

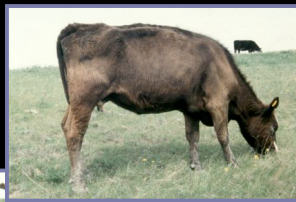
Cow Condition and Reproductive Performance

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Body Condition Scoring

- Estimate the energy reserves of a cow
- Free
- Effective management tool

Condition Score
3



Outline of spine, ribs and hip visible.
Slight muscle atrophy

Condition Score
5



Outline of spine, 1-2 ribs and hip bone slightly visible.
No fat in flanks or brisket

Condition Score
7

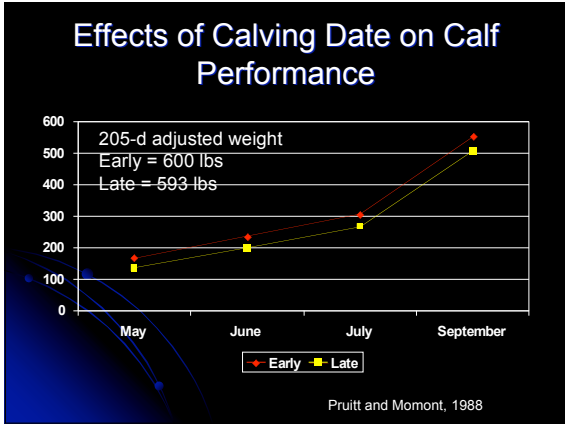
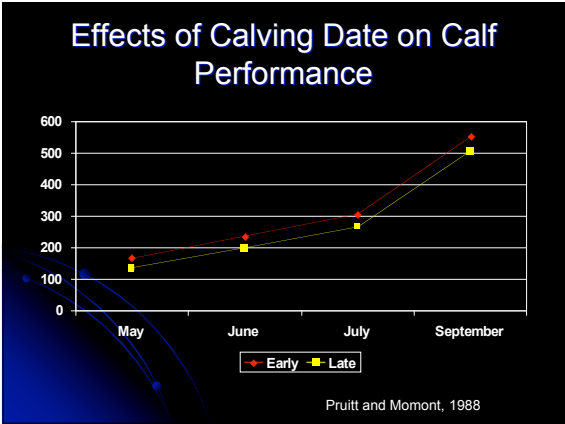


Brisket, twist & flanks full.
Some fat in udder & around tail head

Relationship of BCS to Beef Cow Performance and Income

BCS	Pregnancy Rate, %	Calving Interval, d	Calf ADG, lbs	Calf WW, lb	Calf Price, \$/cwt	\$/cow Exposed
3	43	414	1.60	374	96	154
4	61	381	1.75	460	86	241
5	86	364	1.85	514	81	358
6	93	364	1.85	514	81	387

Kunkle et al., 1994



Return from calves

- Early calves
551 lbs X \$1.10 per lbs = \$606.10
- Late calves
506 lbs X \$1.15 per lbs = \$581.90

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\$24.20 per calf

Postpartum Reproductive Performance of Multiparous Beef Cows

	BCS at 90 d prepartum		
	≤ 4	5 or 6	≥ 7
Pregnant, %			
20 d	55	51	64
40 d	76	67	79
60 d	89	87	85

Morrison et al. 1999

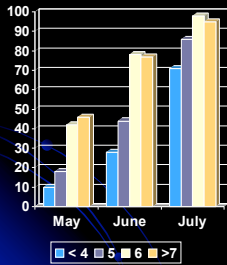
Effect of BCS at parturition on Postpartum Interval

BCS	PPI, days
3	88.5
4	69.7
5	59.4
6	51.7
7	30.6

Houghton et al., 1990

Effect of BCS on Percentage of Cows Cycling at the Start of the Breeding Season

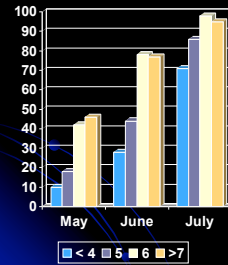
Early Calving Cows



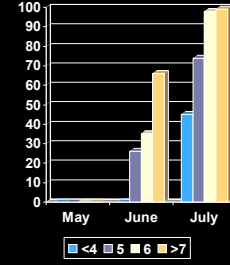
Pruitt and Momont, 1988

Effect of BCS on Percentage of Cows Cycling at the Start of the Breeding Season

Early Calving Cows

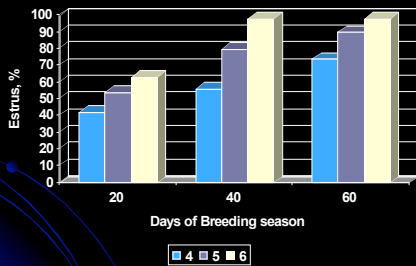


Late Calving Cows



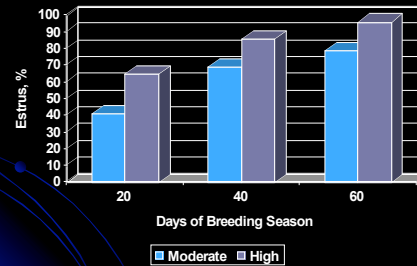
Pruitt and Momont, 1988

Estrus of heifers during a 60-d breeding season as affected by BCS at parturition



