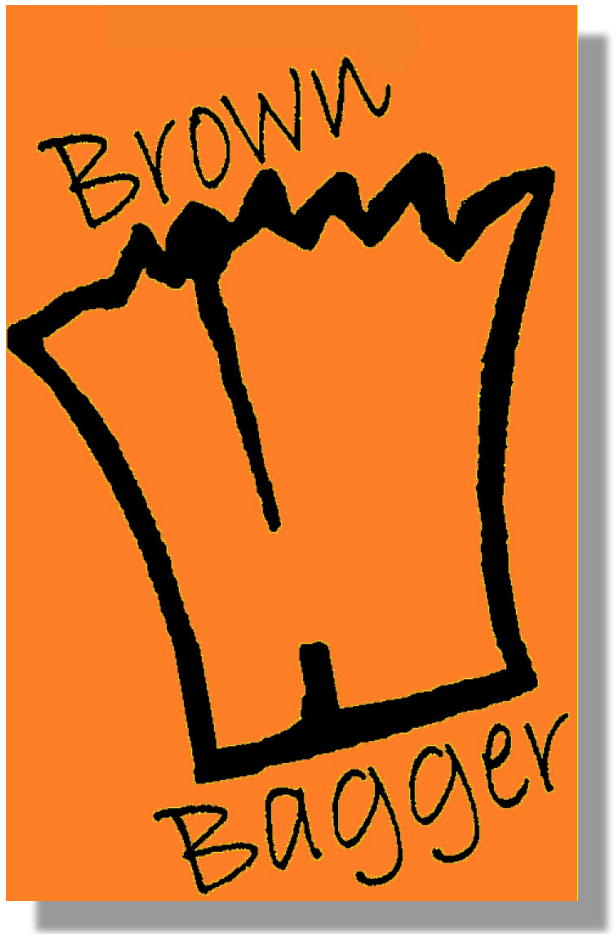
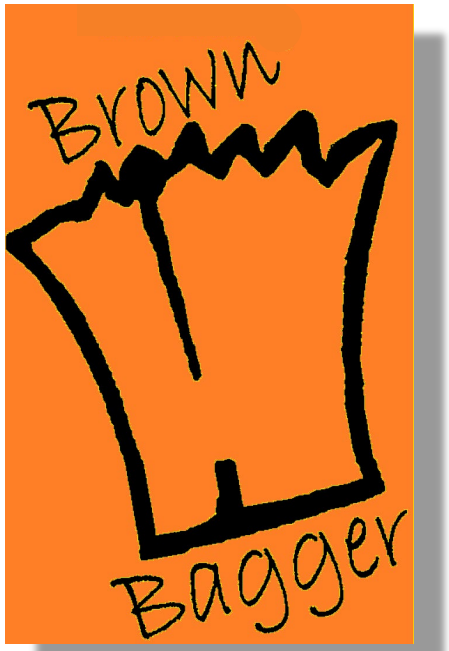
Welcome to Session 4



2024 Future-proofing Beef Selection Decisions

eBEEF.ORG



Session 4-Part 2
Beef Industry Research Innovations

Beef Yield Grading: History, Issues, and Opportunities

Dr. Duane Wulf
Univ. of Arizona

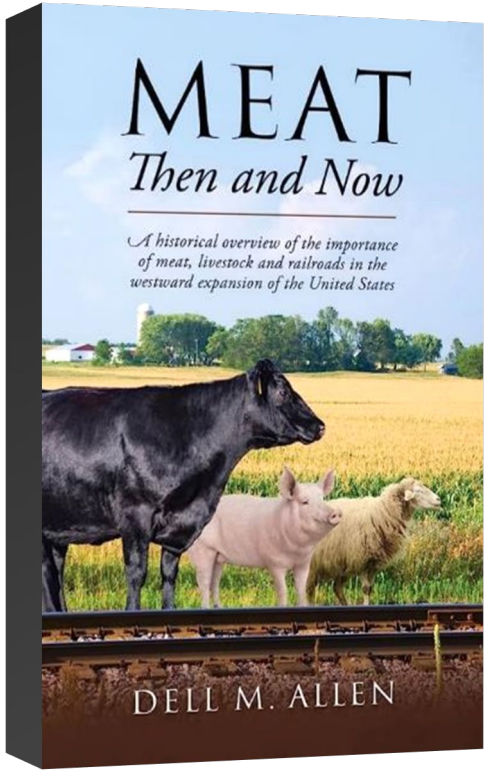
eBEEF.ORG

Beef Yield Grading: History, Issues, and Opportunities

Duane M. Wulf

University of Arizona

eBEEF
Beef Genetics and Genomics
Community of Practice with eXtension



1926 Official U.S. Standards for the Grades of Carcass Beef

May 1927 Beef carcass Quality Grading services began

1960 Research by C.E. Murphy proposes Beef Yield Grades

1962 Dual grading (Quality and Yield) on a trial basis

1965 Yield Grades adopted

1989 Quality and Yield grades uncoupled

2001 Instrument assessment of ribeye area allowed

2007 Instrument assessment of final Yield Grade allowed

Allen, 2022

- 1960 ASAP meetings
  - Murphey, Hallett, Tyler, and Pierce reported a yield study of 162 beef carcasses
    - Chicago (boning establishment and major packer)
    - Steers, heifers, and cows
    - Prime, Choice, Good, Stand., Comm., Util., Cutt./Can.
    - 350-900 pound carcasses
    - Bone-in and boneless
    - ½" fat trim on thick cuts, ¼" fat trim on thinner cuts
    - 17 independent variables measured
      - **%B**oneless **C**losely **T**rimmed **R**ound **L**oin **R**ib and **C**huck

= 51.34

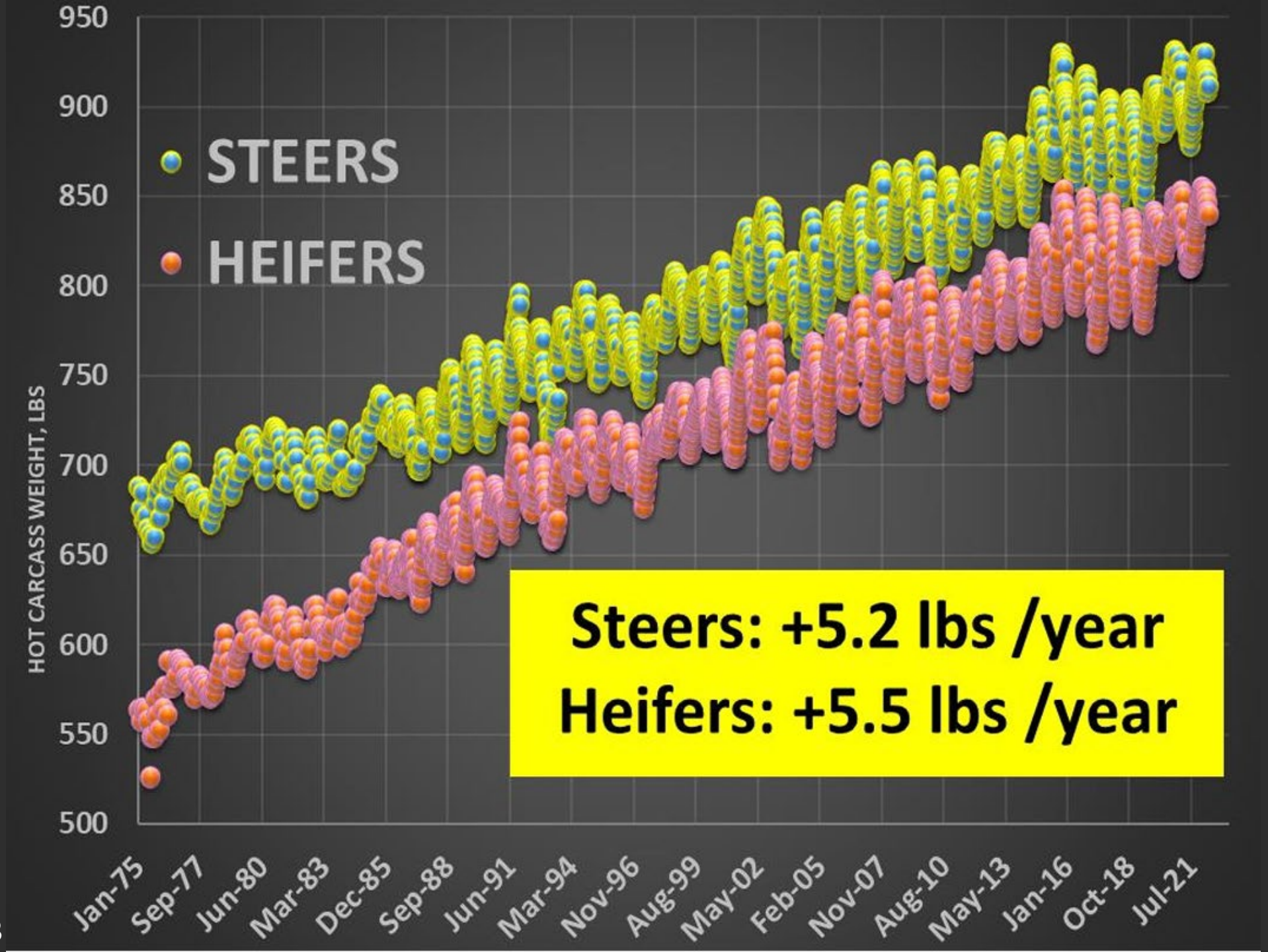
- (5.78 x single fat thickness over rib eye, in.)
- (0.462 * percent kidney fat)
- (0.0093* carcass wt., lbs.)
+ (0.74 * area of rib eye, sq. in.)

