

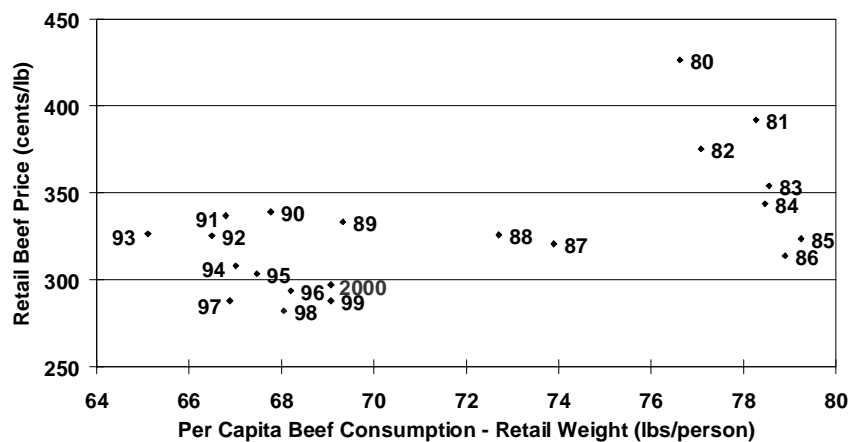
Economics of Grid Pricing

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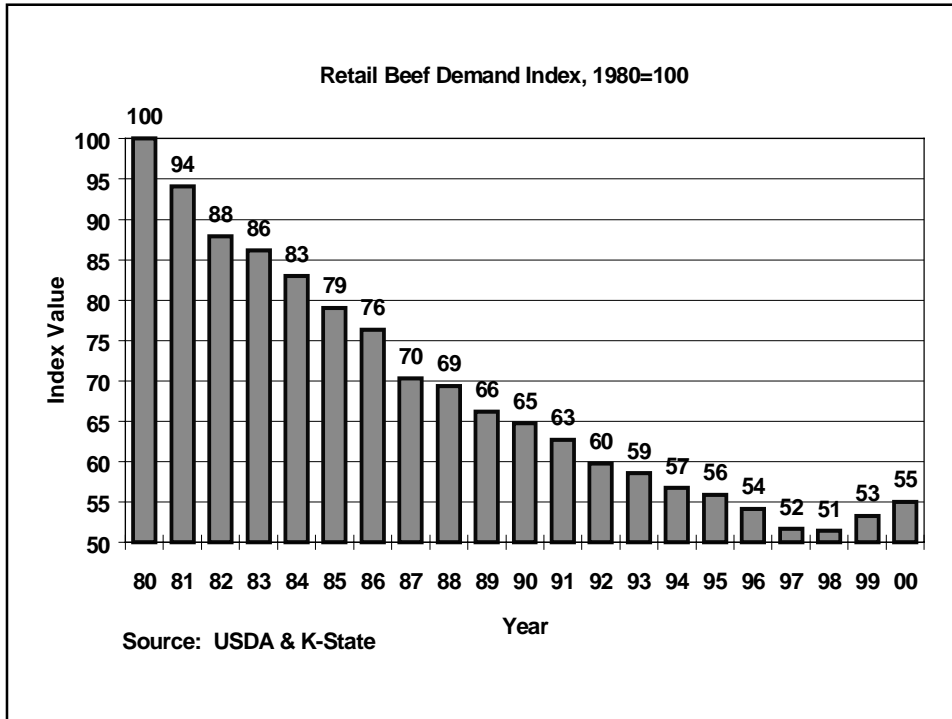
<http://www.agecon.ksu.edu/livestock/>

Montana Stock Growers Meeting
August 15, 2001

Figure 1. Annual beef price - quantity relationships,
1980-1999



Source: USDA & Commerce Dept.
Price Deflated by GDP Implicit Price Deflator 1999=100



Consumers Want

1. Tender
2. Flavorful
3. Consistently High Quality
4. Convenient to Prepare
5. Healthy & Nutritious
6. Safe
7. Competitively Priced

Issues

What are your calves worth?

