

Grid Pricing Motivation, Mechanics, Price Discovery, Risk Transfer, and Management Implications

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Marketing Basics

- ⌘ Marketing is customer oriented
- ⌘ Effective marketing requires understanding customers and customer wants
- ⌘ Marketing should start before production

What Do Beef Consumers Want?

- ⌘ Products that are --
 - ☒ Tender and flavorful
 - ☒ Consistent
 - ☒ Convenient to prepare
 - ☒ Healthy and nutritious
 - ☒ Safe
 - ☒ Competitively priced

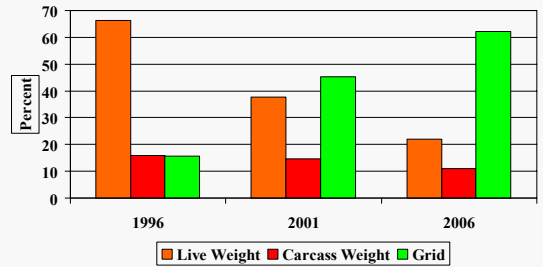
Motivation for Grid Pricing

- ⌘ Improve price signals from the retail level to producer level
- ⌘ Guide production and marketing decisions
- ⌘ Move toward value-based marketing
- ⌘ Reward producers for the quality of beef produced
- ⌘ Enable buyers to match price and quality

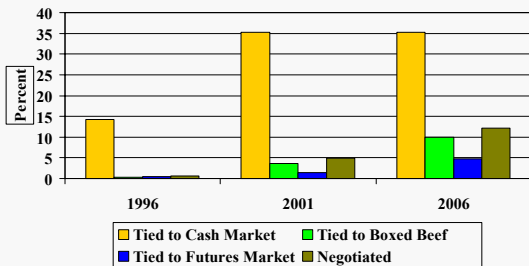
Pricing Methods

- ⌘ Distinct trend away from live weight pricing to grid pricing
- ⌘ Formula pricing tied to the cash market (price quote or plant average) will remain most common
- ⌘ But increasing interest in negotiated base prices, or formula prices tied to the boxed beef market or futures market

Percent of Weighted Average Marketings by Pricing Method



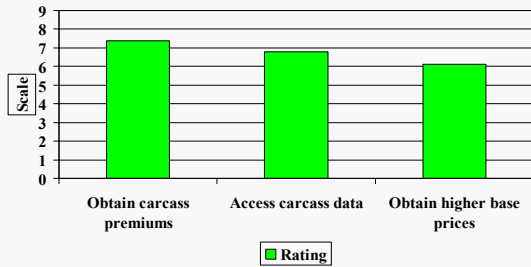
Alternative Base Prices in Grids (Percent of weighted average marketings)



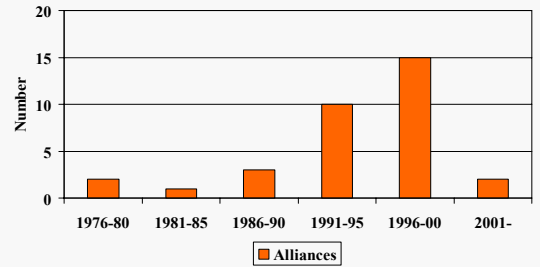
Motives for Using Grid Pricing

- ⌘ Most important -
 - ⊠ Access to carcass premiums
 - ⊠ Access to carcass data
 - ⊠ Obtain higher base prices

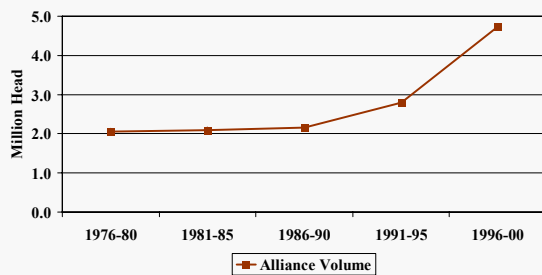
Highest-Rated Motives for Grid Pricing (9=Strongly agree)