Murphey et al. (1960)

Slide from Lawrence, 2023

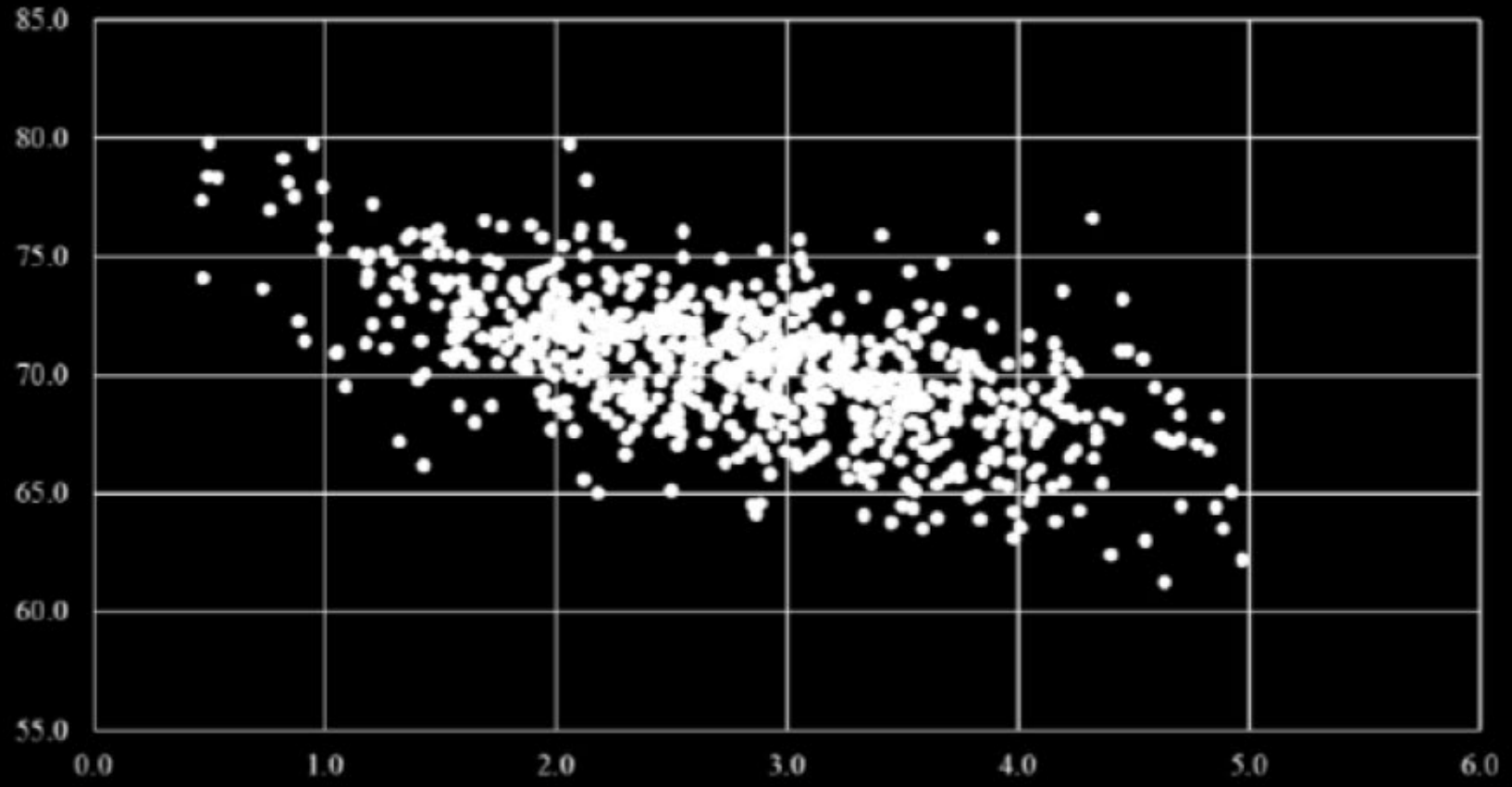
1960 San Antonio Champion Steer

2024 San Antonio Champion Steer



Slide from Lawrence, 2023

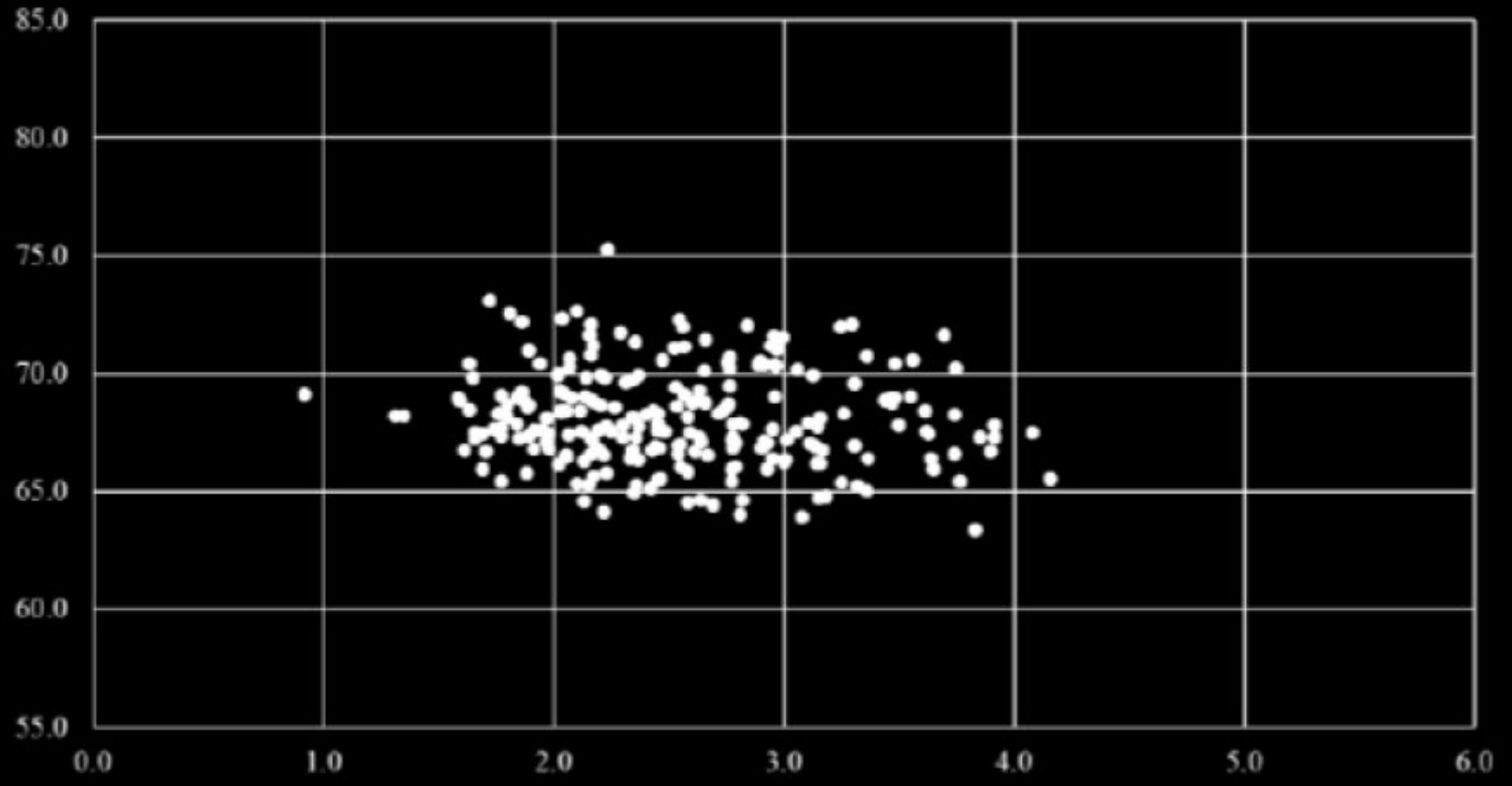
YG predicts 40% of the variation in red meat yield (beef-type cattle)



801 steers (OSU, TTU, UofIL, WTAMU)

Lawrence et al.(2010)

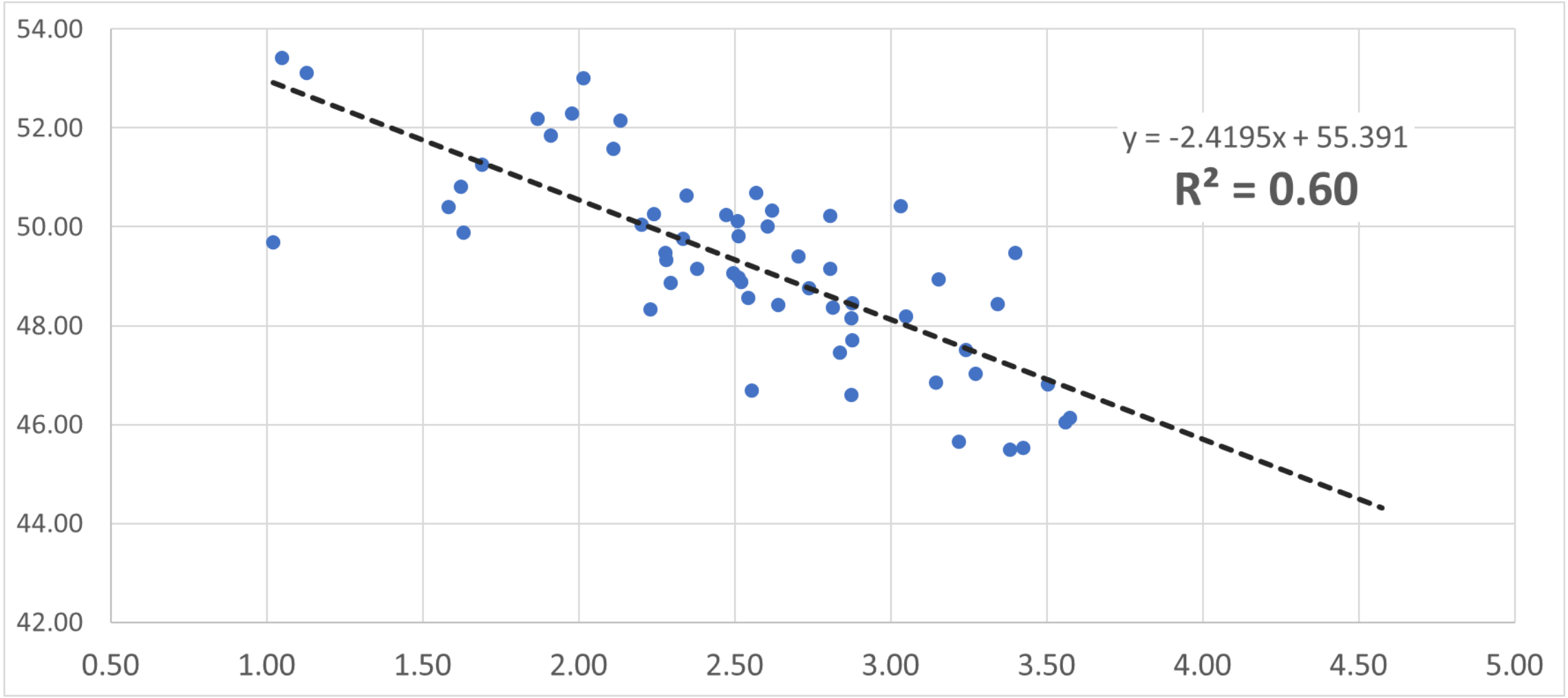
YG predicts 0% of the variation in Holstein red meat yield