How do you obtain their value?

What are Your Calves Worth?

Retain Ownership:

PROFIT =

Revenue from fed sales

- costs to grow/finish

- cow-herd costs

Sell Calves:

PROFIT =

Revenue from calf sales

- cow-herd costs

Weaned Calf Price Discovery

Buyers bidding on feeder cattle:

$$\begin{array}{rcl} & \text{Expected Selling Price} & \left. \vphantom{\begin{array}{l} \text{Expected Selling Price} \\ \text{Expected Feeding Costs} \end{array}} \right\} \begin{array}{l} \text{Market Conditions,} \\ \text{Weather,} \\ \text{Cattle Attributes} \end{array} \\ - & \text{Expected Feeding Costs} & \\ - & \underline{\text{Desired Profit}} & \\ = & \text{Purchase Price} & \end{array}$$

What are Your Calves Worth?

1. Growing and Feeding Efficiency

2. Value when Sold as Fed Cattle

What are Your Calves Worth?

1. Growing and Feeding Efficiency

- Stale, Sick, Lamé discounted \$5 - \$30/cwt
- Fleshy and Fat discounted \$3 - \$16/cwt
- Small Frame discounted \$10/cwt
- Full and Tanked discounted \$3 - \$17/cwt

Maximum price: large framed-heavy muscled, healthy calves, in average condition, with average or less fill, uniform sizes & truckload lots.

source: Sartwelle et al., Kansas State University

What are Your Calves Worth?

2. Value when Sold as Fed Cattle

Market Fed Cattle Price

Plus or Minus:

Dressing Percentage

Quality Grade

Yield Grade

.

.

other characteristics

Value-Based Fed Cattle Marketing

Valuing each animal individually

Pricing each carcass based on its own merit

Critical to think in terms of individual animal quality and value

Motivations for Grid Pricing

High quality cattle subsidize

low quality cattle by on average

\$30/head when sold on live average

price methods and the range in value

is often more than \$200/head.

Example Grid

(\$/cwt carcass weight)					
----- yield grade -----					
Quality Grade	1	2	3	4	5
Prime	8.00	7.00	6.00	-14.00	-19.00
Certified Angus Beef	3.00	2.00	1.00		
Choice	2.00	1.00	0.00	-20.00	-25.00
Select	-10.25	-11.25	-12.25	-32.25	-37.25
Standard	-20.25	-21.25	-22.25	-42.25	-47.25
Dark Cutters, Stags, Hardbones		-20.00			
Carcass Weights					
Greater than 950 lbs.		-25.00			
Less than 550 lbs.		-25.00			

How Does A Grid Work?

Start With BASE PRICE Choice, YG-3 price \$118.00/cwt

Attribute	USDA Grid	x	Percent	=	
Prime	+\$7.00	x	6.2	=	+ \$0.43/cwt
CAB	+\$3.00	x	24.9		+ \$0.75/cwt
Choice	+\$0.00	x	46.5		+ \$0.00/cwt
Select	-\$8.50	x	21.0		✍ \$1.79/cwt
Standard	-\$17.00	x	0.7		✍ \$0.12/cwt
Outs	-\$20.00	x	0.7		✍ \$0.14/cwt
YG 1	+\$2.00	x	1.5		+ \$0.03/cwt
YG 2	+\$1.00	x	33.2		+ \$0.33/cwt
YG 3	+\$0.00	x	61.2		+ \$0.00/cwt
YG 4	-\$14.00	x	3.6		✍ \$0.50/cwt
YG 5	-\$24.00	x	0.5		✍ \$0.12/cwt
<550 lbs.	-\$20.00	x	0		✍ \$0.00/cwt
>950 lbs.	-\$20.00	x	7.3		✍ \$1.46/cwt
					= \$115.42/cwt carcass weight

Value of Managing Cattle Attributes

<u>Attribute</u>	<u>USDA Grid</u>	<u>Percent</u>
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	<u>7.3</u>
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

