

Ethanol Co-products – Beef Quality Implications



A Branded Beef Perspective

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Certified Angus Beef

Discussion Outline

- Quality trends in US beef industry
- Brief review of current thinking on marbling deposition in feedlot cattle
- Review of literature on feeding of ethanol co-products and their impact on beef quality
- Topics for further consideration

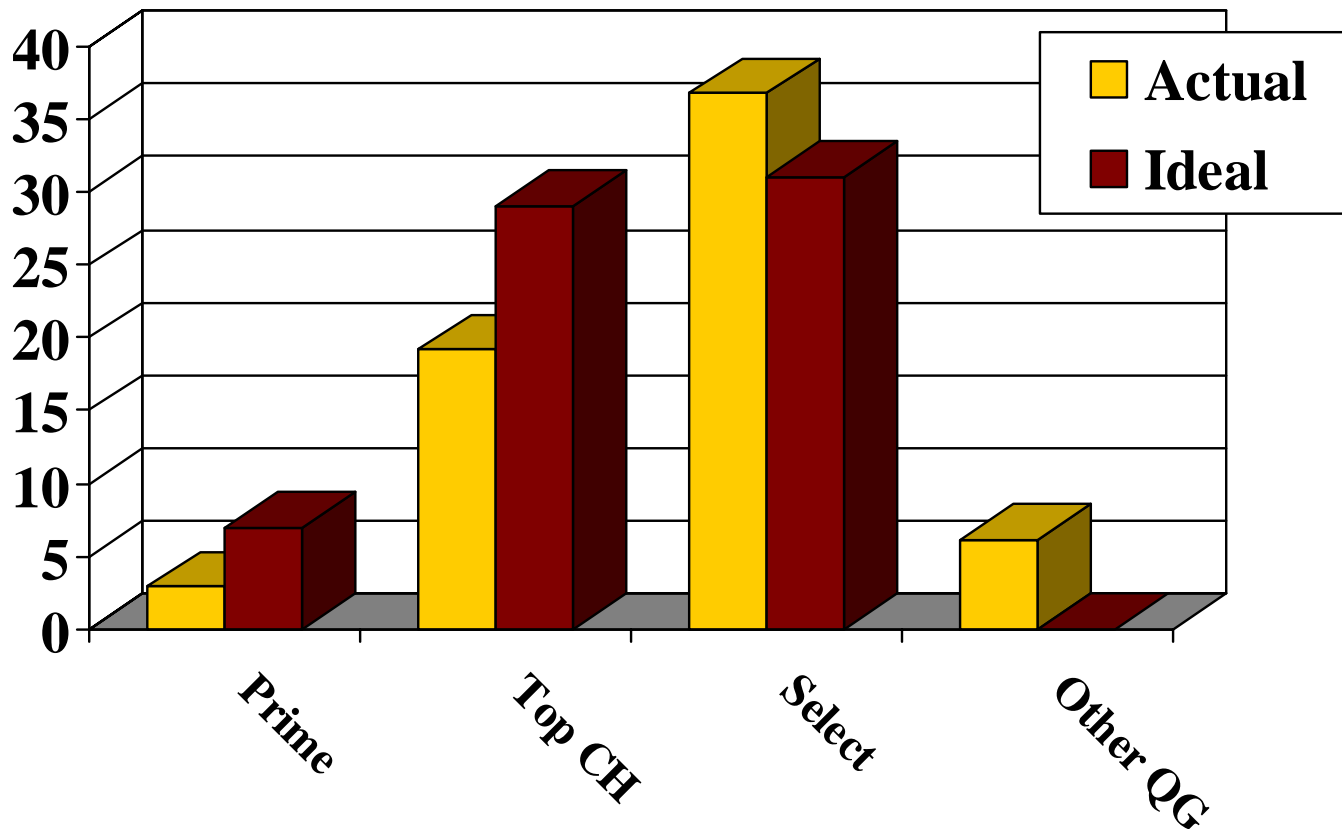
Top 10 beef quality concerns from purveyors, restaurateurs and retailers

- 1. Insufficient Marbling**
2. Cut Weights Too Heavy
3. Lack of Uniformity In Cuts
4. Inadequate Tenderness
5. Excess Fat Cover
- 6. Inadequate Juiciness**
- 7. Inadequate Flavor**
- 8. Inadequate Overall Palatability**
9. Low Cutability
10. Too Large Ribeyes