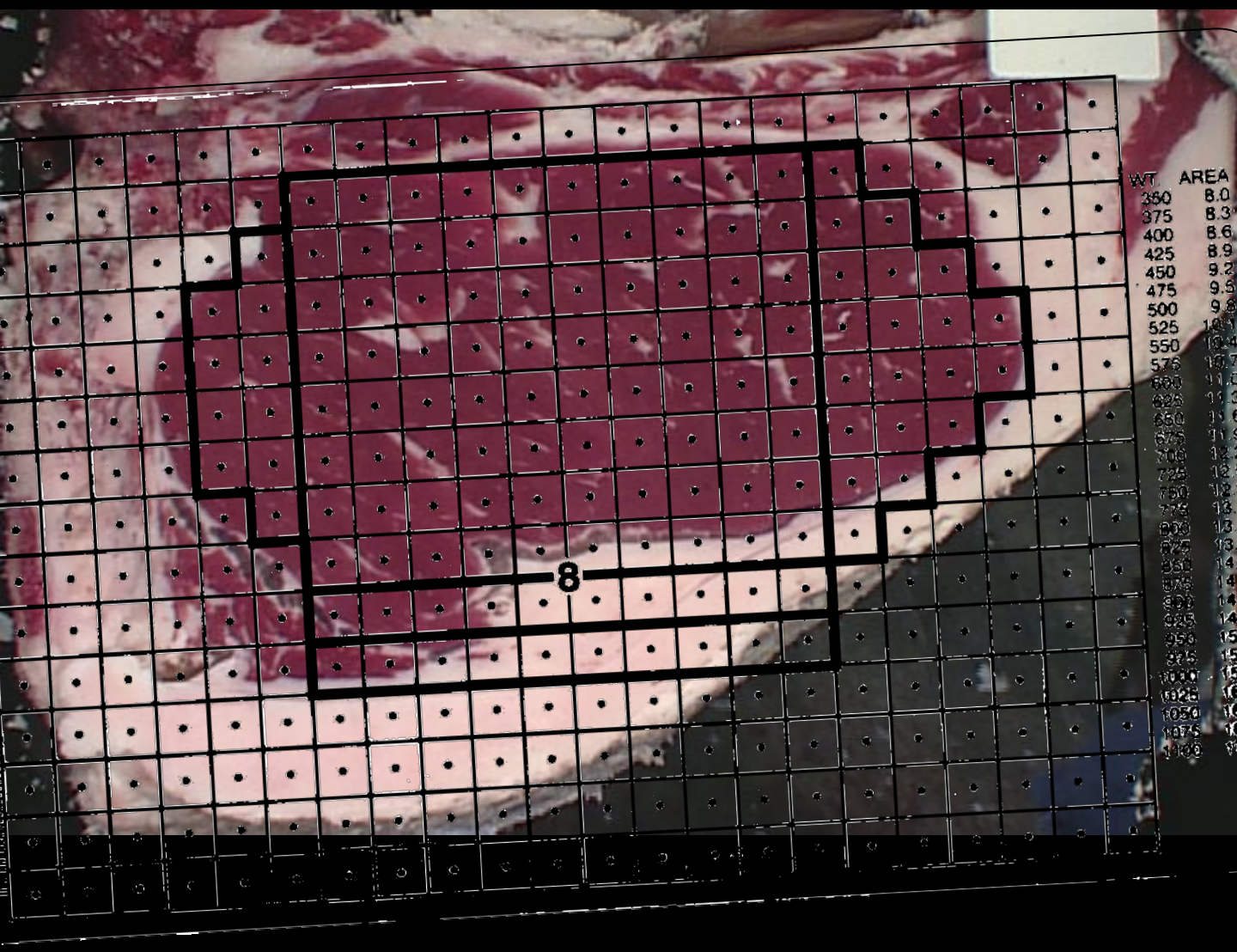
235 steers (OSU, UofIL)

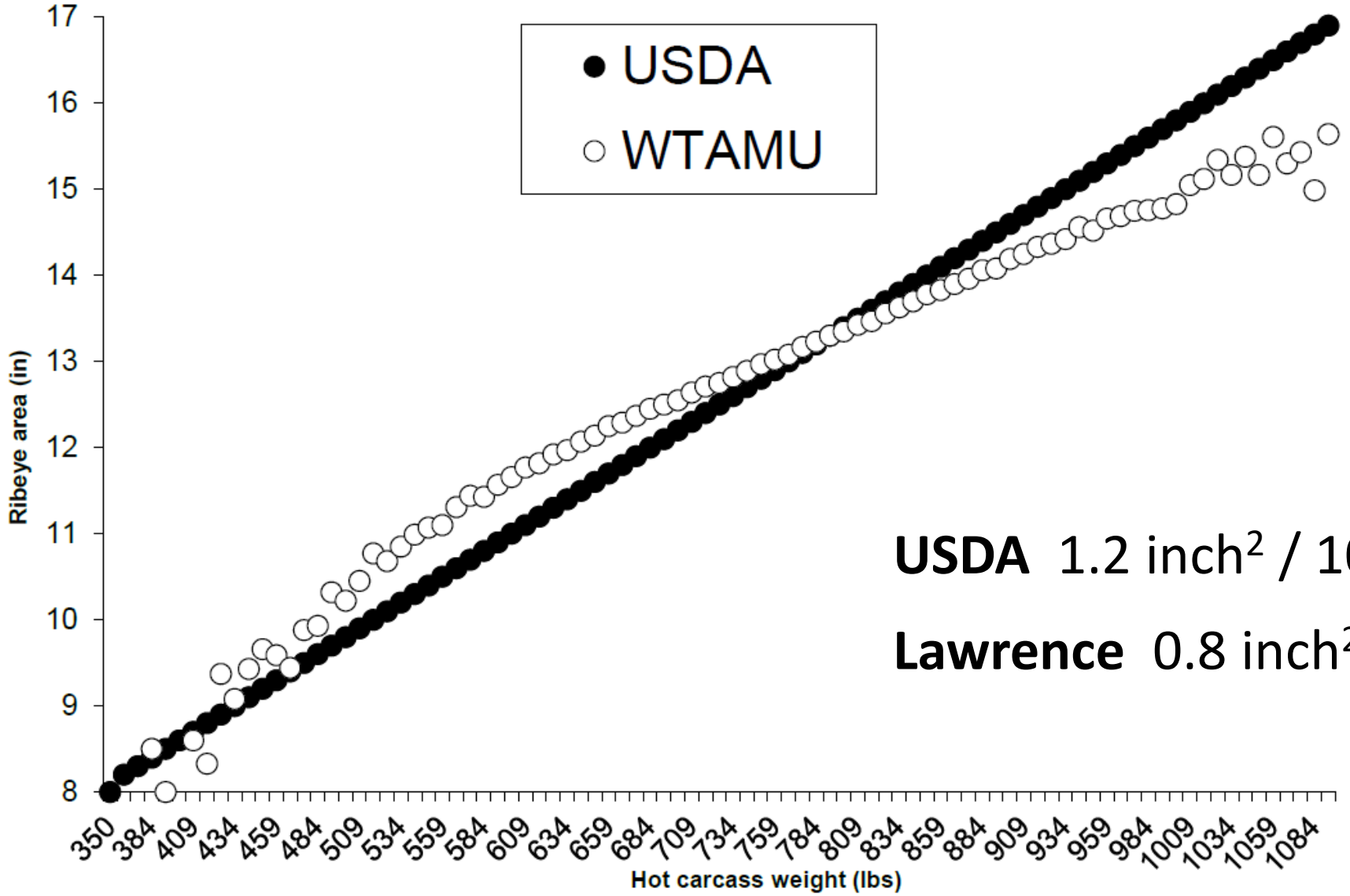
Lawrence et al.(2010)

YG → Boxed Beef % (n=58 beef/dairy cross steer carcasses)



