio: 86.0 to 112.8  
ADG: 2.59 to 4.33  
Ratio: 72.8 to 121.8



### Highlights 2002 Tenderness Project continued

Quality Grade Performance	
Prime	1.8%
Choice+	12.4%
Choice	16.8%
Choice-	52.2%
Select	16.8%



Yield Grade Performance	
1	1.8%
2A	7.1%
2B	26.5%
3A	42.4%
3B	19.5%
4	2.7%

### Highlights 2002 Tenderness Project continued

#### Carcass Trait Summary

- Carcass Weight: 720 lbs.
- Dress %: 61.3 %
- Ribeye Area: 11.9 in.
- Fat cover: .51 in.
- % KPH: 2.2 %
- Yield Grade: 3.14
- % Choice: 82.7 %
- % Retail Prod: 62.9 %
- **Instron Shear Force: 5.99 lbs**

## Highlights 2002 Tenderness Project

continued

### Carcass Trait Sire Ranges

- Carcass Weight: 644.5 to 822.4 lbs.
- Dress %: 58.3 to 63.8 %
- Ribeye Area: 10.8 to 13.3 in.
- Fat cover: .31 to .59 in.
- Yield Grade: 2.26 to 3.63
- % Choice: 17 to 100 %
- % Retail Prod: 61.0 to 66.3 %



- **Instron Shear Force: 4.90 to 7.40 lbs**



## Potential Impact of Disposition or Docility Score on Tenderness

### The Scoring System

- 1 Docile: mild disposition, gentle and easily handled, stands and moves slowly during processing, undisturbed, settled, somewhat dull, does not pull on headgate when in chute, exits chute calmly
- 2 Restless: quieter than average but slightly restless, may be stubborn, during processing, may try to back out of chute, pulls back on headgate, some flicking of tail, exits chute promptly
- 3 Nervous: typical temperament, manageable but nervous and impatient, a moderate amount of struggling, movement and tail flicking, repeated pushing and pulling on headgate, exits chute briskly
- 4 Flighty (wild): jumpy and out of control, quivers and struggles violently, may bellow and froth at mouth, continuous tail flicking, defecates and urinates during processing, frantically runs fenceline and may jump when penned individually, exhibits long flight distance and exits chute wildly
- 5 Aggressive: may be similar to score 4 but with added aggressive behavior, fearful, extreme agitation, continuous movement which may include jumping and bellowing while in chute, exits chute frantically and may exhibit attack behavior when handled alone
- 6 Very Aggressive: extremely aggressive temperament, "killer", pronounced attack behavior



## Potential Impact of Disposition Score on Warner Bratzler Shear Force

### Shear Force Ratio (n)

Disposition Score	Year 1	Year 2	Year 3
1	97.4 (97)	98.7 (67)	99.2 (93)
2	104.7 (19)	100.9 (56)	96.3 (13)
3	114.6 (3)	99.0 (13)	96.1 (6)
4	-----	108.0 (7)	81.3 (1)
5	-----	100.2 (2)	-----



## 1999-2000 thru 2001-02 Iowa Tenderness Evaluation Project Economic Summary

Item	1999-00	2000-01	2001-02
No. head	123	149	113
Death loss, %	2.4%	2.6%	0.0%
Vet Med Pulls	18%	17.4%	1.8%
% Blacks	92%	94%	95%
Dress %	61.9%	61.5%	62.9%



## 1999-2000 & 2001-02 Iowa Tenderness Evaluation Project Economic Summary

Item	1999-00	2000-01	2001-02
ADG	3.29	2.97	3.56
F/G	6.21	7.52	6.47
Hot Carcass Wt	724	681	720
Fat Cover	.49"	.45"	.51"
% YG 1 & 2's	37%	79%	35%
% Choice	78%	83%	79%
% CAB	25%	30%	21%



## 1999-2000 & 2001-02 Iowa Tenderness Evaluation Project Economic Summary

Item	1999-00	2000-01	2001-02
Feed Cost/cwt.	\$27.85	\$33.57	\$29.30
Total Cost/cwt.	\$42.16	\$48.69	\$41.27
Profit/head	\$53.71	\$32.59	-\$39.51
Total Profit	\$6,606	\$4,856	(\$4,465)



## Tenderness Determination Procedures

- Day 1 after harvest: ribeye muscle sample obtained from each carcass



## Tenderness Determination Procedures

- Day 2 after harvest: Ribeye sample is trimmed of excess fat and deboned, and then cut to 1" steak



## Tenderness Determination Procedures

- Up to Day 14: Steak is cryovac sealed and allowed to age for 14 days
- Frozen until all samples are ready for Instron Warner-Bratzler shear test



## Steaks are Thawed Prior to Cooking



Steaks put in convection oven and broiled to 160°F.



Turning Steaks





**Taking Internal Temps. All steaks broiled to 160° F.**



**Steaks After Cooking. All cool to room temperature before tenderness evaluation.**



**Coring steaks for tenderness testing**



**Steak with 6 Cores Taken**



**Instron Warner-Bratzler Shear**



**Thanks to all the help!**

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