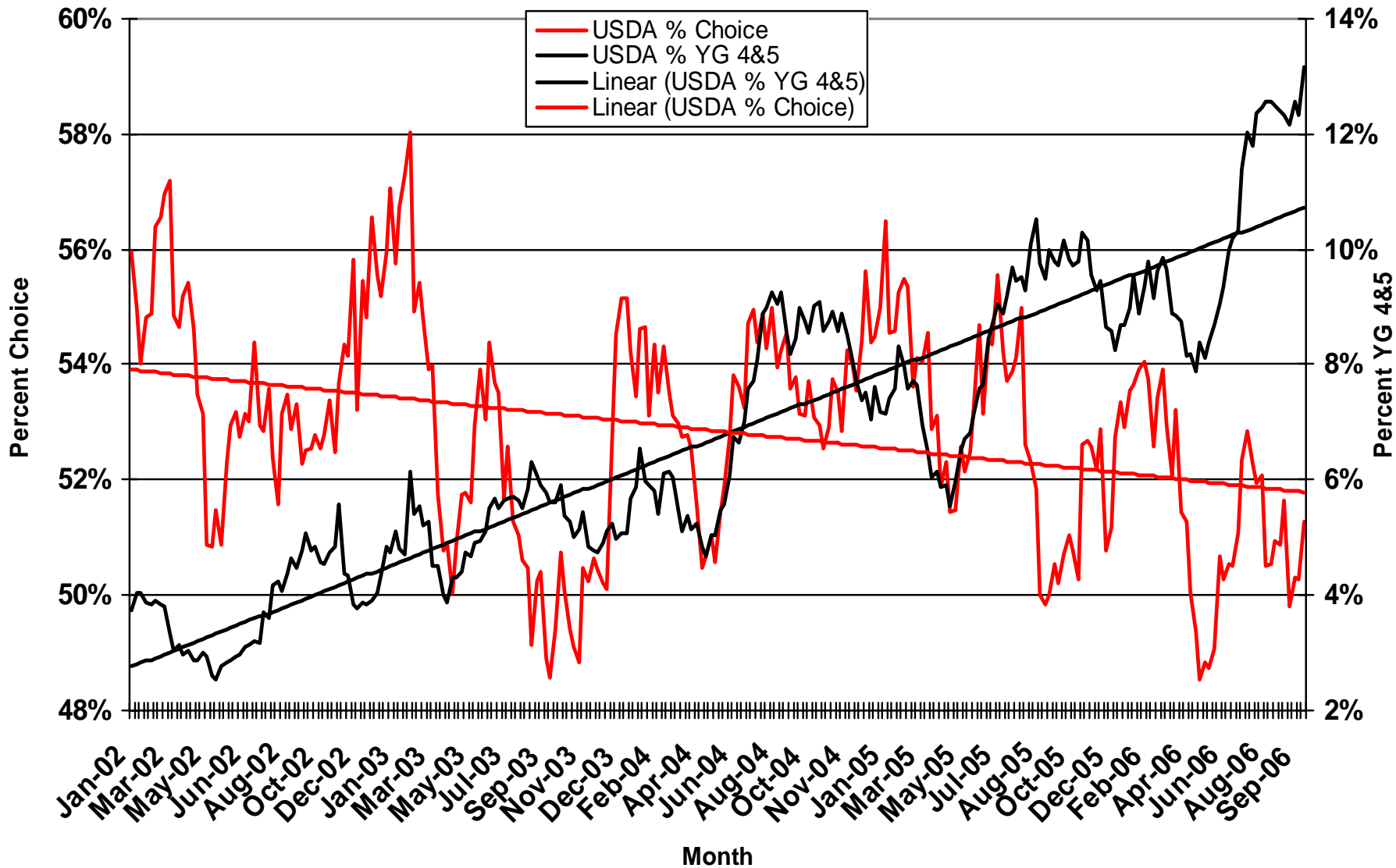


Lost Opportunity- QG

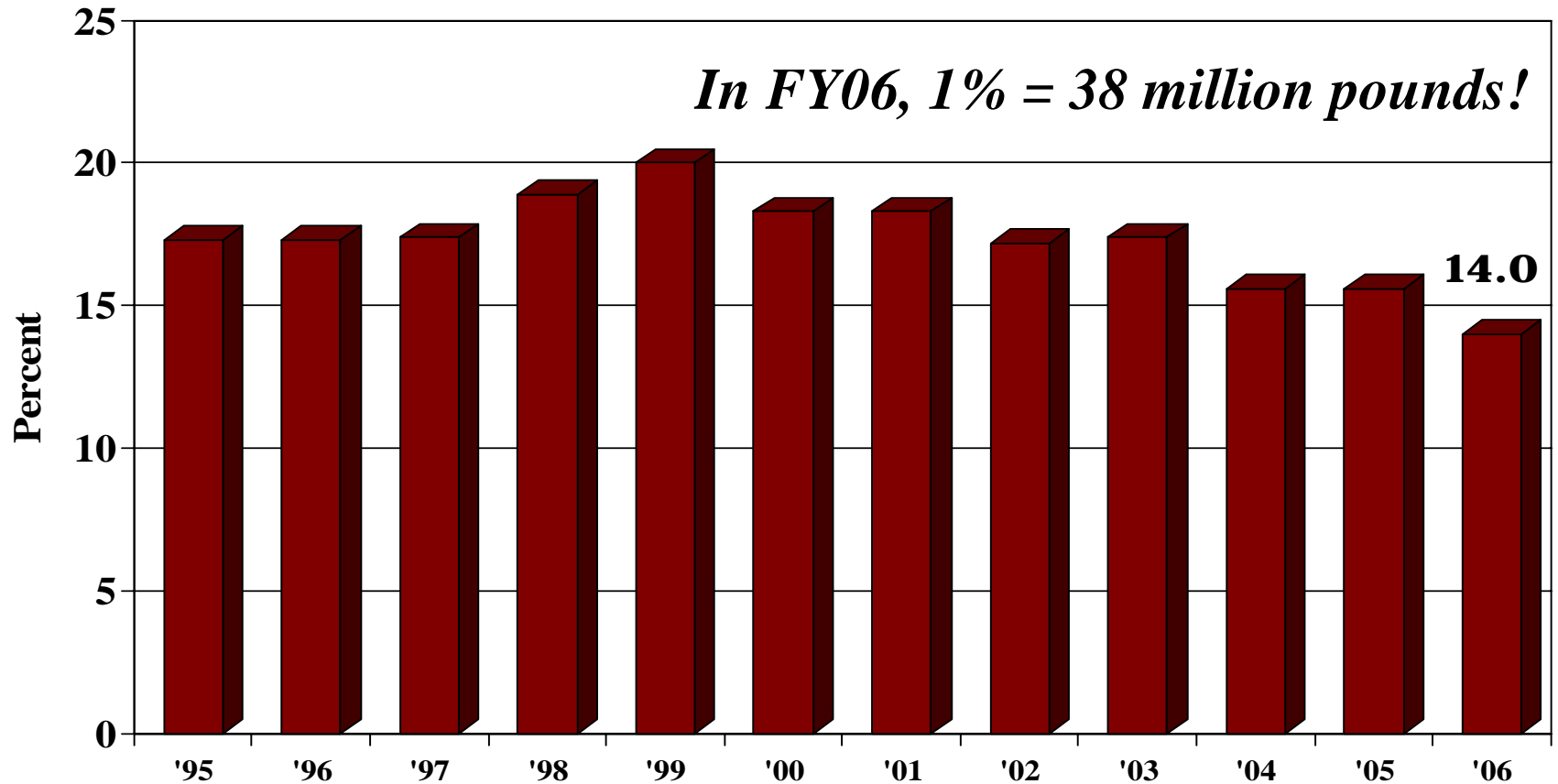
Cost = \$26.81/hd



USDA Choice and Yield Grade 4&5 Percent



Angus-type Cattle Earning the CAB[®] Brand



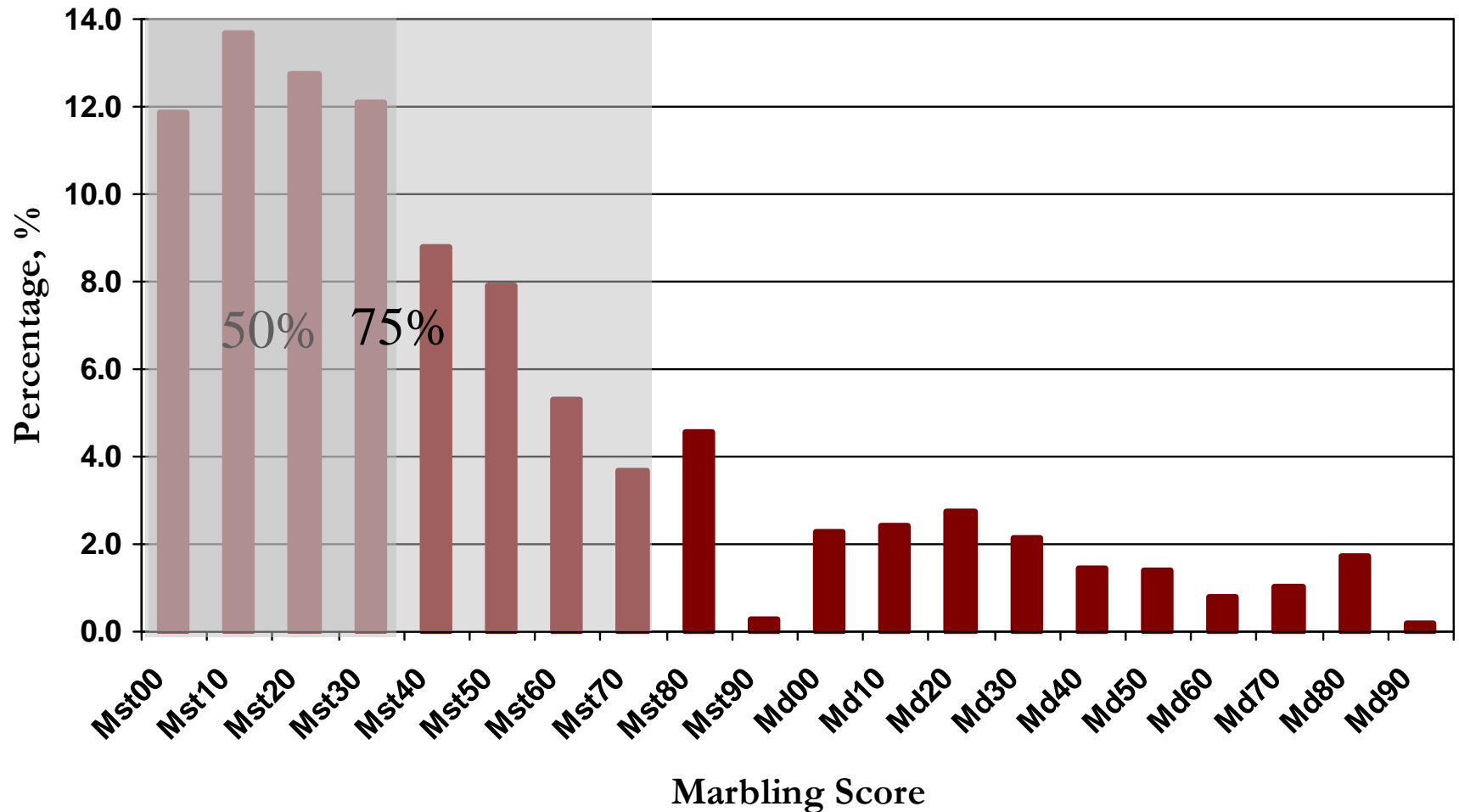
Fiscal Year (October 1 - September 30)

Where are cattle missing the CAB[®] target?

