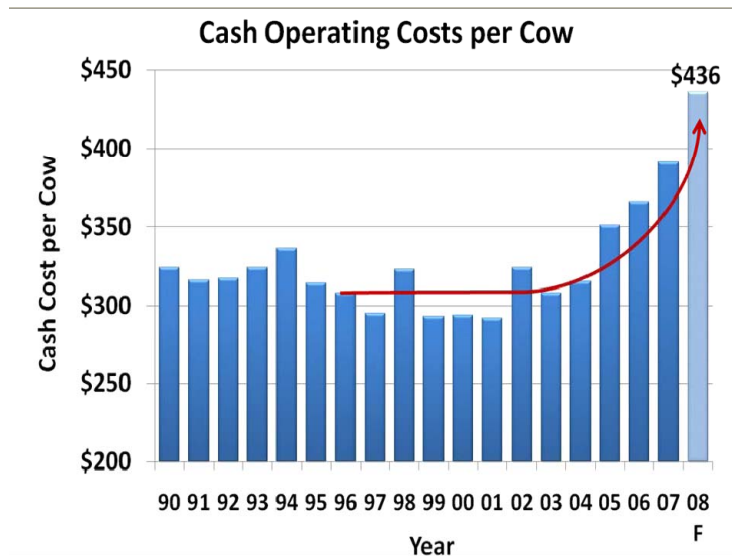


# Focusing on Cows in a high cost world

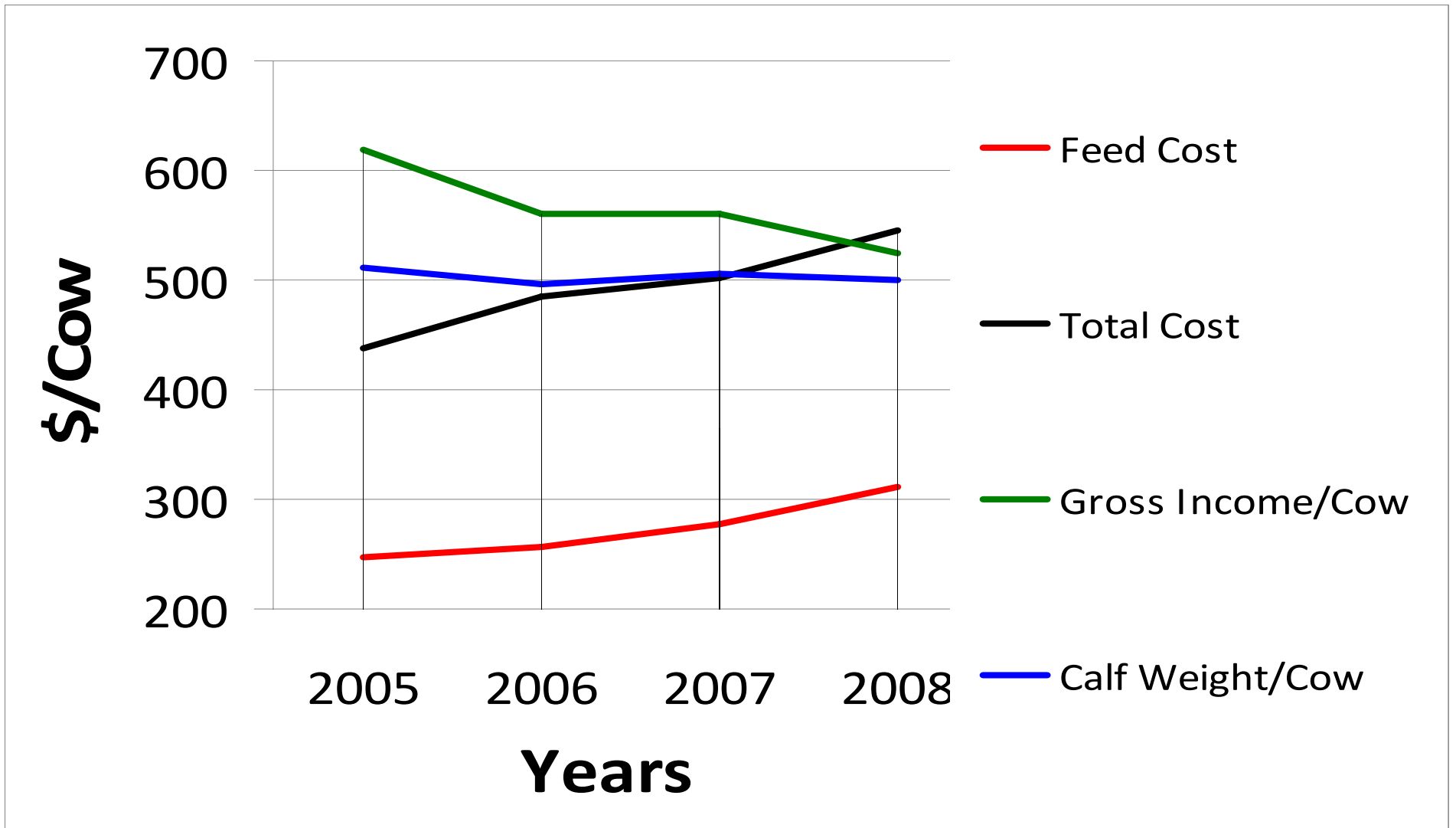


John Dhuyvetter

Area Livestock  
Specialist

NCREC Minot,  
ND

# Cow Costs are Increasing in ND



# What cows are most efficient ?

- **Biological Efficiency**
  - pounds of calf produced per unit of feed energy consumed