Waller et al, 2023

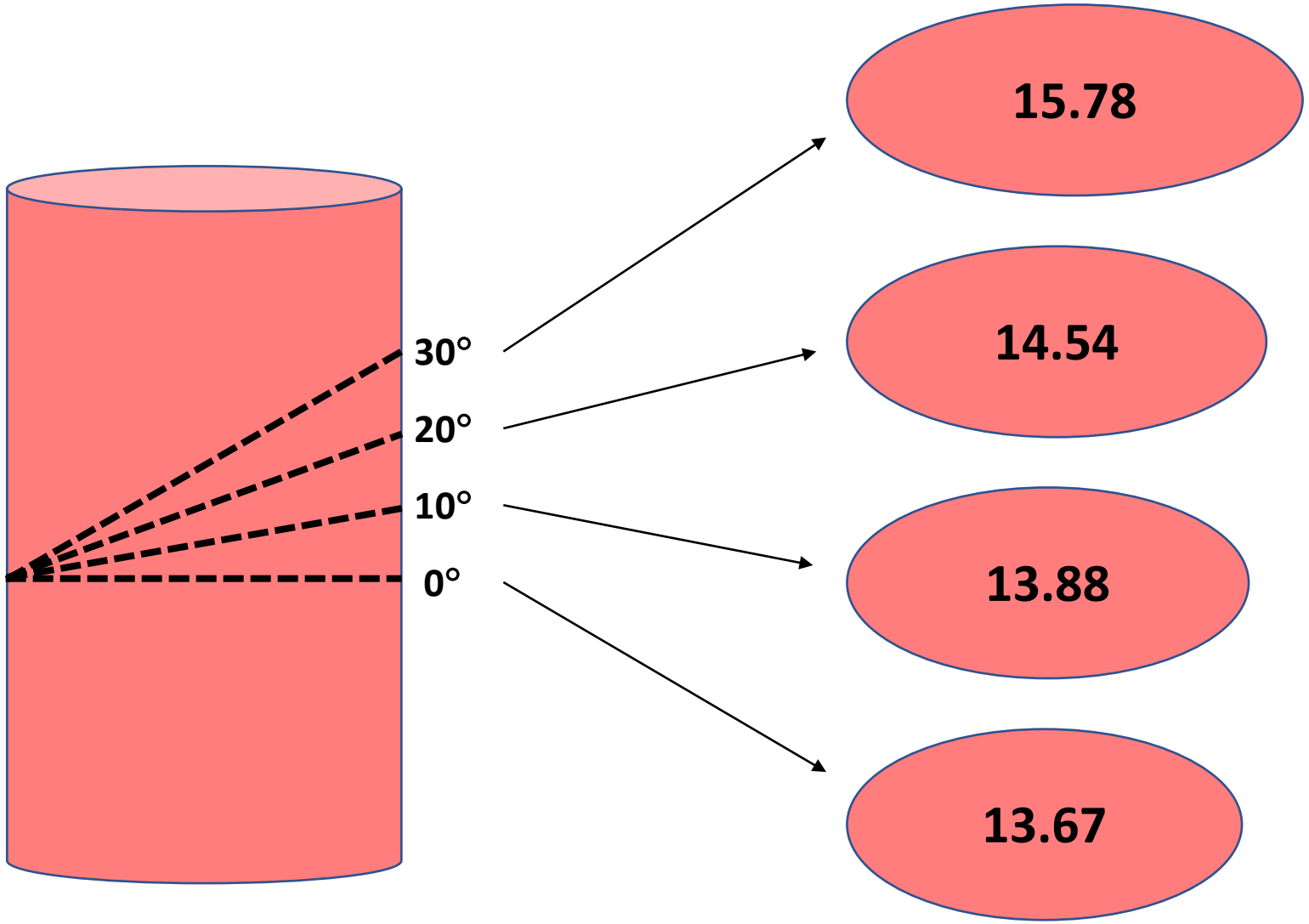

WT AREA
350 8.0
375 8.3
400 8.6
425 8.9
450 9.2
475 9.5
500 9.8
525
550
575
600
625
650
675
700
725
750
775
800
825
850
875
900
925
950
975
1000
1025
1050
1075
1100
8

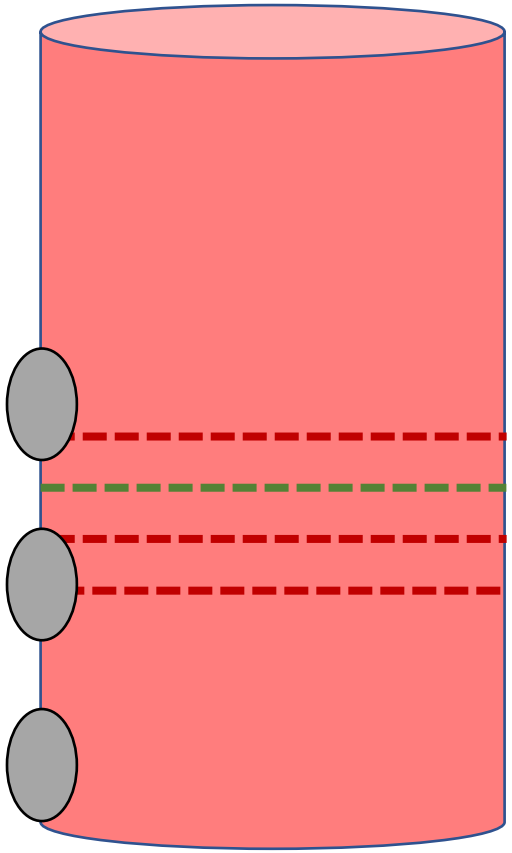


USDA 1.2 inch^2 / 100 lbs

Lawrence 0.8 inch^2 / 100 lbs

Lawrence, 2023 (adapted from Lawrence, 2008; n = 434,381)

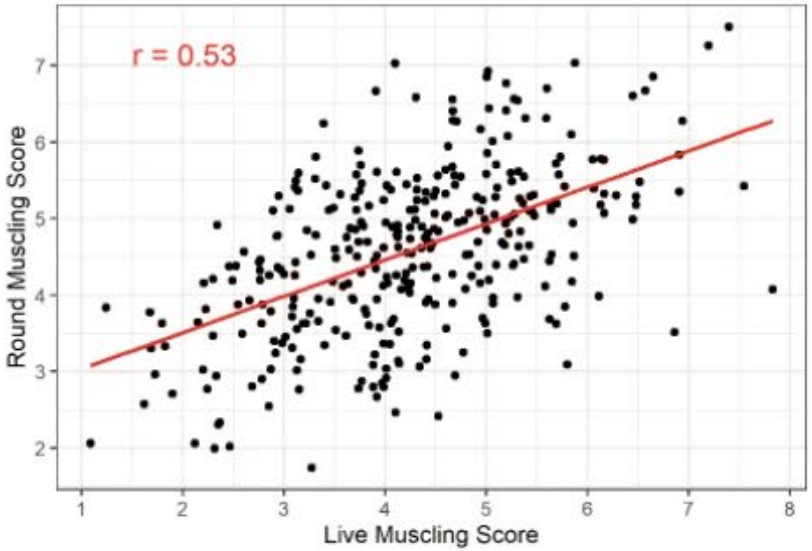

30°
20°
10°
0°
15.78
14.54
13.88
13.67



Muscling Considerations

Trait	Fully Dairy-type	Partially Dairy-type	Partially Beef-type	Fully Beef-type	*P*-value
Live muscling score	2.8^{d}	4.0^{c}	4.5^{b}	5.6^{a}	<0.01
Ribeye area, in^2	13.2	13.5	13.6	13.5	0.30
Round muscling score	3.8^{c}	4.5^{bc}	4.8^{ab}	5.3^{a}	<0.01