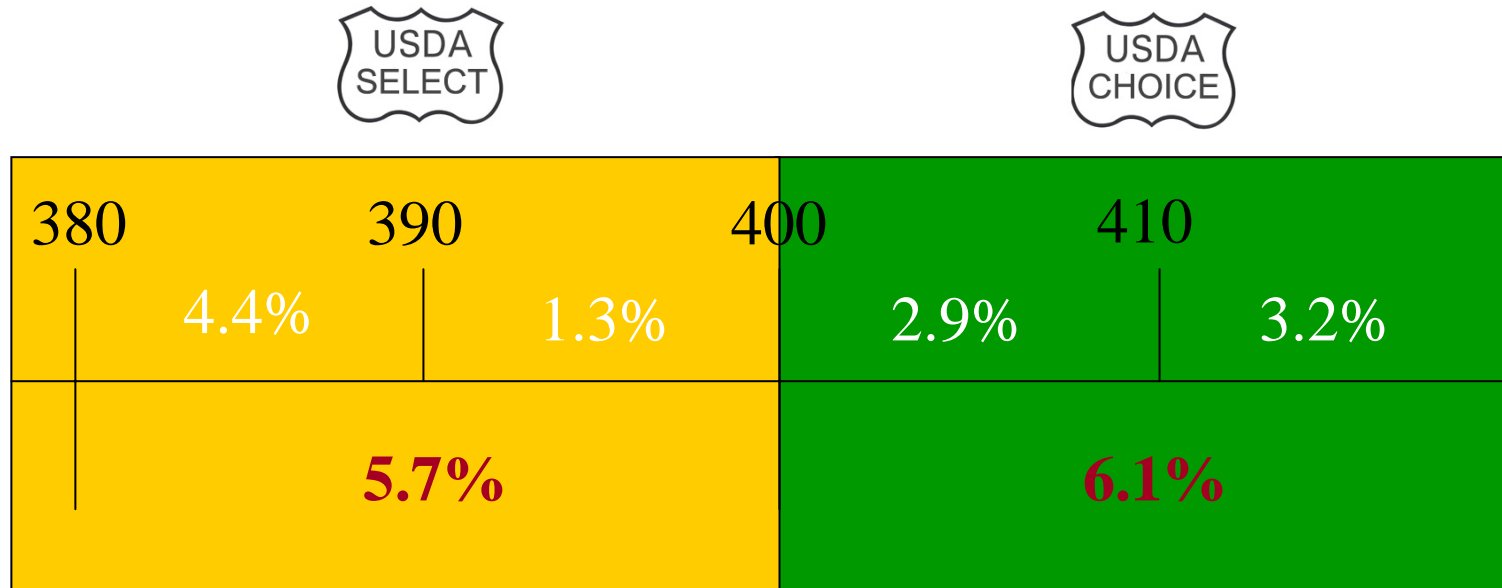
	% of Rejected Carcasses	
	Total Occurrence	Solo Defect
Inadequate Marbling	85.48	68.17
Yield Grade	15.71	6.08
Maturity	5.08	1.21
Capillary Rupture	1.88	0.15
Dark Cutter	1.93	0.25
Dairy-type Muscling	1.06	0.10
Hump Height	0.43	0.01
Coarse Marbling	0.14	0.02

2005 CAB Consist Data (26,707 hd)

Marbling Score Distribution Among CAB[®] Certified Carcasses



The Choice-Select Line



Source: 2005 CAB Consist Data (26,707 hd)

Significant premiums and discounts live in the tails of bell curves.

Declining Quality Grades

Primary Factors

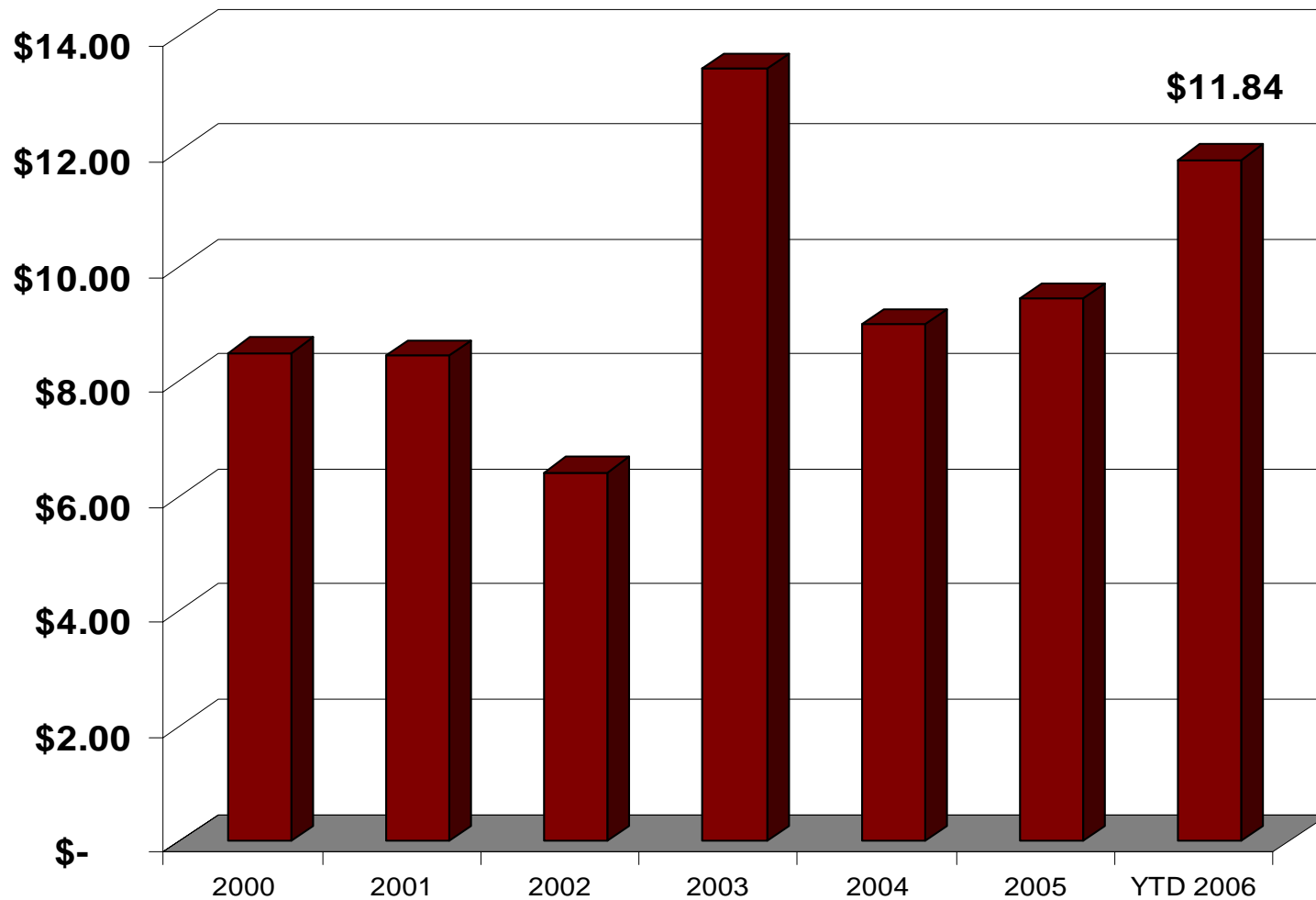
- Increasing health problems in the beef cattle industry
- Increased use of ethanol co-products by feedlots
- Structural and management changes in the feeding industry
- Marbling development is a lifetime event
- Timing, number, and potency of implant regime