<u>Attribute</u>	<u>USDA Grid</u>	<u>Percent</u>	<u>Percent</u>
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	<u>7.3</u>	<u>0.00</u>
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

<u>Attribute</u>	<u>USDA Grid</u>	<u>Percent</u>	<u>Percent</u>
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

<u>Attribute</u>	<u>USDA Grid</u>	<u>Percent</u>	<u>Percent</u>
Prime	+\$7.00	6.2	6.2
CAB	+\$3.00	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**

Fit the Cattle to the Grid

- **Target Cattle With Specific Attributes to the Right Grid at the Right Time**
 - Market cattle before they are Y4-Y5 and have heavy carcasses
 - Sell high quality cattle on a “Quality Grid”
 - Sell high yielding cattle on a “Yield Grid”

Ultrasound In Feedlots

- **Ultrasound cattle at placement or final implant**
- **Use Grid Premiums/Discounts**
- **Forecast closeout information**
- **Sort into homogeneous groups**
 - **Carcass characteristics**
 - **Marketing date**

Returns to Sorting with Ultrasound

- **Estimates range between \$10-25/head**
- **Increased with number of groups, but at a decreasing rate**
 - **Optimal marketing date most impacted by YG premium**
- **Costs Range from \$5-17 per head**

Why Isn't Ultrasound Used More?

- **Requires Sorting & Commingling**
- **Accuracy**
- **Technology is Proprietary**
- **Results Based on Cattle with "Average" Genetics**
- **Don't Understand Impact of Errors in Forecasting**

Interpreting and Using Grid Data



Grid Data Analyzed

- 183 Montana steers from one herd**
- Carcass data collected**
- Valued Based upon a recent grid**

Grid Applied to Montana Cattle

Quality Grade	Yield Grade					
	1	2-2.49	2.5-2.99	3	4	5
Prime	\$130.80	\$129.20	\$128.40	\$127.00	\$115.00	\$108.00
Choice	\$123.80	\$122.20	\$121.40	<u>\$120.00</u>	\$108.00	\$101.00
Select	\$114.30	\$112.70	\$111.90	\$110.50	\$98.50	\$91.50
Standard	\$110.80	\$109.20	\$108.40	\$107.00	\$95.00	\$88.00
<550 lbs.	-\$15.00					
>950 lbs.	-\$15.00					

Unsorted Steer Carcass Data from Montana Beef Network

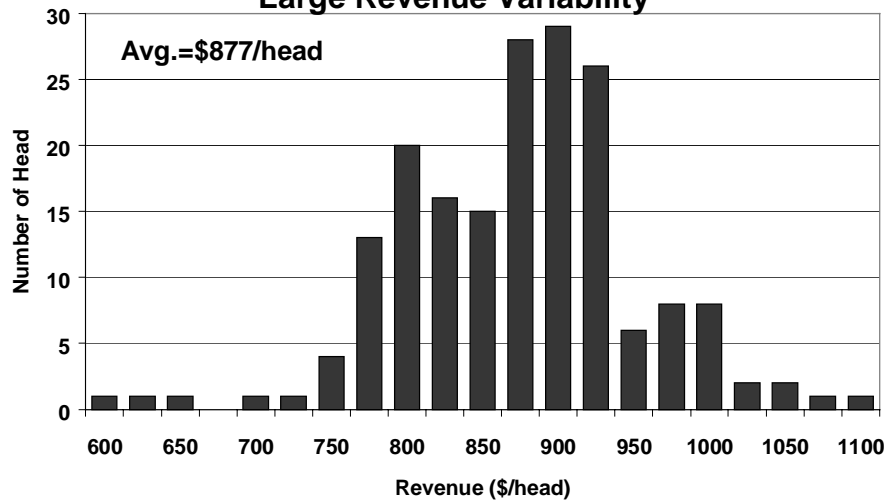
ID	CARC. WT.	Qual. Grade	Yld Grd	Price	Revenue
1	761	CHOICE-	3.5	\$120.00	\$913.20
2	686	SELECT	2.9	\$111.90	\$767.63
3	659	CHOICE-	1.8	\$123.80	\$815.84
4	841	SELECT	3.3	\$110.50	\$929.31
5	774	CHOICE-	3.2	\$120.00	\$928.80
6	734	SELECT	3.0	\$111.90	\$821.35