After adjusting for pen effects and to a constant HCW of 894 lbs



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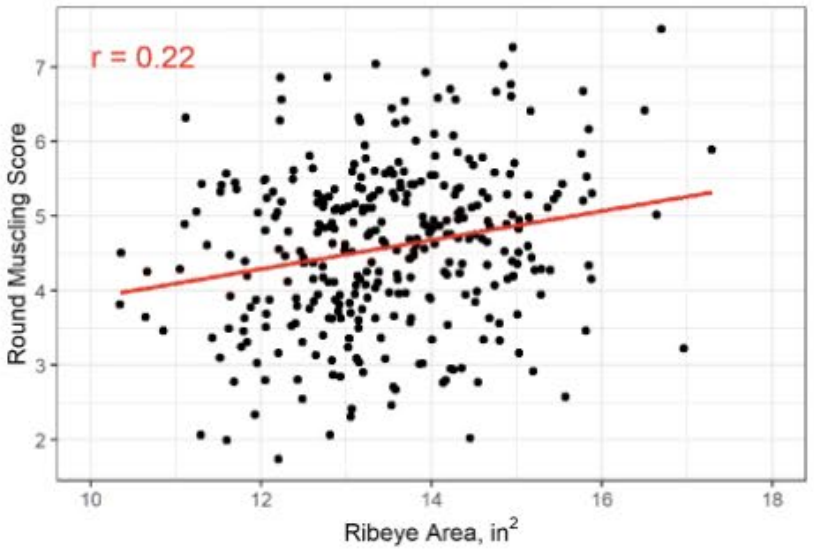
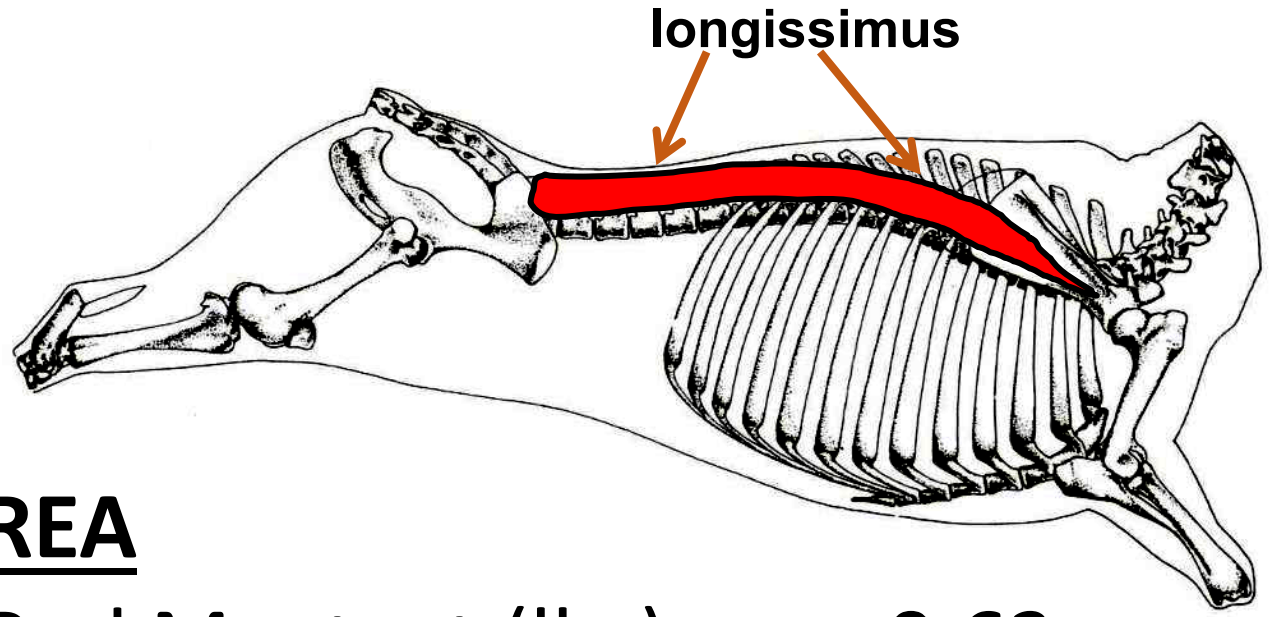