Declining Quality Grades

Secondary Factors

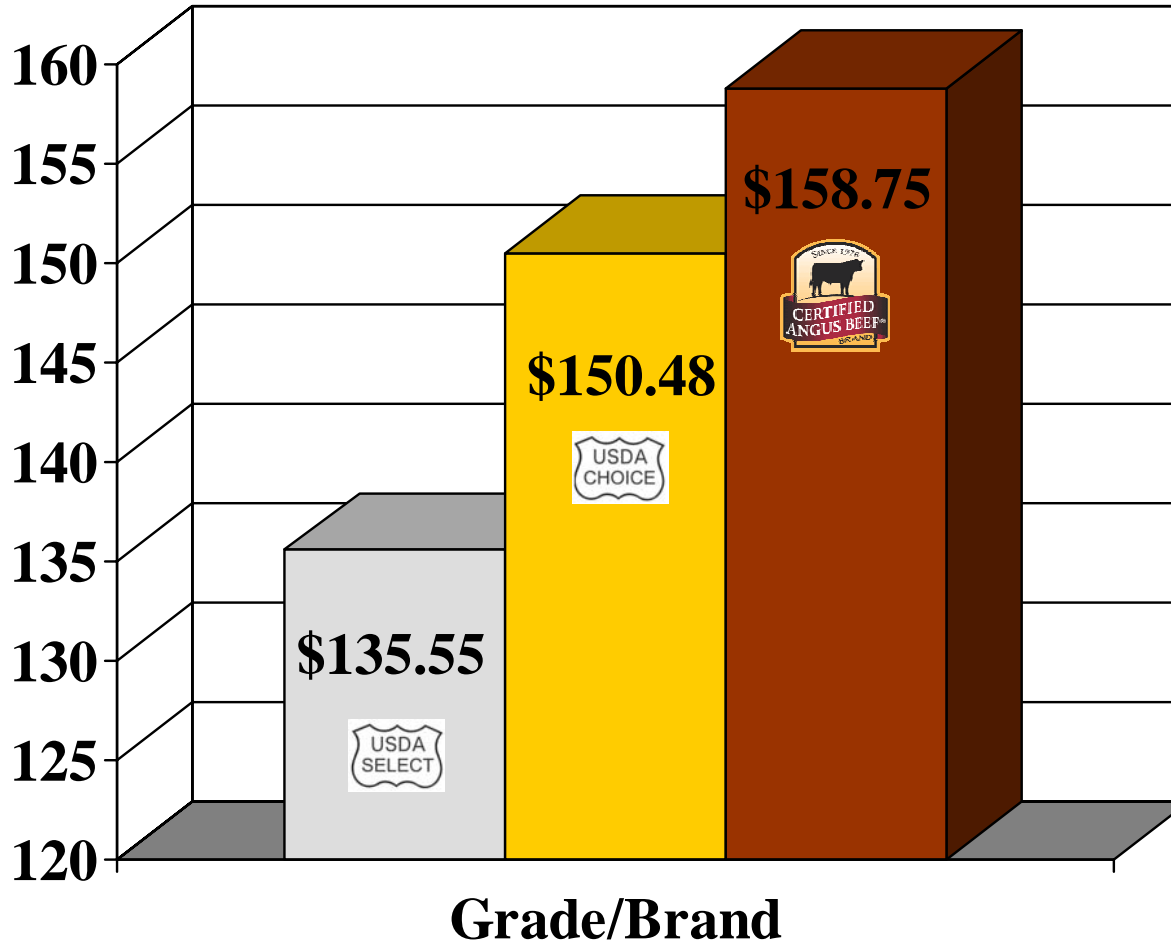
- Genetics
 - Limited improvement in IMF
 - Increased growth
- Disposition
- Vitamin A levels
- Gender
- Sorting