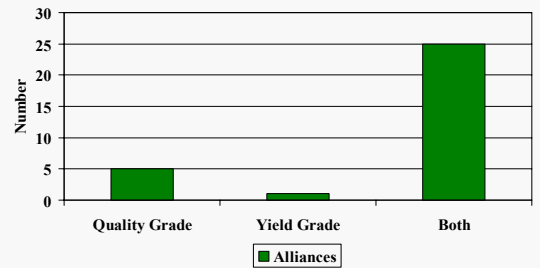
Alliances By Beginning Dates



Cumulative Alliance Volume by Beginning Dates



Type of Grids



Sample, Simplified Grid (\$/carcass cwt.)

Choice YG3 525/950# Base Price (\$/cwt.)	?????
Prime-Choice Spread	+13.00
CAB-Choice Spread	+4.00
Choice-Select Spread	-7.00
Select-Standard Spread	-12.00
Light Carcasses	-10.00
Heavy Carcasses	-15.00
YG1	+8.00
YG2	+3.00
YG4	-20.00
YG5	-30.00

Sample Grid in Matrix or Grid Form (\$/carcass cwt.)

Quality Grade	Yield Grade				
	1	2	3	4	5
Prime	---	---	+13.00	---	---
CAB	---	---	+4.00	---	---
Choice	+8.00	+3.00	Base	-20.00	-30.00
Select	---	---	-7.00	---	---
Standard	---	---	-12.00	---	---
Light carcasses (<525) -10.00					
Heavy carcasses (>950) -15.00					

Premium Cells (\$/carcass cwt.)

Quality Grade	Yield Grade				
	1	2	3	4	5
Prime	21.00	16.00	13.00	---	---
CAB	12.00	7.00	4.00	---	---
Choice	8.00	3.00	---	---	---
Select	1.00	---	---	---	---
Standard	---	---	---	---	---

Discount Cells (\$/carcass cwt.)

Quality Grade	Yield Grade				
	1	2	3	4	5
Prime	---	---	---	-7.00	-17.00
CAB	---	---	---	-16.00	-26.00
Choice	---	---	---	-20.00	-30.00
Select	---	-4.00	-7.00	-27.00	-37.00
Standard	-4.00	-9.00	-12.00	-32.00	-42.00
Light carcasses (<525) -10.00					
Heavy carcasses (>950) -15.00					

Sample Carcass Distribution

(number of head)

Quality Grade	Yield Grade				
	1	2	3	4	5
Prime	1	2	3	4	3
CAB	4	10	12	5	1
Choice	4	10	40	3	1
Select	4	2	22	1	0
Standard	1	2	0	0	0

Premium Priced Carcasses

(number of head)

Quality Grade	Yield Grade				
	1	2	3	4	5
Prime	1	2	3	-	-
CAB	4	10	12	-	-
Choice	4	10	-	-	-
Select	4	-	-	-	-
Standard	-	-	-	-	-

Discounted Carcasses

(number of head)

Quality Grade	Yield Grade				
	1	2	3	4	5
Prime	-	-	-	4	3
CAB	-	-	-	5	1
Choice	-	-	-	3	1
Select	-	2	22	1	0
Standard	1	2	0	0	0

Grid Pricing Formula

- ⌘ Base price
- ⌘ Plus (minus) each premium (discount) cell times the percent of carcasses in each respective cell of the carcass distribution matrix

Grid Pricing Outcome

- ⌘ Base price = \$120/cwt.
- ⌘ Premiums
 - ☒ 50 head for a total of \$2.40/cwt.
- ⌘ Discounts
 - ☒ 45 head for a total of \$4.41/cwt.
- ⌘ Net grid price, \$117.99/cwt.