Slide from Foraker, 2022



REA

Red Meat wt (lbs), r = +0.63

Red Meat value ($), r = +0.67

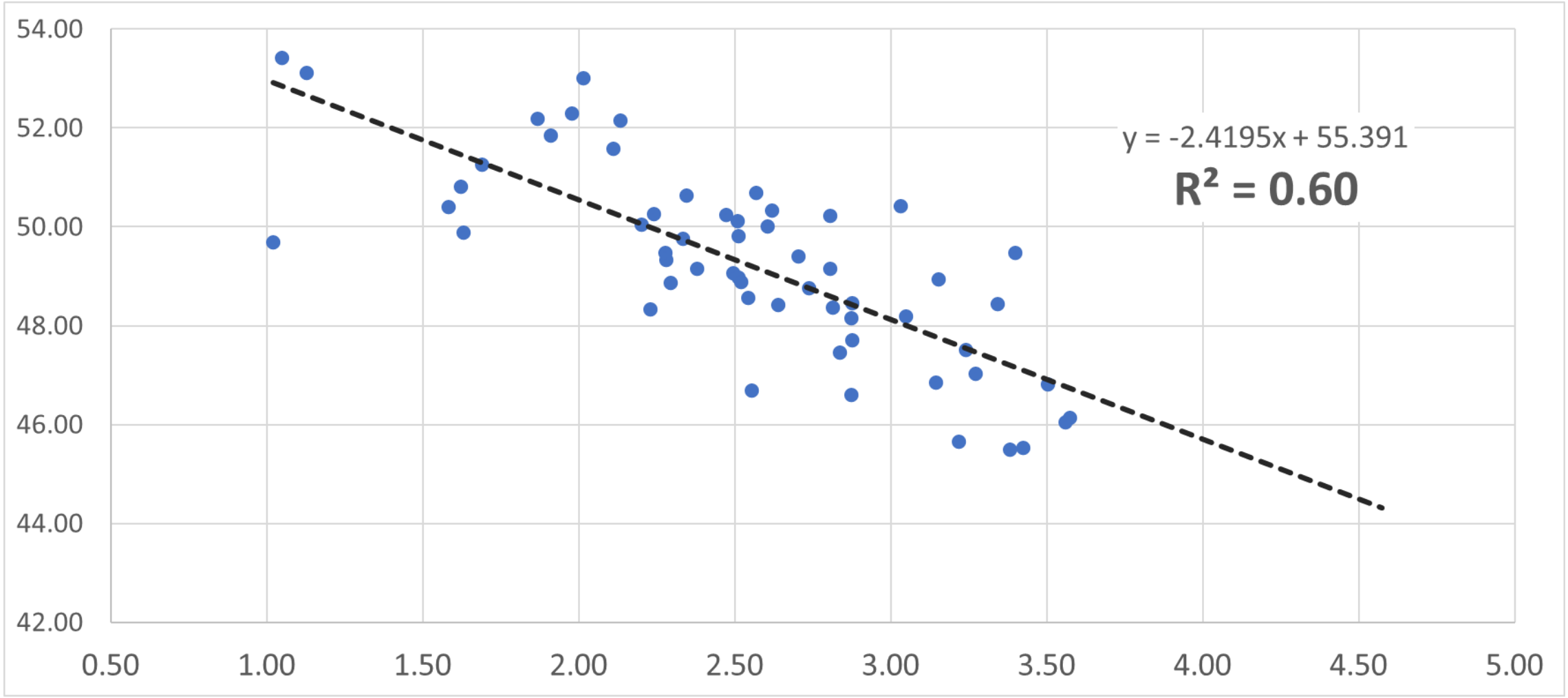
REA/cwt

Red Meat %, r = +0.45

$/cwt carcass, r = +0.63

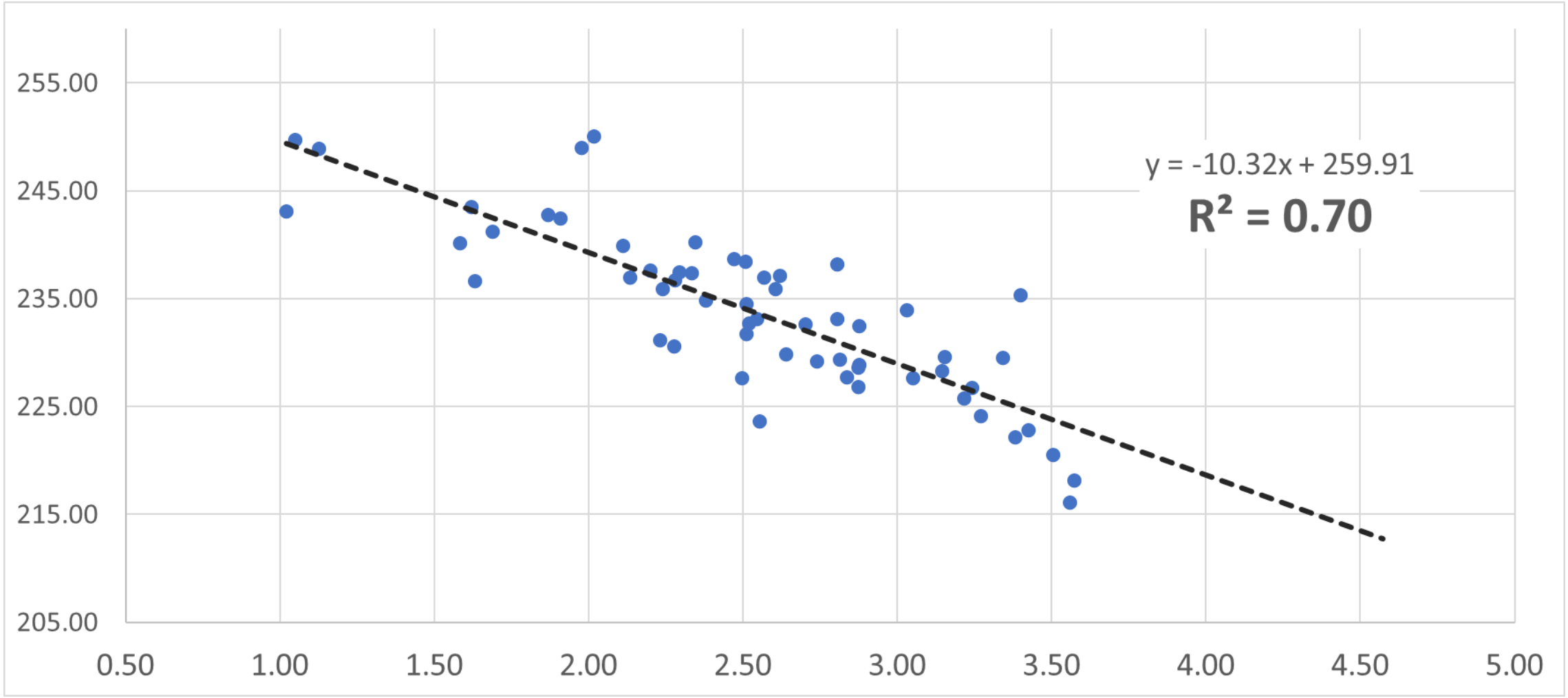
(n = 58 beef/dairy carcasses) Waller et al, 2023

YG → Boxed Beef % (n=58 beef/dairy cross steer carcasses)



Waller et al, 2023

YG → Boxed Beef Choice Cutout Value (n=58 beef/dairy cross steer carcasses)



Waller et al, 2023

NCBA Red Meat Yield Task Force

HCW (including KPH)

1311 live wt

842 HCW

64.2 % dress

$r_{DRESS,BOX\%} = +0.39$

HCW (KPH removed)

