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Factors Influencing the Price of Value-Added Calves at Superior Livestock Auctions

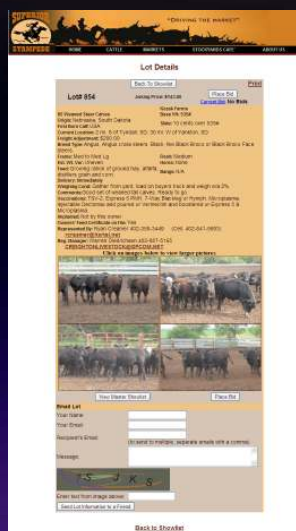
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Superior Livestock Auction

- Started in 1987 with satellite auction markets
- Largest livestock auction market in the U.S.
- Bi-weekly satellite, weekly Internet, and daily private treaty auctions
- Immediate to future delivery options



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Why video auction markets?

Bailey et al. 1991

- Large numbers of cattle from many locations
- Various weight and lot characteristics
- More information about cattle, feed and vaccination history
- More buyers at auction



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Video Auction Studies

- Blank et al. 2009
 - Regional price differences
 - 1997 to 2007 WVM sales
 - 4,116 lots, 571,000 steers 500-625 lbs.
 - 5,147 lots, 874,000 steers 750-925 lbs.
- Blank et al. 2006
 - 1997 to 2003 WVM sales
 - 1,979 lots, 280,000 steers 500-625 lbs.



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Video Auction Studies (con't)

- Bailey et al. 1995
 - Buyer concentration
 - 1987 to 1992 SLA sales
 - 3 million cattle
- Bailey et al. 1993
 - 1987-1989 SLA sales
 - 1988-1989 OKC Regional
 - Steers and heifers
- Bailey et al. 1991
 - Video vs. regional market prices
 - 1987 SLA sales
 - 75,855 lots, 600-800 lbs. steers
- Coatney et al. 1996
 - Feeder cattle price differentials
 - 1992 SLA sales
 - 2,441 lots

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Superior Livestock Auction Database

In 1994, Pfizer Animal Health started collecting SLA sale information including ...

- Price
- Sale date
- Delivery date
- Base weight
- Lot size
- Sex
- Weaning
- Vaccination program
- Breed
- Frame
- Flesh
- Origin
- Horned
- Implant

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Additions to the SLA Database

As the auction grew, the analyzed traits increased ...

- Implant type, spayed, special breed stamp, bangs vaccinated (1996)
- % of black-hided cattle in the lot (2000)
- Natural-market eligible (2004)
- Age-and-source verification and program (2005 & 2006)
- Vaccinated for *Haemophilus somni* and *Moraxella bovis*, test negative for BVD-PI, NHTC-market eligible (2008)
- Superior Progressive Genetics (2009)

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Research Objectives



- Quantify the effect of lot characteristics and value-added management on calf sale price
- Evaluate how outside market dynamics influence price
 - Futures prices
 - Export markets?
 - Choice/Select spread?

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2008-2009 SLA Price Model

$$\text{Price} = \sum V_{ikt} C_{ikt} + \sum R_{ht} M_{ht}$$

- Lot size
- Base weight
- Frame size
- Condition
- Weight variation
- Horns
- Implants
- NHTC-market eligibility
- Natural-market eligibility
- Vaccinations and weaning
- Breed influence
- Age-and-source verification
- Area of country
- Diff. b/w sale and delivery
- Nearby feeder calf futures

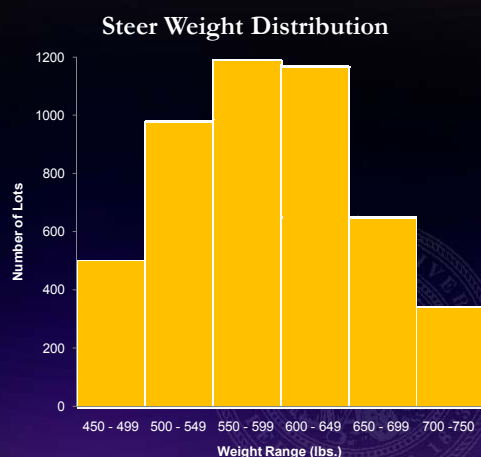
Formula source: *Schroeder et al. 1988*

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2008-2009 SLA Price Models

1. 450 to 750 lbs. steers

- 4,836 lots
- 601,604 head
- 583 lb. avg. weight
- 124 head avg. lot size
- 33.0% weaned calves
- $0.7847 = R^2$

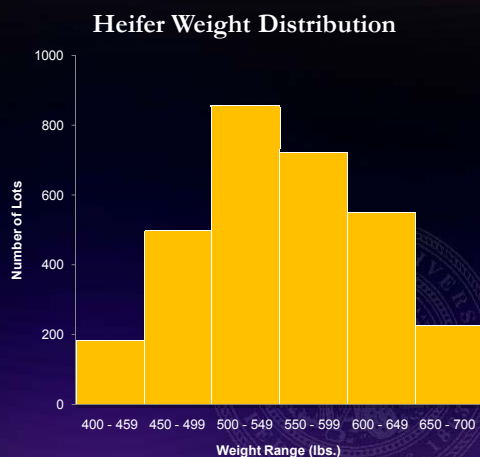


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2008-2009 SLA Price Models

2. 400 to 700 lbs. heifers

- 3,045 lots
- 353,235 head
- 545 lb. avg. weight
- 116 head avg. lot size
- 34.0% weaned calves
- $0.7309 = R^2$