Grid Pricing Examples

- ⌘ ***GridCalcCEW***
- ⌘ ***<http://agweb.okstate.edu/pearl/agecon/marketing/index.html>***

Grid Pricing versus Formula Pricing

- ⌘ Grid pricing involves using a premium-discount grid with some method of establishing the base price
- ⌘ Formula pricing typically refers to the method of finding the base price in a premium-discount grid
- ⌘ Formula pricing uses another price as a reference price. Two common examples are:
 - ☒ Plant average prices or costs
 - ☒ Reported cash prices

Price Discovery Implications with Alternative Base Prices

- ⌘ Plant average or reported cash market formula prices
 - ☒ Tie base price to a price that packers have an incentive to keep as low as possible
 - ☒ Tie base price to a declining (thinning) reference market price
 - ☒ Tie base price to a price representing a lower quality of cattle

Base Price Alternatives

- ⌘ Negotiated prices
 - ☒ Involve competition among packers
 - ☒ Potentially reflect current market conditions more accurately

Base Price Alternatives

- ⌘ Futures market prices
 - ☒ Tie grid prices to another arena for price discovery
 - ☒ Link cash and futures markets closer together

Base Price Alternatives

- ⌘ Wholesale beef prices (boxed beef cutout)
 - ☒ Tie grid prices to a price that packers have an incentive to increase
 - ☒ Tie fed cattle prices closer to the retail value of beef

Price Signals with Grid Pricing

- ⌘ Less emphasis on weight
- ⌘ More emphasis on carcass traits (merit)
- ⌘ More variable but more accurate prices (i.e., pricing to value)
- ⌘ Highest prices are associated with higher quality grade, better yield grade carcasses, with no weight or other discounts

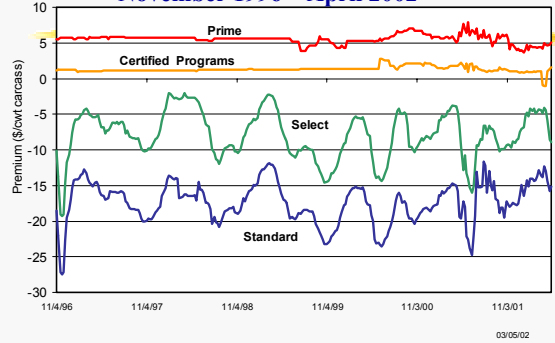
USDA Premium-Discount Report

NATIONAL WEEKLY DIRECT SLAUGHTER CATTLE - PREMIUMS AND DISCOUNTS
For the Week of: 03/04/2002
Value Adjustments

	Range	Simple Avg.	Change
Quality:			
Prime	0.00 - 13.00	4.30	(0.16)
Choice	0.00 - 0.00	0.00	0.00
Select	(8.35) - (1.51)	(4.68)	0.21
Standard	(23.00) - (6.50)	(13.75)	0.56
Ave Choice or Better	0.00 - 4.38	3.04	0.09
Dairy - Type	(23.00) - 0.00	(7.20)	(1.49)
Bulllock/steer	(30.00) - (10.00)	(21.24)	0.37
Hardbone	(30.00) - (8.00)	(21.63)	0.05
Dark cutter	(40.00) - (14.95)	(25.00)	1.27
* Catability Yield Grade, Fat/Inches:			
3.0-2.0 < .10"	0.00 - 0.00	2.60	0.24
2.0-2.5 < .20"	0.00 - 3.00	1.45	0.13
2.5-3.0 < .40"	0.00 - 2.00	3.15	0.10
3.0-3.5 < .60"	(1.00) - 0.00	(0.10)	(0.01)
3.5-4.0 < .80"	(1.00) - 0.00	(0.10)	(0.03)
4.0-5.0 < 1.2"	(20.00) - (1.00)	(12.00)	(0.36)
5.0/up > 1.2"	(25.00) - (2.00)	(16.73)	0.10
Weight:			
400-500 lbs	(40.00) - (3.00)	(20.90)	(0.45)
500-550 lbs	(30.00) - 0.00	(14.90)	(0.26)
550-600 lbs	(10.00) - 0.00	(2.90)	(0.17)
600-900 lbs	0.00 - 0.00	0.00	0.00
900-950 lbs	(5.00) - 0.00	(0.50)	0.66
950-1000 lbs	(21.00) - 0.00	(7.70)	0.12
over 1000 lbs	(25.00) - (2.00)	(15.00)	(0.60)
Hide Brand Location	(2.00) - 3.00	0.09	0.00