- **Interactions** between cow type and feed resources
- **Match cows to production environment**

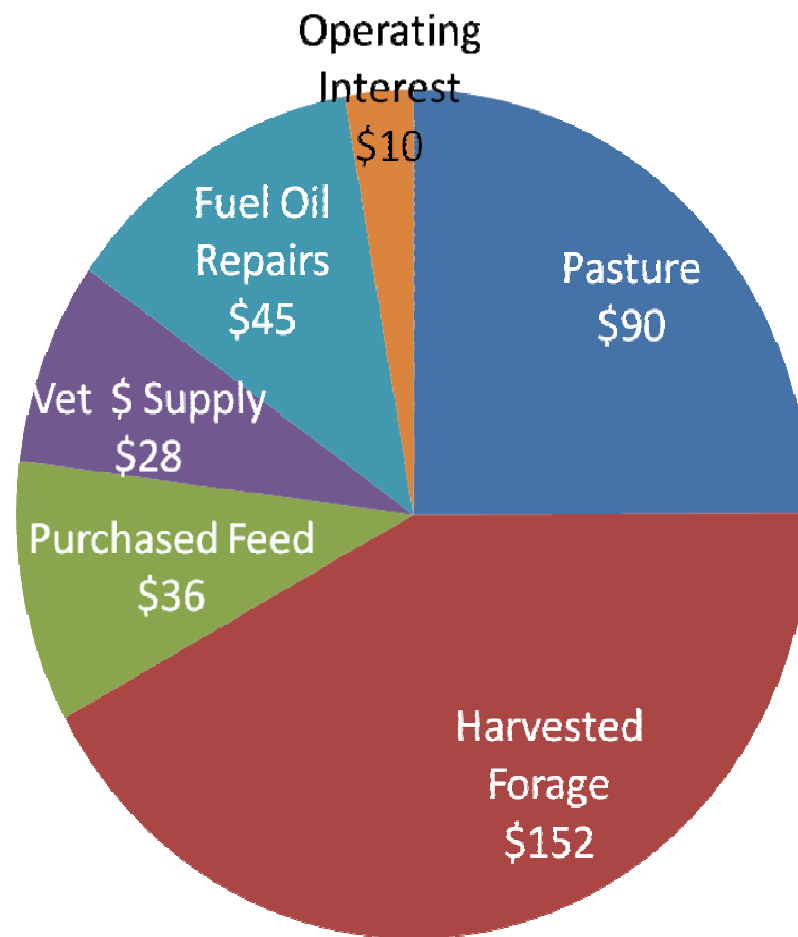
gram calf weaned/kg DM/cow exposed		
Breed	DM Intake	
	3500 kg	7000kg
Angus	39	17
Charolais	27	45
Gelbvieh	29	36
Hereford	30	13
Limousin	33	42
Simmental	26	42