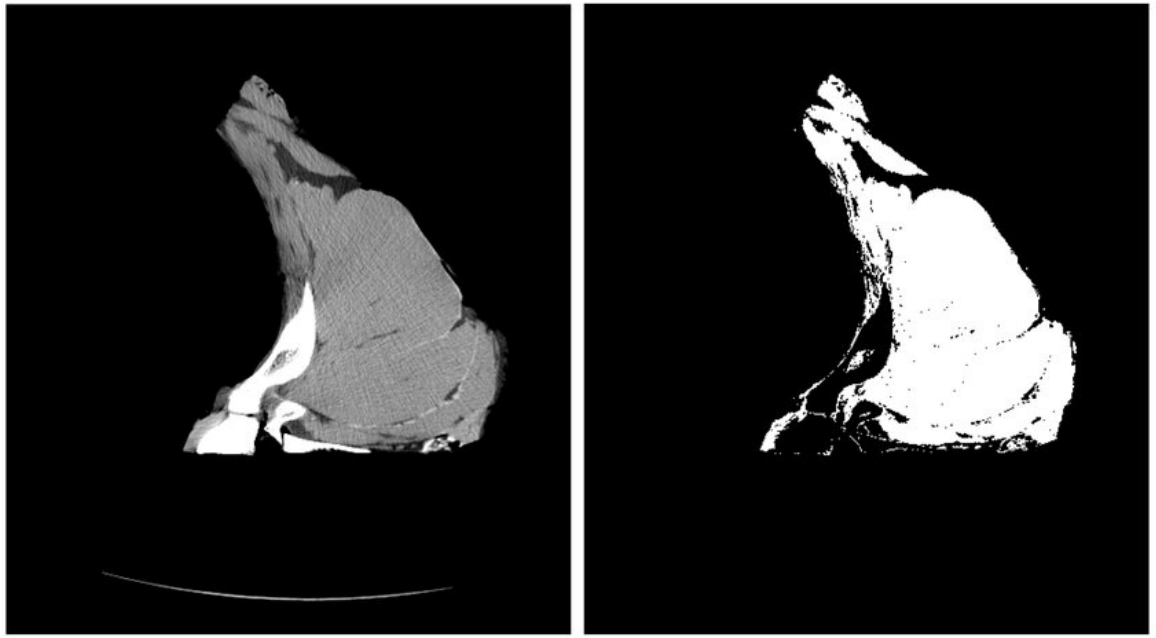
1311 live wt

821 HCW

62.6 % dress

$r_{DRESS,BOX\%} = +0.52$

(n = 58 beef/dairy carcasses) Waller et al, 2023

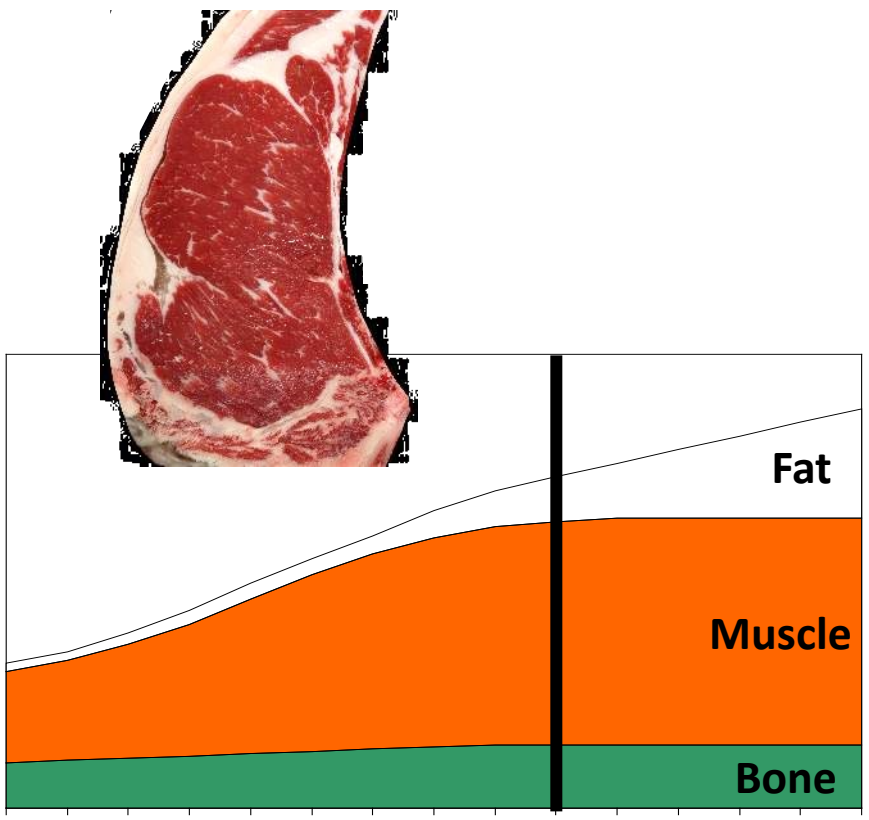


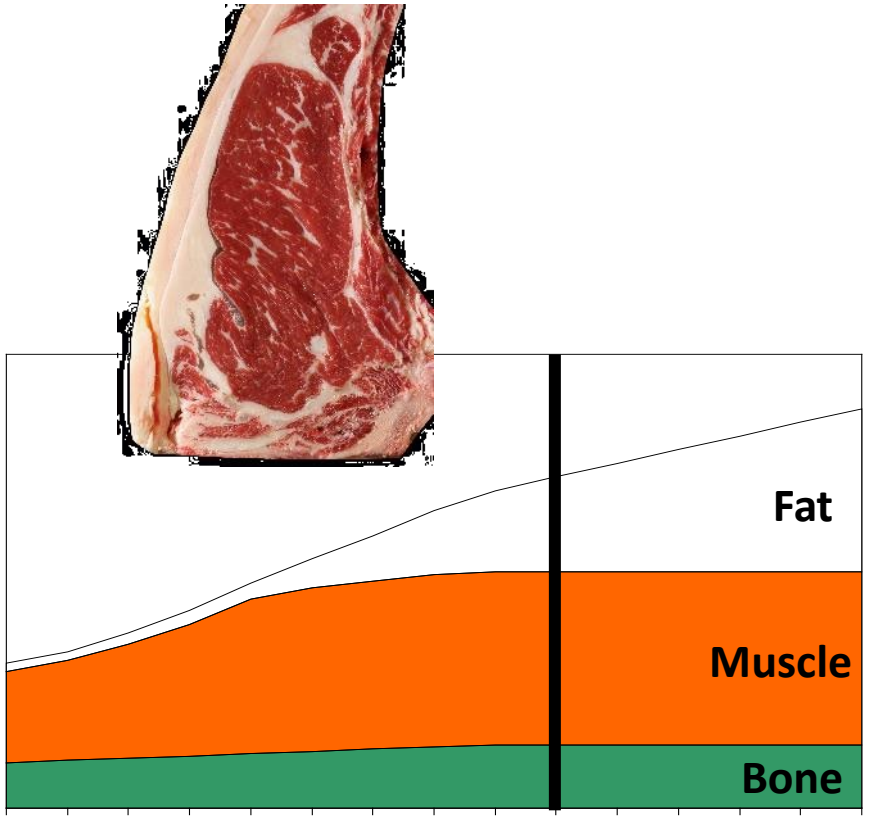
Gold Standard RMY

CT Scan

Rapid testing of online technologies

Is Red Meat Yield (i.e. Muscling) receiving enough selection pressure?





1967 IBP introduces “Boxed Beef” with Cattle-Pak

max fat spec = 1.0”

Yield Grade	$/cwt
YG 1	+$3
YG 2	+$2
YG 3	$0
YG 4	-$12
YG 5	-$18

USDA Premium & Discounts (Oct 21, 2024)

LM_XB463
Des Moines, IA October 21, 2024 USDA Market News

NATIONAL COMPREHENSIVE BOXED BEEF CUTOUT - ALL FED STEER/HEIFER SALES
For Week Ending: 10/18/2024

	Compre-hensive	Prime	*Branded	Choice	Select	Ungraded
Weekly Cutout Value	310.98	354.94	316.87	312.38	290.02	275.53
Primal Rib	505.24	619.39	517.30	511.69	446.19	381.46
Primal Chuck	279.60	281.74	283.24	281.61	273.87	267.36
Primal Round	265.12	265.38	267.56	265.31	262.06	260.98
Primal Loin	375.11	516.86	387.68	376.27	323.46	302.61
Primal Brisket	252.31	254.31	254.74	247.62	237.52	228.75
Primal Short Plate	193.93	193.93	193.93	193.93	193.93	193.93
Primal Flank	160.70	161.19	163.82	161.13	156.73	154.48