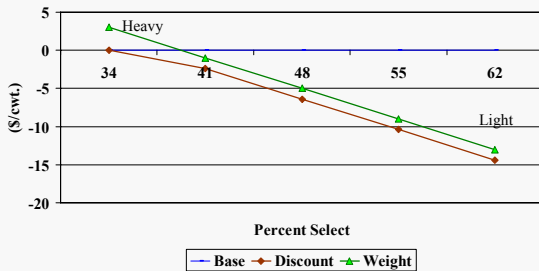
http://www.ams.usda.gov/mnreports/lm_ct155.txt

Reported Quality Grade Premiums/Discounts November 1996 – April 2002

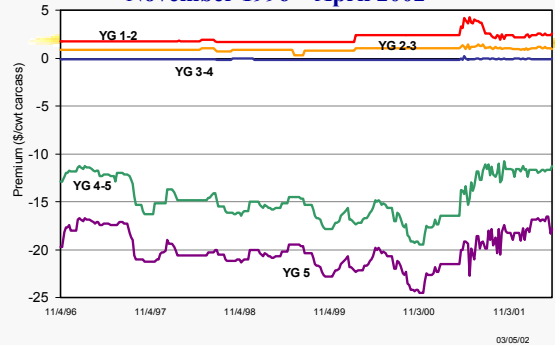


Livestock Marketing Information Center

Select Discount Pattern

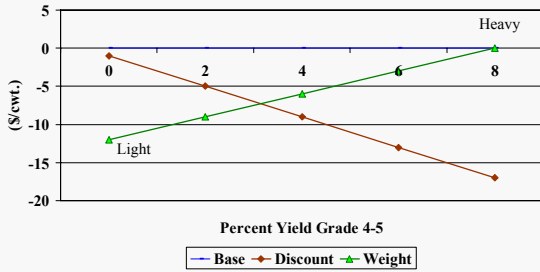


Reported Yield Grade Premiums/Discounts November 1996 – April 2002

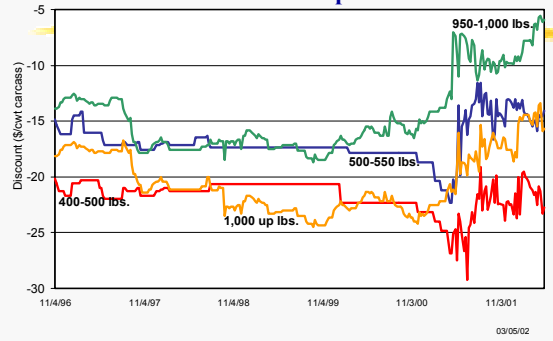


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Yield Grade 4-5 Discount Pattern

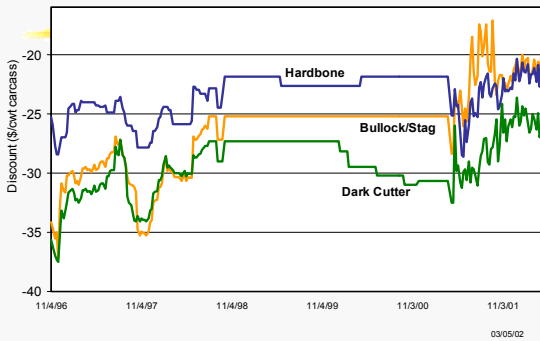


Reported Discounts for Light and Heavy Carcasses November 1996 – April 2002



Livestock Marketing Information Center

Reported "Out" Carcass Discounts November 1996 – April 2002



Livestock Marketing Information Center

Shift in Risk with Alternative Pricing Methods

- ⌘ Pricing Method
- ⌘ Live weight
- ⌘ Risk
- ⌘ Packers: quality and yield grade, dressing percent, outs