# Economic Efficiency

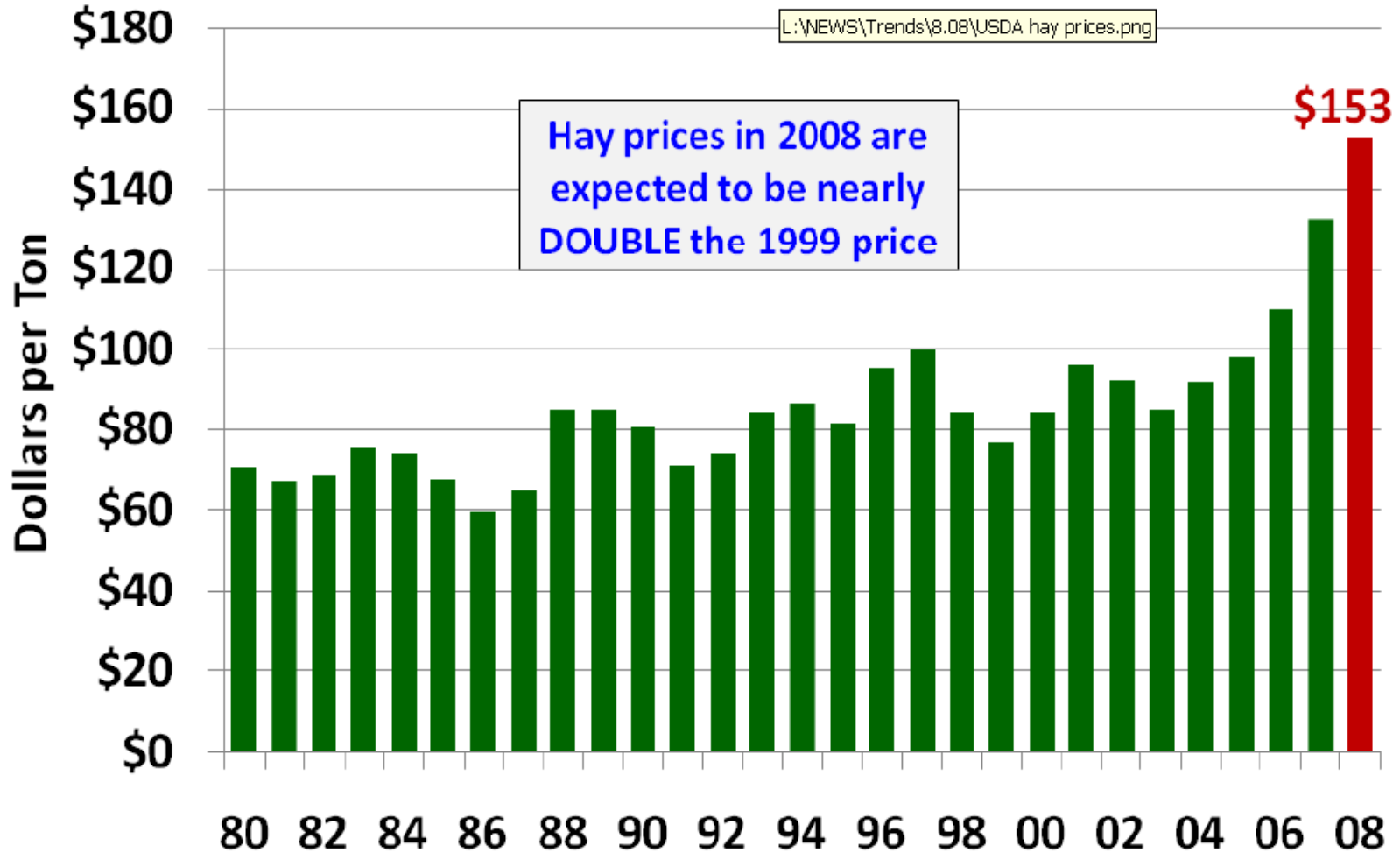
## Major drivers:

- High herd reproduction and calf survival
- Low culling rate and cow longevity
- Low feed expense and high stocking rate
- High market weights with high value

# Direct Expenses - \$361



# USDA All-Hay Prices



# Cow Size Considerations

- Big cows eat more
- Therefore
  - You can run fewer larger cows on set resources
- But they tend to
  - Have heavier calves
- So the issue is
  - Are higher costs offset by greater calf weights and value
- And
  - Will smaller calves be in high demand and value