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Implants & Related Markets

Price per hundredweight relative to non-implanted

Variable	Steers	Heifers
Natural-market eligible	\$0.26	\$0.50*
NHTC-market eligible	\$1.51*	\$1.54*
Unknown or some implants	(\$1.27)*	(\$0.92)*
Implanted	\$0.24	\$0.27

* Statistically different than zero at the 5% confidence level or better

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Vaccinations & Weaning

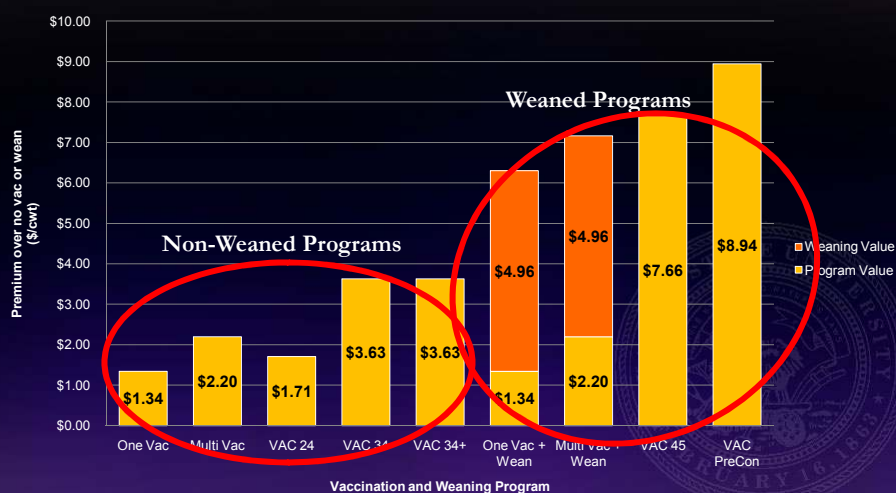
Price per hundredweight relative to non-vaccinated and non-weaned calves

Variable	Weaned	Steers	Heifers
VAC 24	No	\$1.71*	\$1.31*
VAC 34	No	\$3.63*	\$2.45*
VAC 34+	No	\$3.63*	\$2.75*
VAC 45	Yes	\$7.66*	\$6.72*
VAC PreCon	Yes	\$8.94*	\$5.75*
One respiratory vaccination	No	\$1.34*	\$0.56
Multiple respiratory vaccinations	No	\$2.20*	\$1.84*
Weaning for non-program vaccination	Yes	\$4.96*	\$4.52*

** Statistically different than zero at the 5% confidence level or better*

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Steer Vaccination and Weaning Program Value



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Specialty Vaccinations & Programs

Price per hundredweight

Variable	Steers	Heifers
Pinkeye vaccinated	\$1.16*	\$1.03*
<i>Haemophilus somni</i> vaccinated	\$0.36*	\$0.13
Bangs vaccinated	N/A	(\$0.47)*
Tested BVD-PI Negative	(\$0.12)	\$0.10
Age-and-Source Verification	\$1.60*	\$1.65*

** Statistically different than zero at the 5% confidence level or better*

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Aggregate Breed Influence

Price per hundredweight relative to "Cattle w/ Ear" #

Variable	Steers	Heifers
English & English-Cross	\$3.49*	\$3.25*
Continental & Continental-Cross	\$4.05*	\$2.73*
English-Continental-Cross	\$4.09*	\$3.90*
Black & Black-White-Faced	\$5.80*	\$5.37*
Predominantly Angus	\$6.51*	\$5.97*
Predominantly Red Angus	\$6.61*	\$13.02*

** Statistically different than zero at the 5% confidence level or better*

Mexican, Longhorn, Dairy, and Corriente cattle were eliminated from dataset

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Region of Sale Lot

Price per hundredweight relative to "South Central" #

Variable	Steers	Heifers
West	(\$3.98)**	(\$3.31)**
Rocky Mountain / North Central	\$0.87**	\$0.86**
Southeast	(\$8.45)**	(\$7.98)**

** Statistically different than zero at the 1% confidence level or better
 * Statistically different than zero at the 5% confidence level or better

"South Central" includes cattle from Arizona, Kansas, Missouri, New Mexico, Oklahoma, Texas. "Northeast" cattle were eliminated from dataset.

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Market Characteristics

Price per hundredweight

Variable	Steers	Heifers
Difference between sale and delivery date	(\$0.02)**	(\$0.03)**
Feeder calf futures contract#	\$0.80**	\$0.77**

** Statistically different than zero at the 1% confidence level or better
 * Statistically different than zero at the 5% confidence level or better

The contract on sale day that was nearest to, but not preceding the delivery date.

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Marketing the Details

*125 heifers, 550 lbs., Medium frame and flesh,
uneven weight variation, Kansas ranch*

Lot #1



Lot #2



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Marketing the Details

*125 heifers, 550 lbs., Medium frame and flesh,
uneven weight variation, Kansas ranch*

Lot #1

Variable	Value (\$/cwt.)
Natural-eligible	\$0.47
VAC 45	\$6.71
Predominantly Angus	\$5.97
TOTAL	\$13.15

Lot #2

Variable	Value (\$/cwt.)
Not implanted	\$0
Complete vaccination	\$1.92
Weaned	\$4.40
Black & Black-White Faced	\$5.37
TOTAL	\$11.69

The value difference b/w Lots #1 and #2

\$1.46 per cwt.

\$8.03 per head

\$1003.75 per lot

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What do we know?

- Age and weight distinctions are blurred
- Value-added practices are bundled in nature
 - Weaned vs. VAC Program
- Details make a significant price difference
 - Blacks vs. Angus
 - Not implanted vs. Natural



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Questions?

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