Shift in Risk with Alternative Pricing Methods

- | ⌘ <i>Pricing Method</i> | ⌘ <i>Risk</i> |
|-------------------------|---|
| ⌘ Dressed weight | ⌘ Packers: quality and yield grade, outs
⌘ Cattle owners: dressing percent |

Shift in Risk with Alternative Pricing Methods

- | ⌘ <i>Pricing Method</i> | ⌘ <i>Risk</i> |
|-------------------------|--|
| ⌘ Grid, formula base | ⌘ Cattle owners: quality and yield grade, dressing percent, outs, base price |

Risk-Return Tradeoff

- ⌘ As producers assume more risk, the *potential* return also increases
- ⌘ Research shows - *on average* - as producers move from live weight to dressed weight to grid pricing, prices increase
- ⌘ However, results depend on cattle quality characteristics

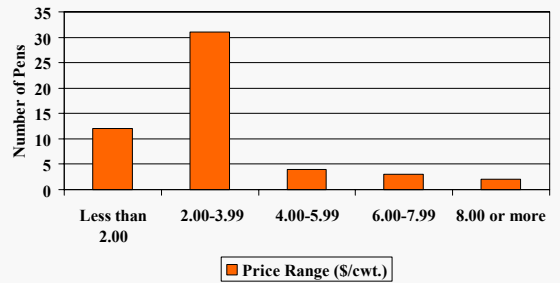
Further Considerations

- ⌘ Price variation
- ⌘ Managing feeding and marketing of cattle for grid pricing
- ⌘ Value implications for buying feeder cattle and calves

Variability with Grid Pricing (one day, four plants)

⌘ Average grid price	\$/head range
☒ Across formula base prices	15-22
☒ Across seven grids	18-22
☒ Across four plants	22-45
☒ Across quality groups	11-72

Distribution of Prices (one day, seven grids, in a Northern Plains plant)



Quality Grade and Yield Grade Trade-off

		Yield Grade				
		1	2	3	4	5
Quality Grade	Prime					
	Choice			Target		
	Select					
	Standard					

Diagram illustrating the trade-off between Quality Grade and Yield Grade. The x-axis represents Yield Grade (1 to 5) and the y-axis represents Quality Grade (Standard to Prime). A thick black arrow points from the bottom-left (Standard, YG1) towards the top-right (Prime, YG4), labeled 'Target'. A thin black arrow points from the bottom-left (Standard, YG1) towards the top-right (Prime, YG5).

Feeding Length Effects on Carcass Characteristics

- ⌘ Carcass weight increases at a decreasing rate
 - ☒ Meaning a higher pay weight
 - ☒ Meaning increased discounts for heavy carcasses
- ⌘ Quality grade increases (from Standard to Prime)
 - ☒ Meaning increased premiums for Prime and upper Choice
- ⌘ Yield grade decreases (from YG1 to YG5)
 - ☒ Meaning increased discounts for YG4 and YG5

Value of Managing Cattle Attributes

Attribute	USDA Grid	Percent
Prime	+\$7.00	6.2
CAB	+\$3.00	24.9
Choice	+\$0.00	46.5
Select	-\$8.50	21.0
Standard	-\$17.00	0.7
Outs	-\$20.00	0.7
YG 1	+\$2.00	1.5
YG 2	+\$1.00	33.2
YG 3	+\$0.00	61.2
YG 4	-\$14.00	3.6
YG 5	-\$24.00	0.5
<550 lbs.	-\$20.00	0
>950 lbs.	-\$20.00	7.3
PRICE		\$115.42/cwt carcass weight