## Equivalent Production and Stocking by Cow Size

Cow Wt	TDN	Stocking Rate	Calf Weaning Wt
1000	10.3	100 (2.4T)	485 (48.5%)
1100	11.0	94	520
1200	11.7	88 (2.7 T)	550 (45.8%)
1300	12.4	83	585
1400	13.0	79 (3.0T)	610 (43.6%)
1500	13.4	75	650
1600	14.3	72 (3.3 T)	680 (42.5%)
1700	14.9	69	705
1800	15.5	66 (3.6 T)	740 (41.1%)
1900	16.1	64	765
2000	16.7	62 (3.8 T)	790 (39.5%)



# Market Cow Weights

## We have big cows

- 1 RED-COW 1140 \$76.00
- 1 CHAR-COW 1600 \$70.00
- 1 BLK-COW 1015 \$69.00
- 1 CHAR-COW 1700 \$68.25
- 1 1 RWF-COW 1605 \$66.50
- 3 RED-COW 1562 \$65.75
- 1 CHAR-COW 1535 \$65.25
- 1 BLK-COW 1725 \$64.75
- 1 RWF-COW 1600 \$64.50
- 1 RED-COW 1620 \$64.00
- 2 BLK-COW 1555 \$63.75
- 4 MIX-COW 1599 \$63.50
- 2 MIX-COW 1870 \$62.50
- 1 RED-COW 1810 \$59.50
- 6 RED-COW 1513 \$59.00
- 1 RED-COW 1735 \$60.00
- 1 RED-COW 1750 \$64.25
- 1 RED-COW 1375 \$63.75
- 1 RED-COW 1640 \$63.00
- 1 BLK-COW 1630 \$62.75
- 1 BLK-COW 1465 \$62.50
- 2 BLK-COW 1495 \$62.25
- 1 RED-COW 1505 \$61.50
- 1 CHAR-COW 1445 \$61.50
- 1 RED-COW 1405 \$61.50
- 1 RED-COW 1755 \$61.00
- 2 BLK-COW 1790 \$59.75
- 1 BLK-COW 1695 \$59.75
- 1 BLK-COW 1515 \$57.25
- 1 BLK-COW 1990 \$57.00
- 2 HOLST-COW 1518 \$56.75
- 1 RED-COW 1715 \$54.00

# Steer P430

- Begin Weight 750
- 1-4-06 Weight 1115
- **Final Weight 1470**
- DOF 182
- **ADG 3.96**
- Fat Depth .36
- Marbling Score 5.14
- Grade Ch-
- Feeding Cost \$360.00
- Flat Price Net \$49.20
- Flat Price Rank 3
- Grid Price Net \$83.45
- Grid Price Rank 1
- Popularity Rank 5



# Rationale for moderate Cow Size

- Run more lower requirement cows on land base
  - Lessen overhead per calf
  - Opportunity for greater market weight per herd
- Terminal crossing used to maintain calf value
  - Smaller cow bred to high growth carcass merit sire
  - Large market topping calf
- Better adapted to periods of stress and restricted feed
- More uniform calves in with fewer grid outliers

## THE ECONOMIC IMPACT OF COW SIZE

	1,150-lb. cows	1,400-lb. cows
Number of cows	116	100
% weaned per cow exposed	93%	88%
Weaning wt. as a % of cow wt.	46%	43%
Weaning wt. at eight months	525	600
Price per cwt.	\$125	\$117.50
Calculations	116 x 93% x 525	100 x 88% x 600
Total weaning wt.	56,637 pounds	52,800 pounds
Total calf revenue	\$70,796	\$62,040
Income from cull cows	\$6,670	\$7,000
Total	\$77,466	\$69,040
<b>Profit advantage</b>		<b>\$8,426</b>
<b>Profit advantage p/cow p/year</b>		<b>\$72.63</b>

# Controlling Cow Size

- Use moderate frame sires to produce heifers (<FS 6)
- Balance YW and \$B EPD with \$WW, \$E, STAY, MTW
- Cull replacement heifers for large outliers
- Develop heifers modestly on high roughage diet (target breeding wt 55-65% mature wt)