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	Compre-hensive	Prime	*Branded	Choice	Select	Ungraded
Weekly Cutout Value	310.98	354.94	316.87	312.38	290.02	275.53
Comp Cutout	+$43	+$4	$0	-$22	-$37	
Prem/Disc	+$16	+$4	$0	-$22	-$38	
Primal Rib						
Primal Chuck						
Primal Round						
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Likely slightly over-estimated due to less than 100% utilization

Yield Grade Boxed Beef Cutout*

	Y1	Y2	Y3	Y4	Y5
Cutout value	339	326	312	300	288

*assumes 4.3% value diff. between YG's

Yield Grade Boxed Beef Cutout*

	Y1	Y2	Y3	Y4	Y5
Cutout value	339	326	312	300	288
Cutout	+$27	+$14	$0	-$12	-$24
Prem/Disc	+$3	+$2	$0	-$12	-$18

*assumes 4.3% value diff. between YG's

A “More” Comprehensive Boxed Beef Cutout*

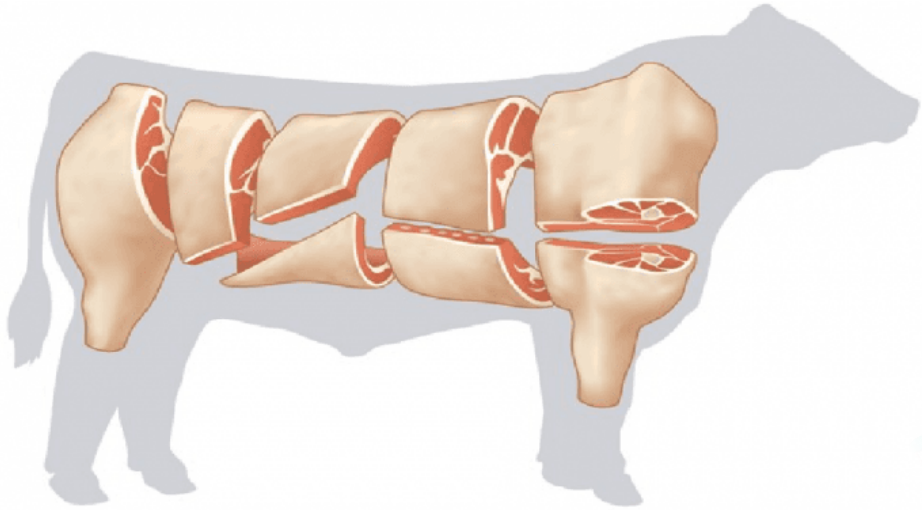
	Prime	Branded	Choice	Select	Ungraded
Y1	385	344	339	315	299
Y2	370	330	326	302	287
Y3	355	317	312	290	276
Y4	340	304	300	278	264
Y5	325	291	288	267	253

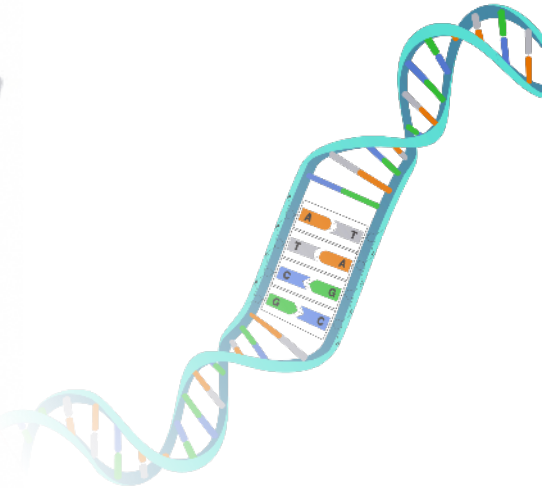
*assumes 4.3% value diff. between YG’s

True valuation is important

- Market signals through the chain
- Selection indexes
- $VALUE EPD's

} calculated using premiums/discounts






BROWN BAG BURGER
BBB
PRESCOTT AZ