186 steers on feed 147 days, ADG=3.8, Conversion=6.9,
Live wt=1419lbs, 883 lb carcass, Choice, YG-3 price = \$118.00/cwt

Value of Managing Cattle Attributes

Attribute	USDA Grid	Percent	Percent
Prime	+\$7.00	6.2	6.2
CAB	+\$3.00	24.9	24.9
Choice	+\$0.00	46.5	46.5
Select	-\$8.50	21.0	21.0
Standard	-\$17.00	0.7	0.7
Outs	-\$20.00	0.7	0.7
YG 1	+\$2.00	1.5	1.5
YG 2	+\$1.00	33.2	33.2
YG 3	+\$0.00	61.2	61.2
YG 4	-\$14.00	3.6	3.6
YG 5	-\$24.00	0.5	0.5
<550 lbs.	-\$20.00	0	0
>950 lbs.	-\$20.00	7.3	0.00
PRICE		\$115.42/cwt	\$116.88/cwt \$2,397 pen revenue

186 steers on feed 147 days, ADG=3.8, Conversion=6.9,
883 lb carcass, Choice, YG-3 price = \$118.00/cwt

Value of Managing Cattle Attributes

Attribute	USDA Grid	Percent	Percent
Prime	+\$7.00	6.2	6.2
CAB	+\$3.00	24.9	24.9
Choice	+\$0.00	46.5	46.5
Select	-\$8.50	21.0	21.0
Standard	-\$17.00	0.7	0.7
Outs	-\$20.00	0.7	0.7
YG 1	+\$2.00	1.5	1.5
YG 2	+\$1.00	33.2	33.2
YG 3	+\$0.00	61.2	65.3
YG 4	-\$14.00	3.6	0.0
YG 5	-\$24.00	0.5	0.0
<550 lbs.	-\$20.00	0	0
>950 lbs.	-\$20.00	7.3	0.0
PRICE		\$115.42/cwt	\$117.50/cwt \$3,421 pen revenue

186 steers on feed 147 days, ADG=3.8, Conversion=6.9,
883 lb carcass, Choice, YG-3 price = \$118.00/cwt

Value of Managing Cattle Attributes

Attribute	USDA Grid	Percent	Percent
Prime	+\$7.00	6.2	6.2
CAB	+\$7.00	24.9	24.9
Choice	+\$0.00	46.5	57.9
Select	-\$8.50	21.0	10.0
Standard	-\$17.00	0.7	0.0
Outs	-\$20.00	0.7	0.0
YG 1	+\$2.00	1.5	1.5
YG 2	+\$1.00	33.2	33.2
YG 3	+\$0.00	61.2	65.3
YG 4	-\$14.00	3.6	0.0
YG 5	-\$24.00	0.5	0.0
<550 lbs.	-\$20.00	0	0
>950 lbs.	-\$20.00	7.3	0.0
PRICE		\$115.42/cwt	\$118.69/cwt \$5,381 pen revenue

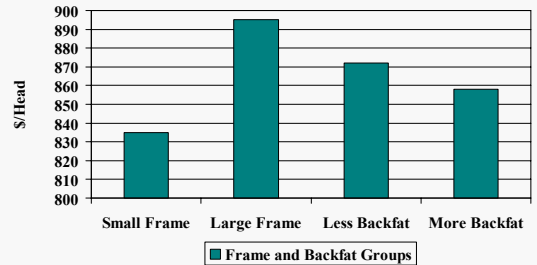
186 steers on feed 147 days, ADG=3.8, Conversion=6.9,
883 lb carcass, Choice, YG-3 price = \$118.00/cwt