# Cow Milk Considerations

High milk increases weaning weight

- Higher milk requires more nutrients

High productivity means higher maintenance

- High milking cows need better feed
  - 1200 lb low milk cow  
27 lbs - 59 TDN 9.7 CP
  - 1200 lb high milk cow  
30 lbs - 63 TDN 11.3 CP
- Even maintenance feed is higher
- Milk production takes priority over reproduction



- Longevity By Milk Production  
(in the herd after 6 yrs)

medium milk	57%
high milk	46%

# Optimizing Milk Production

- Be knowledgeable available of feed quality
- Evaluate herd reproduction and culling
  - What is pregnancy %
  - What is the Milk EPD of sires of young cows falling out
  - What is the Milk EPD of sires of old matrons
- Use AAA Optimal Milk Module to target appropriate Milk EPD
- Balance selections with Stay EPD

# Composition Considerations

- Little relationship between marbling and maternal traits
- Lean types tend to be older at puberty, have reduced fertility and increased calving difficulty
- Increased muscling may have little effect on maternal traits but slightly antagonistic with marbling
- Fat cover must be offset with muscling to maintain cutability



## \$W Index

Multi trait selection cow calf profit differences

**BW** estimates weaned calf crop percentage

**WW** contributes to revenue

**Milk** contributes both to revenue and feed cost

**Mature Size** estimate incorporates expense of cow maintenance



## GAR Yield Grade

7AN229 +13724351 🍁

Sire: Precision MGS: EXT

- +14 CED, +106 YW and Top 2% for \$W
- Moderates both frame and milk while siring 'spread' cattle that excel as both bulls and females
- Yield Grade's high CED and high growth have made him a great addition to a lot of heifer programs

FALL 2008 NATIONAL ANGUS SIRE EVALUATION REPORT											Carcass			
Production							Maternal				US 753 Gp/1573 Pg			
TRAIT:	CED	BW	WW	YW	YH	SC	CEM	Milk	Dt/Hd	\$EN	CW	Marb	RE	Fat
EPD:	+14	+1.0	+52	+106	-.1	+31	+14	+16	170	+9.12	+18	+.03	+.24	-.043
Acc:	.79	.94	.90	.88	.91	.89	.56	.63	88		.40	.48	.52	.41
% Rank	1	25	15	4			1				15		25	
\$Value	\$W: +33.04		\$F: +44.80		\$C: +15.97		\$B: +44.88							
% Rank	2			3						25				

## GAR New Design 5050

7AN255 +13728513

Sire: 036 MGS: Precision

- The #2 Bull in the Breed for \$B
- +11 CED, +108 YW and Top 1% for both Mrb and RE
- 5050 offspring excel in so many ways--they're born easily, grow fast and deliver big rewards at harvest--plus, he's one of the highest for Docility at +33

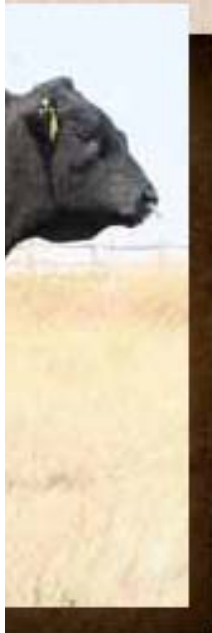
FALL 2008 NATIONAL ANGUS SIRE EVALUATION REPORT											Carcass			
Production							Maternal				US 266 Gp/707 Pg			
TRAIT:	CED	BW	WW	YW	YH	SC	CEM	Milk	Dt/Hd	\$EN	CW	Marb	RE	Fat
EPD:	+11	1.0	+52	+108	+3	-.32	+8	+36	29	-19.64	+29	+.79	+.64	+.008
Acc:	.64	.90	.85	.81	.85	.83	.41	.52	5		.27	.35	.44	.30
% Rank	5	25	15	3			1				2	1	1	
\$Value	\$W: +26.19		\$F: +46.93		\$C: +38.76		\$B: +74.04							
% Rank	2			1			1							

## \$B Index

Multi trait selection feedlot profit differences

Feedlot performance

Carcass merit





# Wanted: easy fleshing cows suited to greater grazing and less feeding to reduce feed, fuel and labor costs

- Moderate or low maintenance requirement (early maturing, moderate size, moderate milk)
- High capacity capable of high roughage intake
- Predisposed to deposit excess energy as fat reserves
- At times of low needs will put on flesh with abundant but fairly low quality forage



pairs grazing planted cover crop  
and volunteer barley  
on November 20, 2008



# Grazing Corn Residue

- Grain > husk & leaf > stalk
- Fence, water, shelter
- TDN 70 – 40 %
- CP 8 – 4 %
- Minimal supplements for dry cows
  - Salt and mineral
  - Protein once grain is gone
  - Hay when weather is bad
- 20 to 60 days grazing per acre
- Mud & snow reduce access and create waste