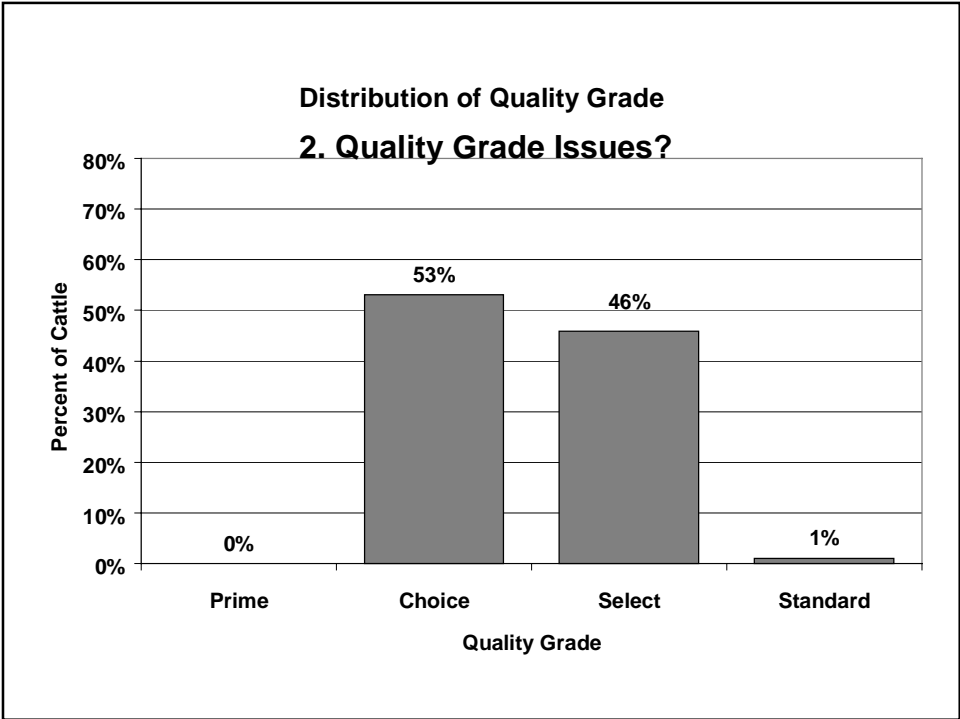
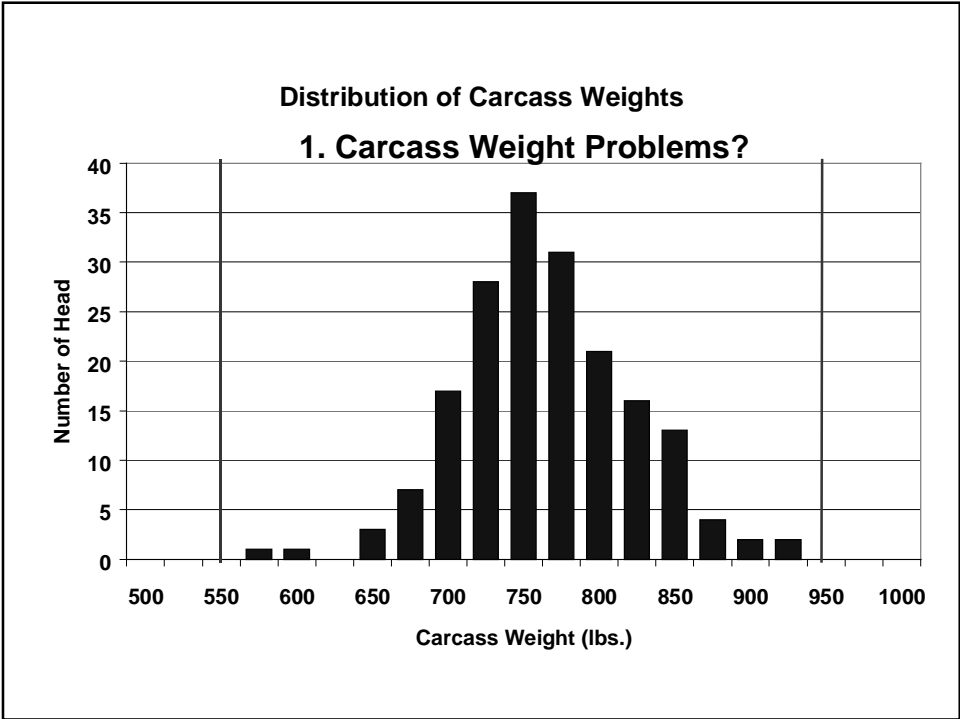
Sorted Steer Carcass Data from Montana Beef Network