Value of
Managing
Attributes
\$3.27/cwt
or
\$28.87/head

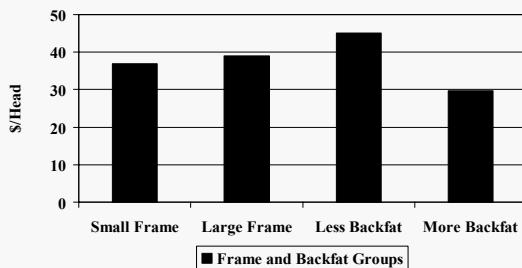
Value of Information to Producers (KSU)

- ⌘ By sorting and selling 11,000 cattle by the best pricing method, revenue increased
 - ☒ \$15/head compared with the next best pricing method
 - ☒ \$18/head compared with selling all cattle on a grid
 - ☒ \$35/head compared with selling all cattle on a live weight basis

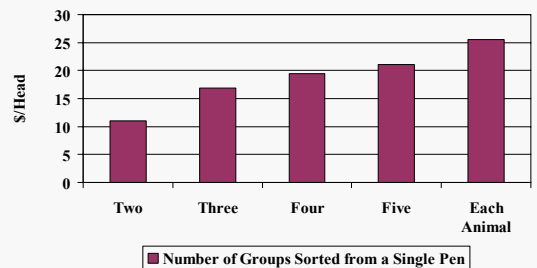
Carcass Value Differences: Using Ultrasound and Sorting at Placement (ISU)



Profit Differences: Using Ultrasound and Sorting at Placement (ISU)



Return Differences: Using Ultrasound and Sorting at Final Implant (CSU)



Implications from CSU Study

- ⌘ Marginal increase in returns from sorting suggests sorting into three groups at final implant stage
 - ☑ Marginal return (\$11/head) exceeded the marginal sorting cost (\$5/head)
- ⌘ Returns to sorting were more related to cost of gain than to grid structure

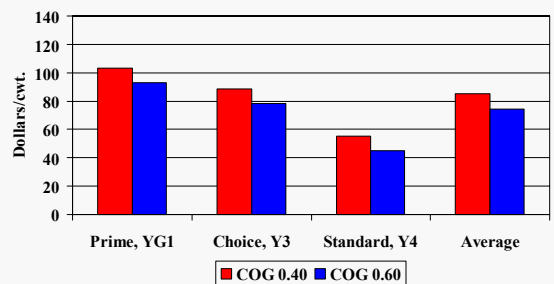
Management Musts

- ⌘ Know the carcass characteristics of cattle marketed via grid
- ⌘ Understand the base price and its implications
- ⌘ Understand the grid and how the net price is calculated
- ⌘ Recognize that management can significantly affect the grid pricing outcome

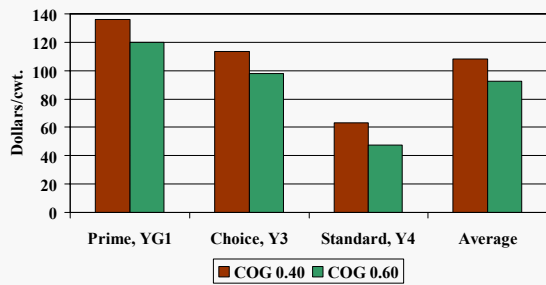
Revenue (Price) vs. Profit Goal

- ⌘ Profit is total revenue minus total costs
- ⌘ Revenue considers price and weight
- ⌘ Profit also considers purchase cost and feeding costs, including potential days on feed tradeoffs between quality and yield grade or other carcass characteristics

Grid Effects on Feeder Cattle Values (Heifers, 750 lbs.)



Grid Effects on Calf Values (Heifers, 500 lbs.)



Summary

- ⌘ Grid pricing offers significant *opportunities* - but not without additional *risk*
- ⌘ Cow-calf producers can be rewarded for quality genetics and feedlots can be rewarded for quality management
- ⌘ Producers must know their cattle, understand the grid, and make appropriate management and marketing adjustments