**Dec 18, 2008 -5F + wind chill  
Cows Grazing Cereal Residue**

# Swath Grazing annual forage

- Late seeded forage windrowed in Sept prior to killing frost
- Oats, Barley, Millet, Sudex
- Extend grazing with quality forage into Nov-Dec
- 70-90 days per acre
- Ration out in 14 day lots
- TDN 53-60% CP 7-11% supports lactating cow
- Cows use 4-5% DM/day
- Have emergency feed

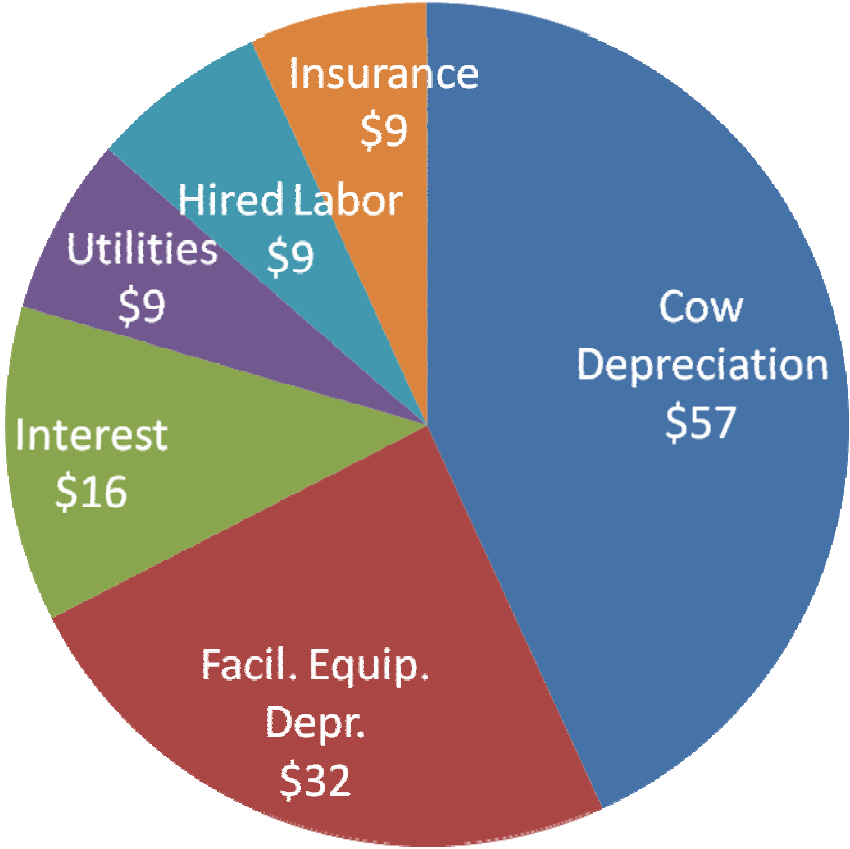


# Bale Grazing

- Bales placed on pasture or farmland in fall
- Organized in rows to meet ration quality needs
- Electric cable allocates hay
  - 2-3 days for hay
  - 3-4 days hay and straw
- Approx 38 lbs/cow/day 1300 lb cow
- 1 bale for 20 cows
- Soil improvement
- Shelter from wind can be temporary or existing trees
- Problems: wildlife degradation, spring residue on fields, cattle tearing down fences



# Overhead Expenses - \$132/cow



# Maternal Heterosis

## Advantage of the Crossbred Cow

- Higher pregnancy rates
- Greater calf survival
- Heavier weaning weights
- Better maintain condition
- Longevity
- Blend breed strengths
- Up to \$70 per cow



With discipline to select for Appropriate type,  
size and milk to match resources