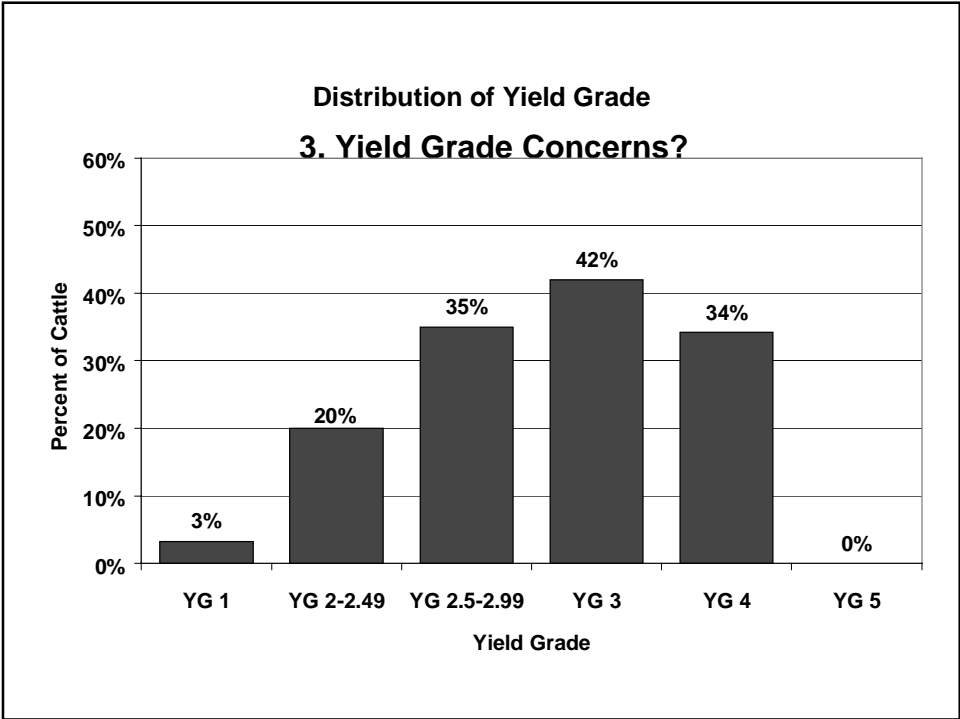
	ID	CARC WT	Qual Grade	Yld Grade	Price	Revenue
worst	62	553	STANDARD	1.4	\$110.80	\$612.72
	40	582	STANDARD	1.4	\$110.80	\$644.86
	144	626	SELECT	2.3	\$112.70	\$705.50
	145	633	SELECT	1.9	\$114.30	\$723.52
	88	660	SELECT	2.6	\$111.90	\$738.54
	17	672	SELECT	3.4	\$110.50	\$742.56
	33	831	CHOICE-	2.8	\$121.40	\$1,008.83
	146	858	CHOICE-	3.7	\$120.00	\$1,029.60
	84	849	CHOICE-	2.8	\$121.40	\$1,030.69
	15	865	CHOICE-	2.9	\$121.40	\$1,050.11
	8	874	CHOICE	2.8	\$121.40	\$1,061.04
	129	895	CHOICE	3.2	\$120.00	\$1,074.00
best	127	921	CHOICE	3.2	\$120.00	\$1,105.20