Choice-Select Spread



Source: USDA; YTD 2006 Thru Nov 1

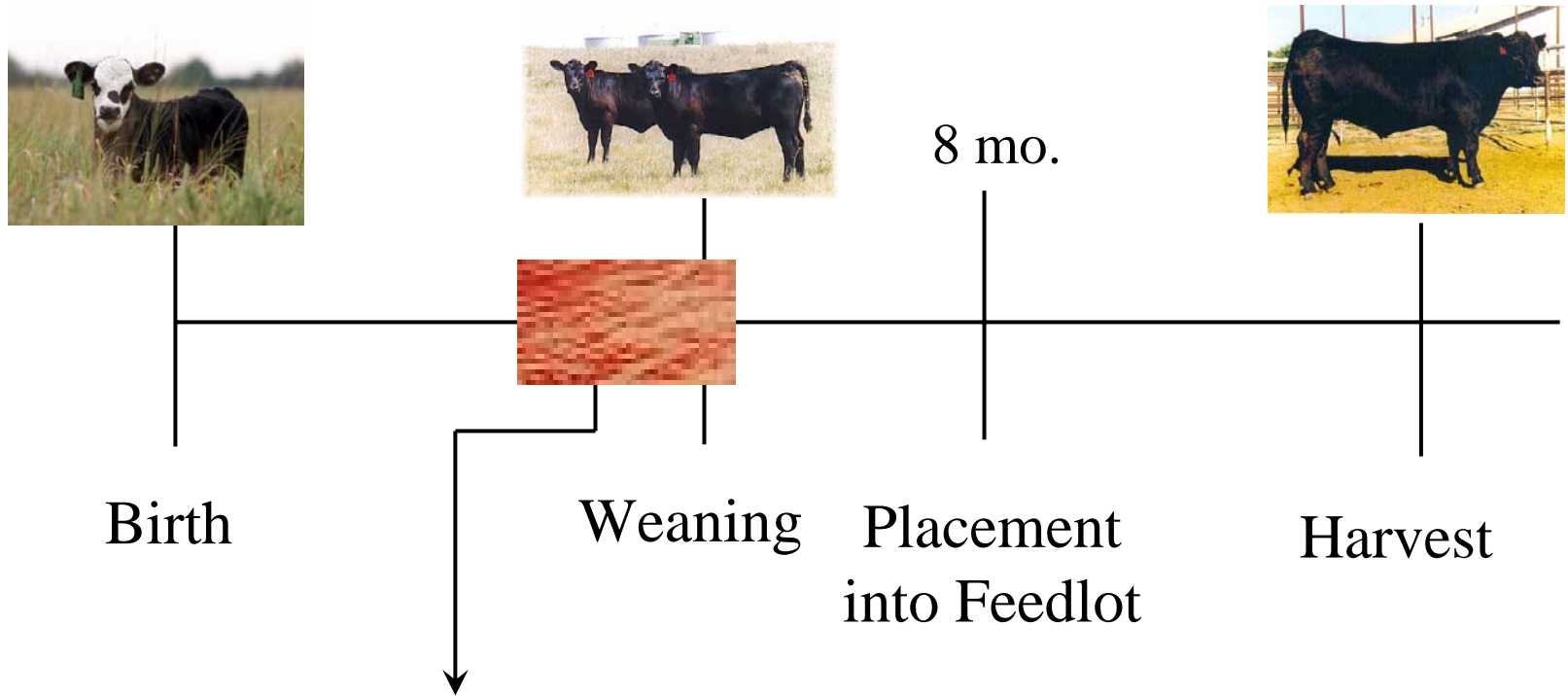
Boxed Beef Cutout Values 2006 YTD



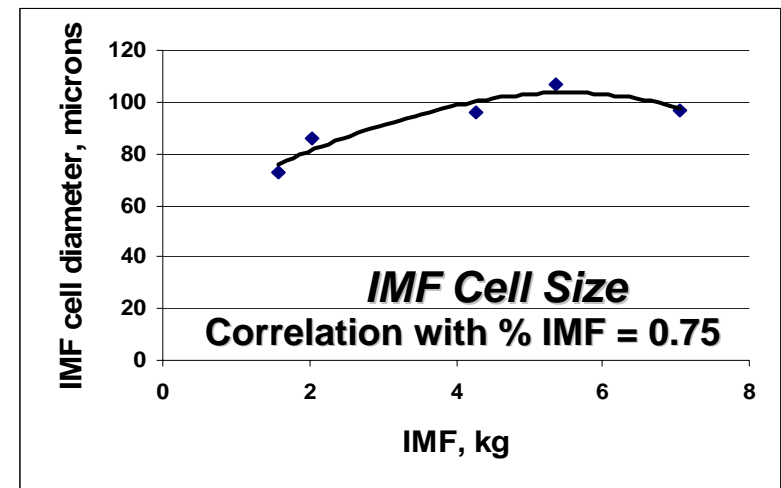
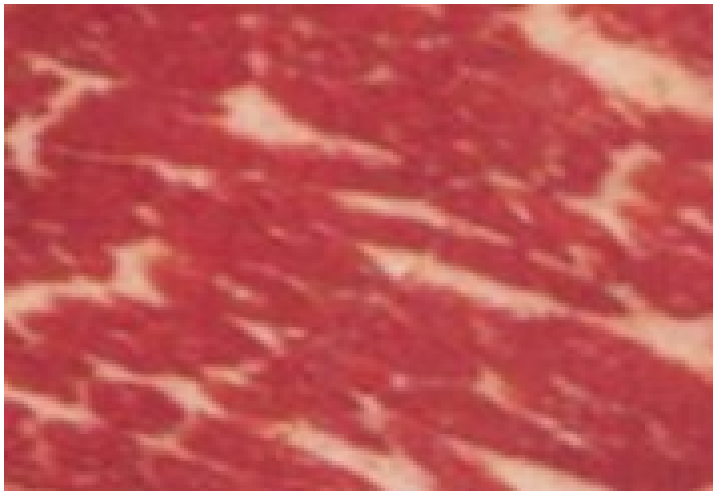
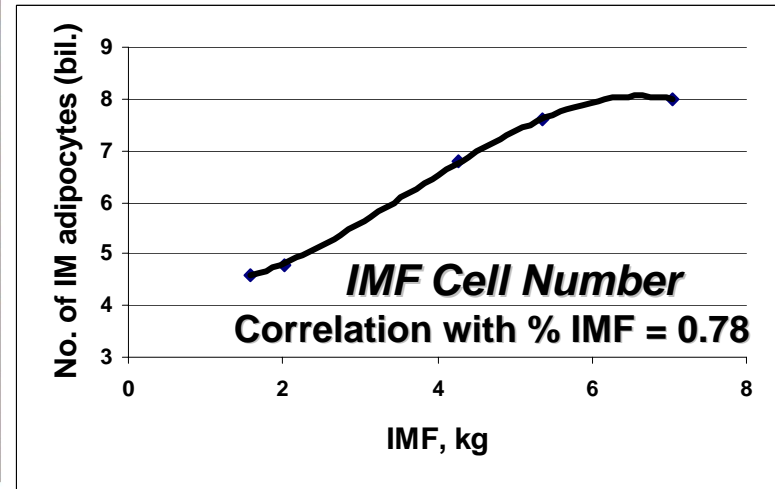
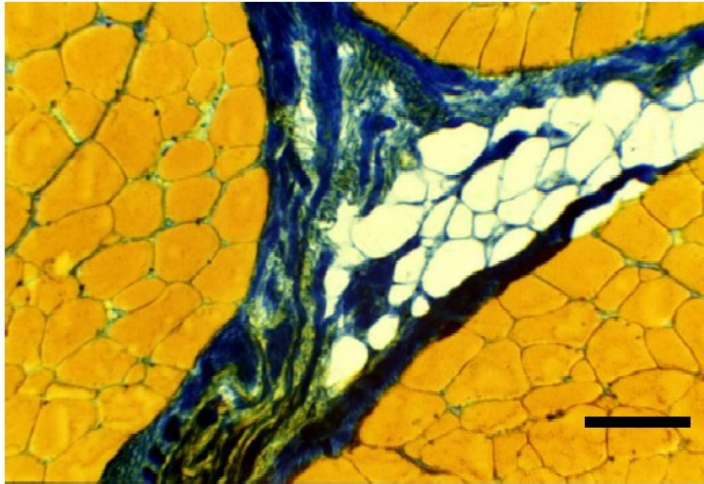
Thru Nov 1



Current thinking on marbling deposition in feedlot cattle

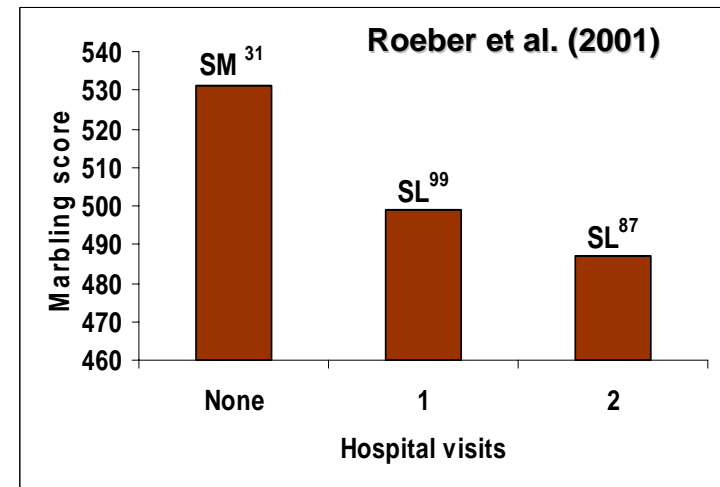
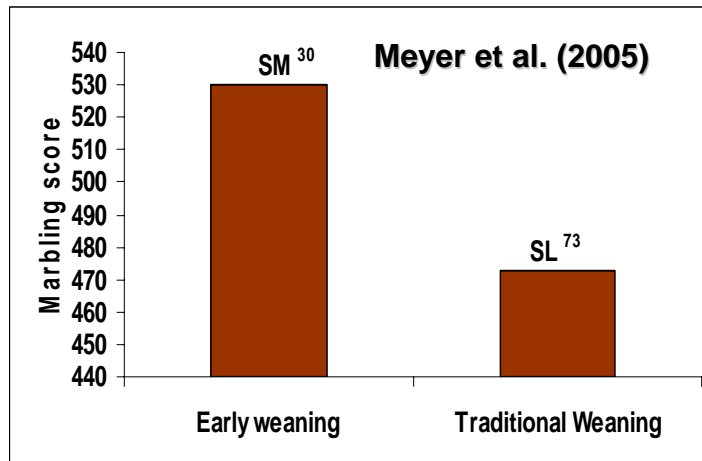
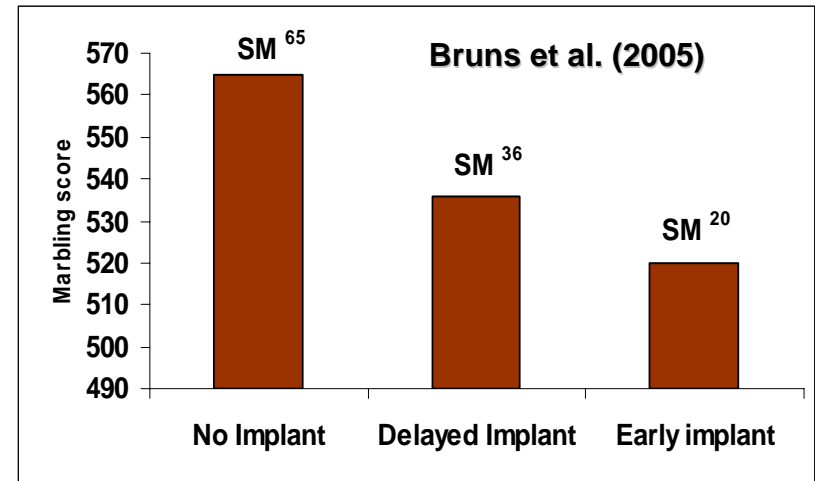
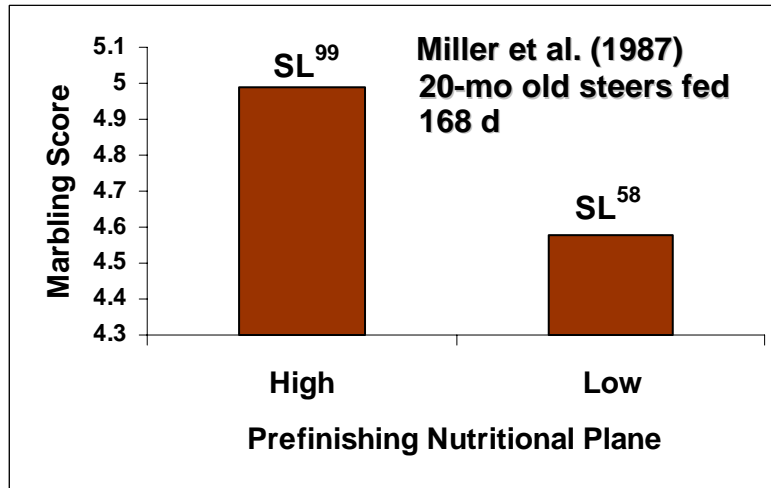