# Crossbreeding works

- Increases in lifetime production due to maternal heterosis have been estimated at up to 1.44 calves when calving first as 2 year olds (Cundiff et al., 1992) defined as cumulative 200 day weight
- Nunez et al., (1991) crossbred cows had lower probabilities of being culled than straightbreds (Angus, Hereford, Shorthorns)
- Davis et al. (1994) reported F1 cows averaged 1.2 year longer lifespan than straightbred cows
  - Net profit per cow exposed increased ~\$75

# Crossbreeding Systems

- | System              | %Heterosis | %Advantage |
|---------------------|------------|------------|
| – 2 breed rotation  | 67         | 16         |
| – 3 breed rotation  | 87         | 20         |
| – Rotation terminal | 67 + 100   | 24         |
| – AB Composite      | 50         | 12         |
| – AABC Composite    | 63         | 15         |
| – ABCD Composite    | 75         | 17         |

Rotational–terminal systems are extremely effective with rotational breeding of heifers and young cows, terminal mating once 5 or 6 years of age but hard to implement in small herds

Composite breeding does not have as high of level of heterosis but is simpler and allows for more breed complementarity

# In Conclusion - My Budgeting

- Assumption
  - \$10,000 pasture rent
  - \$11,000 hay cost
  - \$ 2,500 supp cost
  - \$10,000 overhead
  
  - 90% base weaning rate
  - 50% of maternal heterosis
  - \$30/cow vet

size	1200	1500
feed	270	320
Base	80	68
	525	625
	1.10	1.02
XBred Cows	82	70
	535	635
	1.00	.93
Term Sires	81	68
	585	685
	.94	.88



**Thank You**

# Reasons for big cows

- The market generally likes big growthy cattle which are worth more per head
- Feedlot economic drivers are carcass weight, ADG, grid price, health
- Retain heifers of bulls selected for high growth which is correlated with greater mature weight
- Develop heifers under favorable nutrition and for moderately high gains
- Add value to market cows by feeding and fleshing to maximize value

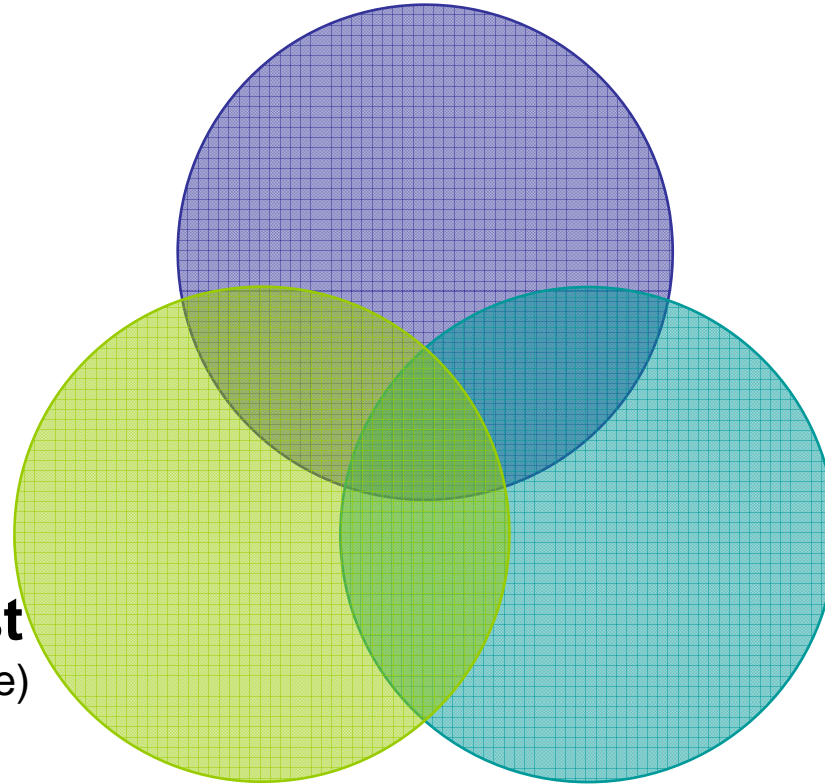
# Cow Longevity

(fertility + soundness + survival)

Hybrid vigor

Milking potential

Calving ease



## Feed Cost

(amount x price)

Cow size

Harvest cost

Grazing

Stocking rate

## Calf Value

(weight x price)

Size & growth

Cow milk

Purchased feed

Carcass merit

Feeding merit