Distribution of Revenue per Head

Large Revenue Variability





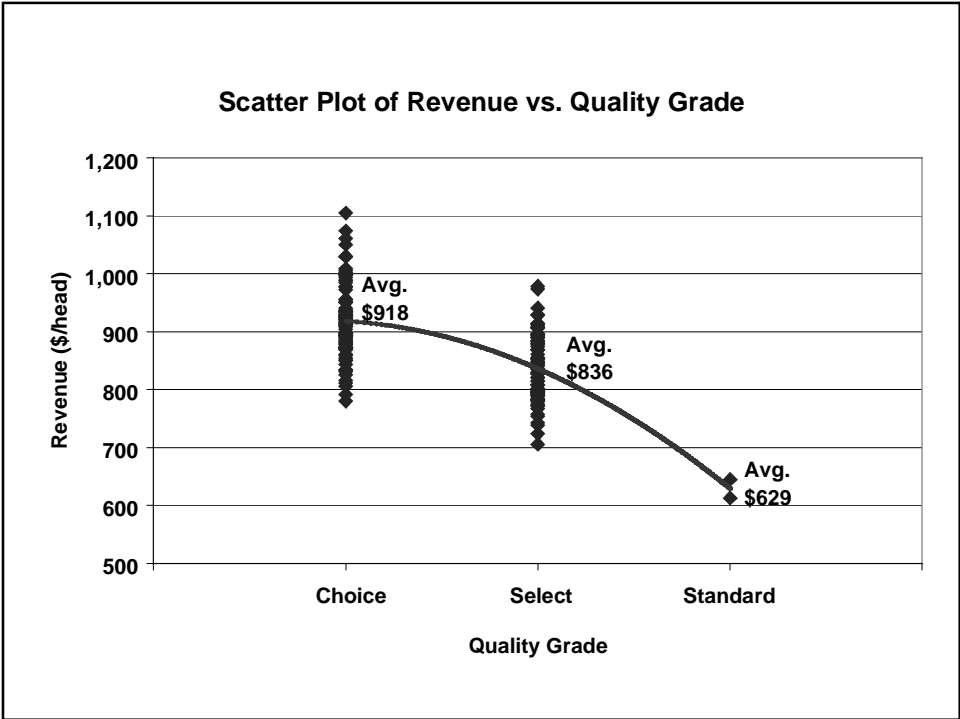
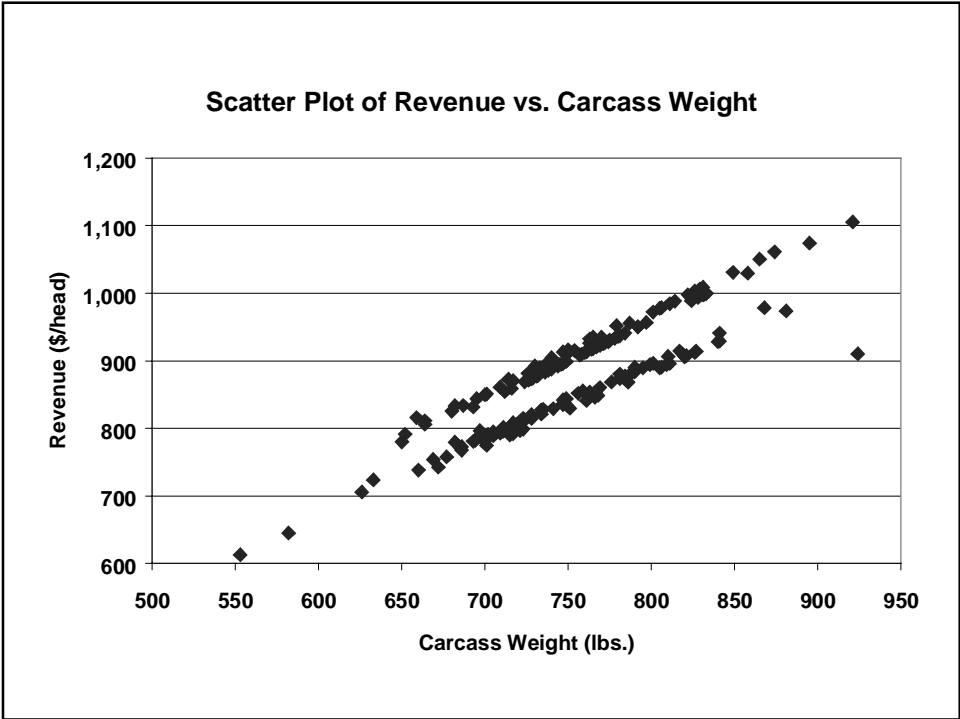