Amount of Marbling is Dependent Upon Number and Size of Fat Cells



Source: Cianzio et al. (1985)

Examples of Early Management Effects on Marbling



Effect of Distillers Products on Marbling and Yield Grade

Distiller's Grain Level (DM basis)	Marbling Score	Calculated YG Score
None	5.55 ^a	2.96 ^a
1-15%	5.49 ^a	3.08 ^b
16-29%	5.46 ^{a, b}	3.05 ^b
Over 29%	5.35 ^b	3.06 ^b

^{a, b} Differing superscript in same row (P<.05)

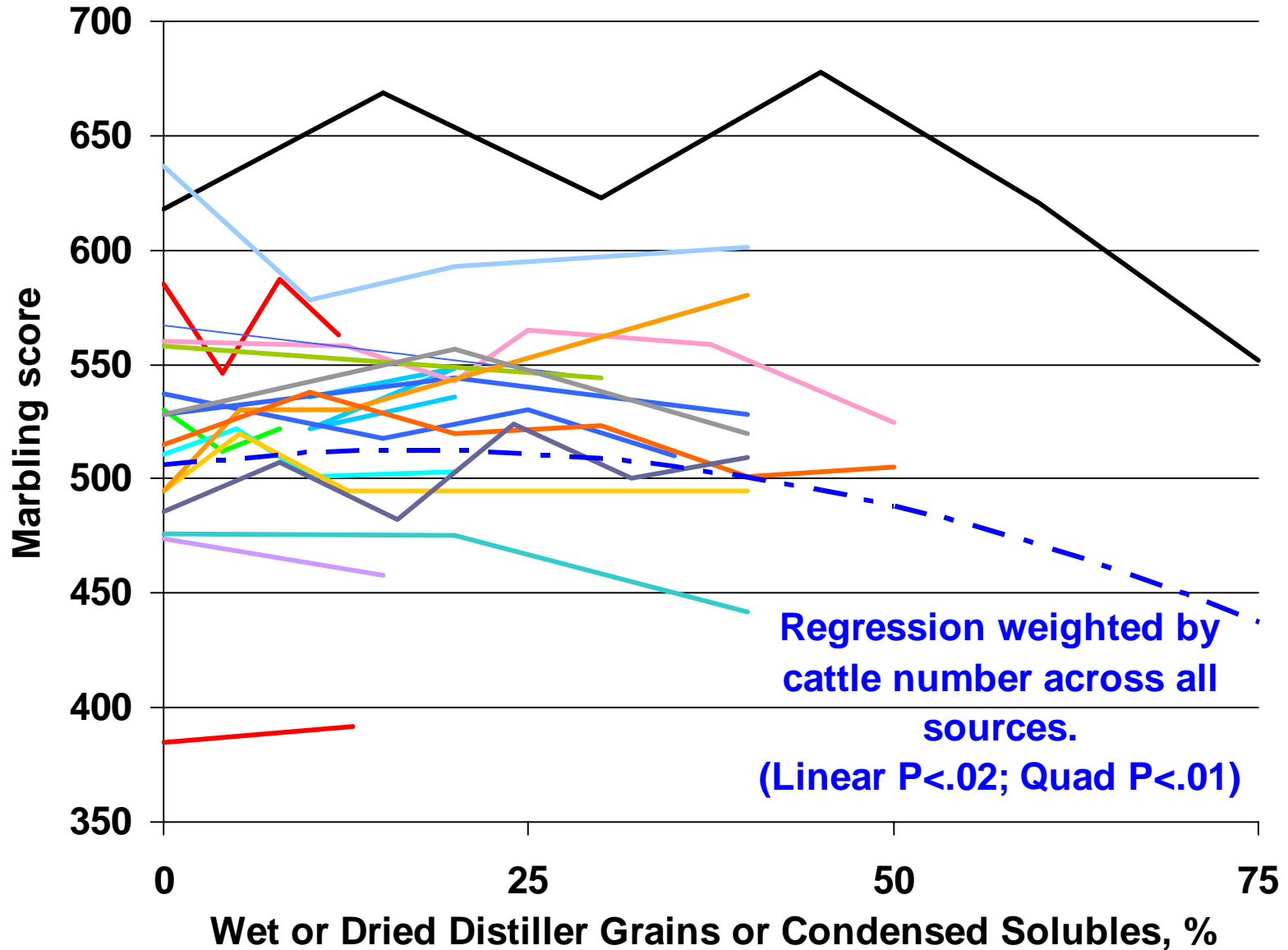
**Source: Dr. Chris Reinhardt, KSU, 2006;
14 study review**

Effect of Distillers Products on Marbling Score

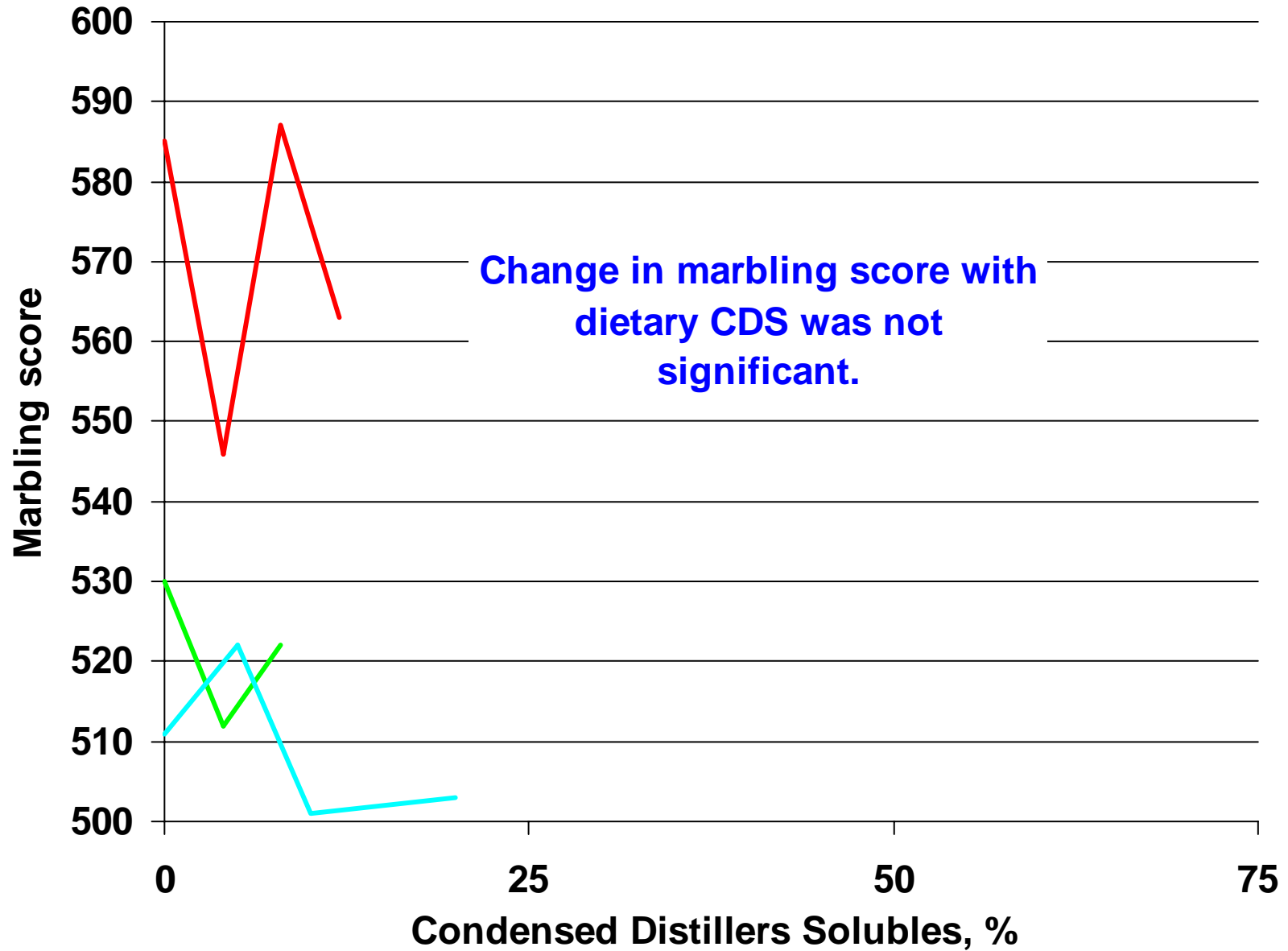
Product	Trials	Level, % diet
Condensed solubles	3	0-20
Dried grains & solubles	11	0-75
Wet grains & solubles	15	0-50