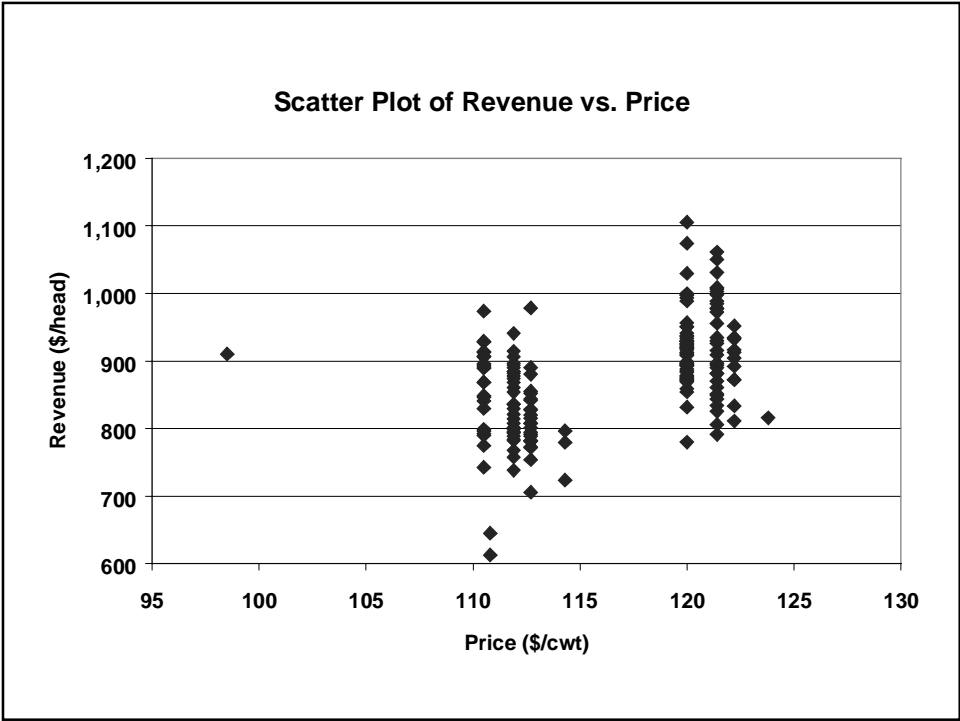
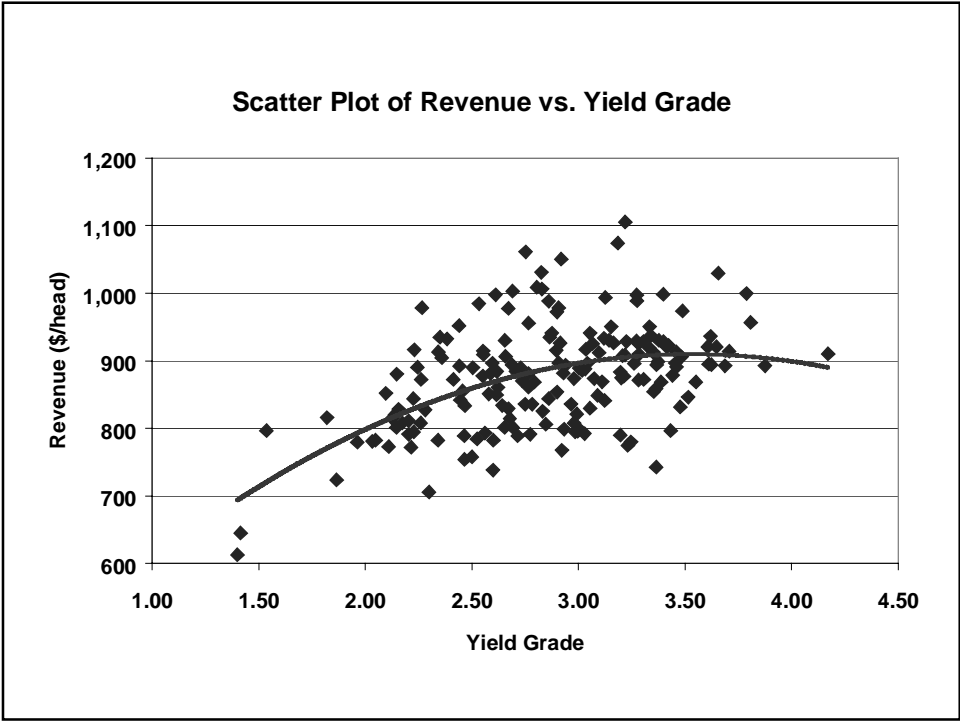
Grid Applied to Montana Cattle