**Source: Dr. Fred Owens, 2006;
29 trial review**

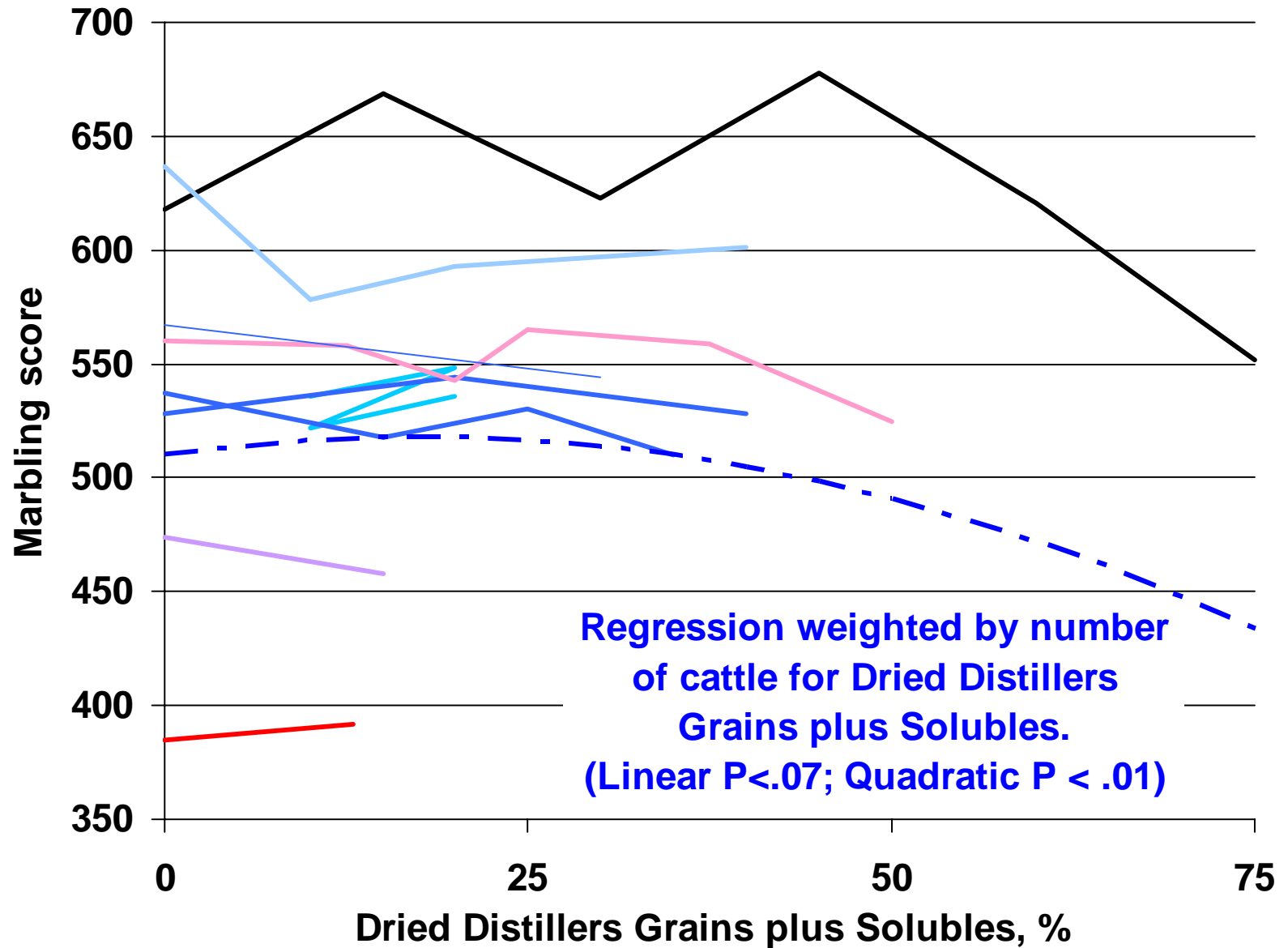
All Distillers Products



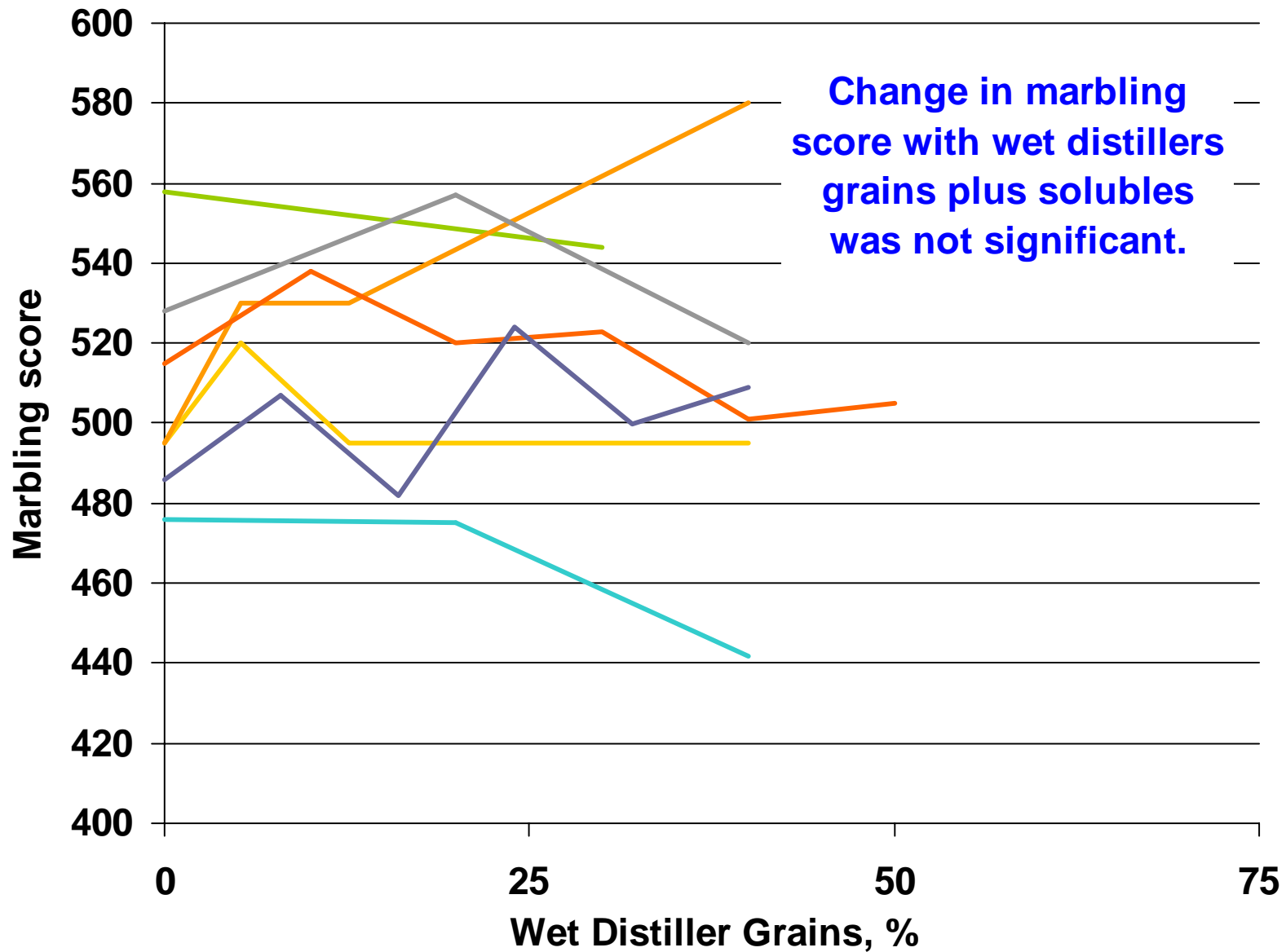
Condensed Distillers Solubles



Dried Distillers Grains and Solubles

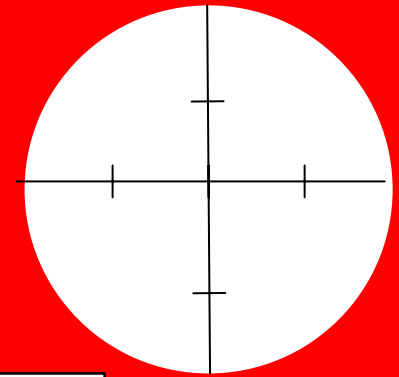
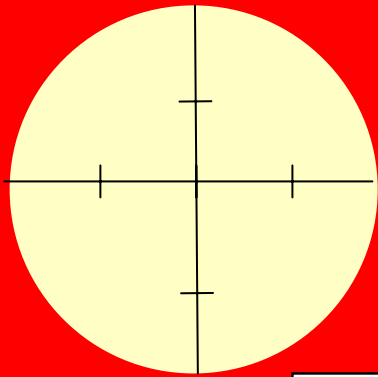


Wet Distillers Grains and Solubles

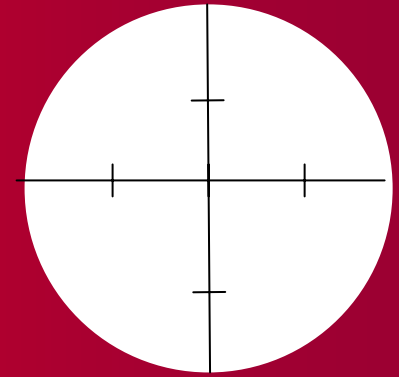
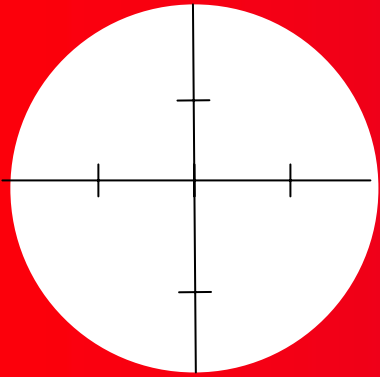


Other Quality Considerations

- Flavor profile?
 - No effect with up to 50% distillers grains (Minnesota, 2004; Nebraska, 2006)
- Tenderness?
 - No effect with up to 50% distillers grains (Minnesota, 2004; Nebraska, 2006)
- Shelf stability?
 - Trend in diminished color stability with increasing levels of WDG or DDG (Minnesota, 2004)
- Lean and fat color?
 - Carotenes and other pigments accumulate in fat
 - Distillers grains influence color of fat in milk (Wisconsin, 2005)