Quality Grade	Yield Grade					
	1	2-2.49	2.5-2.99	3	4	5
Prime	\$130.80	\$129.20	\$128.40	\$127.00	\$115.00	\$108.00
Choice	\$123.80	\$122.20	\$121.40	<u>\$120.00</u>	\$108.00	\$101.00
Select	\$114.30	\$112.70	\$111.90	\$110.50	\$98.50	\$91.50
Standard	\$110.80	\$109.20	\$108.40	\$107.00	\$95.00	\$88.00
<550 lbs.	-\$15.00					
>950 lbs.	-\$15.00					

Cattle Distribution

Quality Grade	Yield Grade					
	1	2-2.49	2.5-2.99	3	4	5
Prime	0	0		0	0	0
Choice	1	11	32	53	0	0
Select	3	25	32	23	1	0
Standard	2	0		0	0	0
<550 lbs.	0					
>950 lbs.	0					





Management and Marketing Implications

- 1. Short Run: Feeding Management**
 - carcass weights**
 - dressing percentage**
 - yield grade?**
 - quality grade?**

Management and Marketing Implications

- 1. Short Run: Feeding Management**
 - carcass weights**
 - dressing percentage**
 - yield grade?**
 - quality grade?**
- 2. Cow/Bull selection culling decisions**
 - quality grade**
 - yield grade**
 - dressing percentage**

**Distinguish between what was
genetics fault vs. something else**

Essential Data

- 1. Carcass I.D. matched with
carcass weight
yield grade
quality grade
price
revenue**

Traced to cow and bull

- 2. Calf birth date, weight, sex,
weaning weight, unique circumstances**

Questions to ask

- 1. Can “worst” calves be eliminated?
Growing/finishing management - quick
Genetics – slow**
- 2. Can distributions of quality grade, yield grade etc.
be improved?
Genetics**
- 3. Should I sort and/or target different grids?
high yield grade, lower quality to a yield grid
high quality, lower yield to quality grid**

Keep in mind long run goals

Grid Variability Over Time

Premiums and Discounts vary over time as market conditions change