**Which circle above is larger?
They are the same size.
Fat color can influence
perceived marbling.
Is marbling all the same color?**



**Which circle above is larger?
They are the same size.
Background color can influence
perceived marbling.**

Considerations Beyond Simple Inclusion Rate

- Calf feds vs. Yearlings and previous plane of nutrition
- High marbling vs. Low marbling genetics
- Distiller grain variability between plants
- Distiller grain variability between corn varieties
- Proper classification of different types of distiller grains
- Efficiency improvements in distilling process
- Sulphur levels and negative interactions (Cu absorption)

CZ06 [10]

LAST: 342'2

CHANGE: ▼ 2'4

HIGH: 348'0

LOW: 340'4

11/3/2006



FCX06 [10]

LAST: 101.42

CHANGE: ▼ 0.55

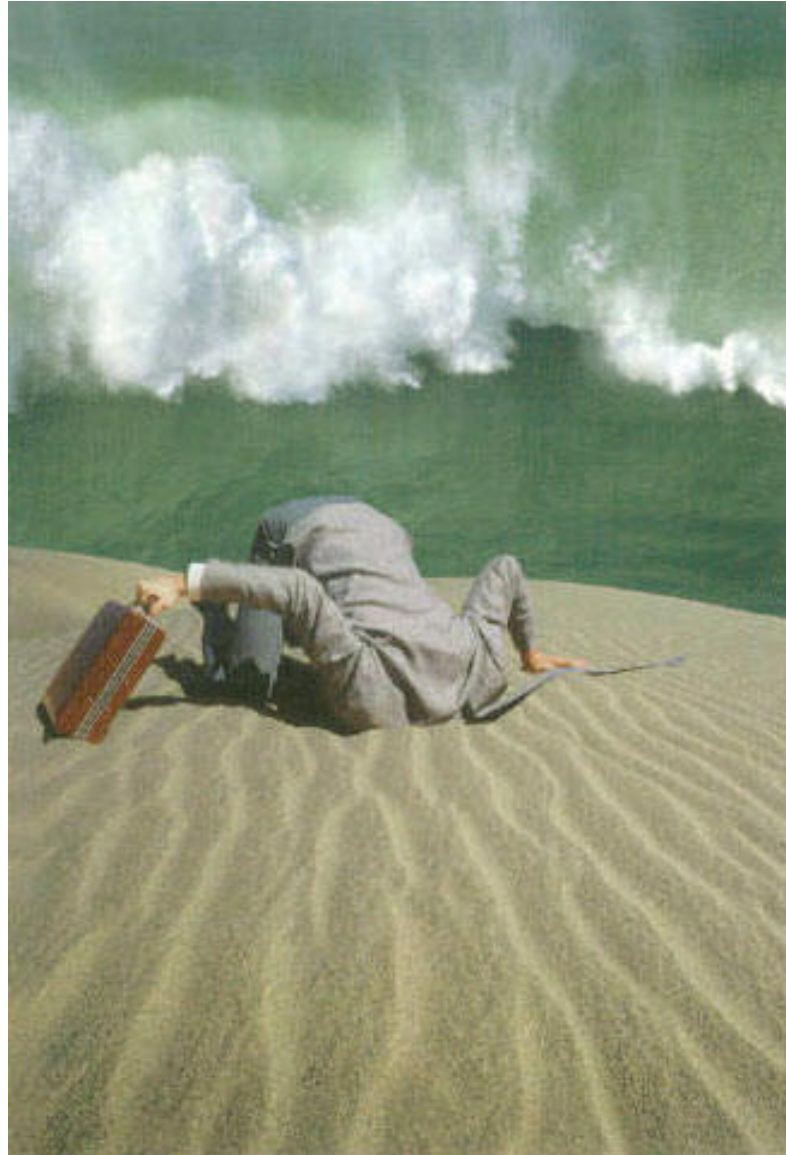
HIGH: 102.65

LOW: 101.40

11/3/2006



What we can't do!



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