Spitzer et al., 1995

Estrus during a 60-day breeding season as affected by postpartum weight gain



Spitzer et al., 1995

Weaning weight as affected by BCS at parturition, & postpartum weight gain

	Weaning wt., lbs	205-d weaning wt., lbs
BCS		
4	422	411
5	425	425
6	433	436
Postpartum weight gain		
Moderate	414 ^a	414 ^a
High	440 ^b	433 ^b

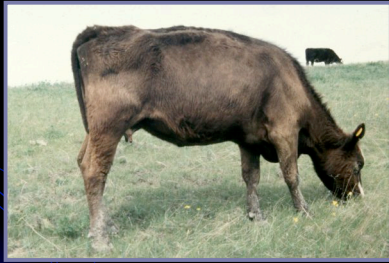
Spitzer et al., 1995

Influence of postpartum nutrition on Pregnancy Rate of Primiparous Cows

Pregnancy Rate,%	Postpartum Nutrition	
	Moderate	High
Year 1	80	100
Year 2	39	59
Both Years	57.6	76.3

Cicciofi et al., 2003

Thin Cows



Necessary Weight Gains in Pregnant Cows in Different BCS

BCS @ weaning	BCS @ calving	Weight Δ	Total weight*	Days to Calving	ADG, lb
<4	5-6	160	260	120	2.2
4	5-6	80	180	120	1.5
5-6	5-6	0	100	120	0.8
<4	5-6	160	260	200	1.3
<4	5-6	160	260	100	2.6

* 100 lbs for Calf Growth

Willbank, 1982

Effect of Postpartum Condition Score on Pregnancy Rate

BCS status	Pregnancy, %
Thin (<5) & increasing CS	100
Thin (<5) & decreasing CS	69
Fleshy (>5) & increasing CS	75
Fleshy (>5) & decreasing CS	94
Moderate (4.5 – 5.5) & maintaining	100

Houghton et al., 1990

New Mexico Research

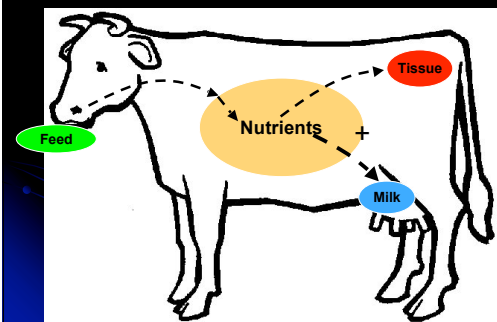
- Angus with some Hereford influence
- Work mostly with 2, 3 & 4-year old cows
- Cows usually < 5 BCS
- Goal to maintain a 90% plus fall pregnancy rate
- Supplements cost < \$30 per year
- Cows on Native Range

Material & Methods

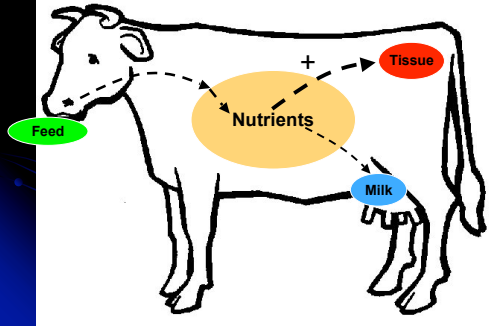
- 3 treatments
 - RUP0 – 341 g CP, 142 g RUP, 57 g GP
 - RUP80 – 341 g CP, 151 g RUP + 80 g propionate salt, 121 g GP
 - RUP160 – 341 g CP, 159 g RUP + 160 g propionate salt, 185 g GP
- Supplement fed for 65 d postpartum
- Breeding season started May 15

Endecott et al., 2007

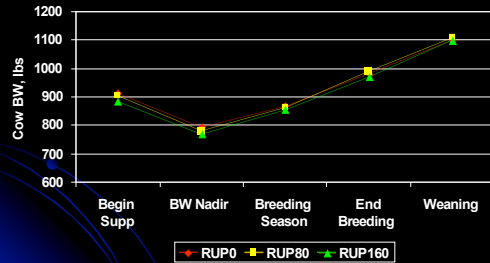
“Normal” Metabolism



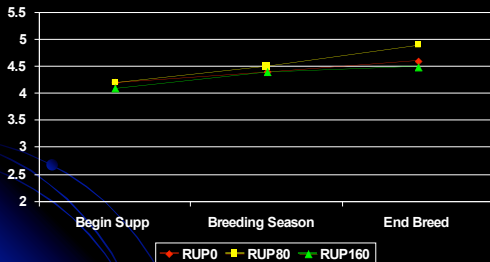
Glucogenic Precursors



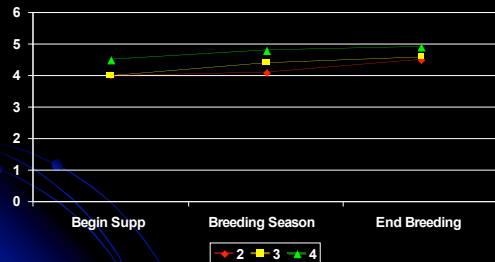
Cow Body Weight by Treatment



Cow BCS by Treatments



Cow BCS by Age of Cow



Days to First Estrus for 2, 3, and 4 year old Postpartum Cows

Cow Age	RUP0	RUP80	RUP160
2	90 ^{ax}	68 ^{bx}	70 ^{bxy}
3	70 ^{ay}	63 ^{ax}	74 ^{ax}
4	46 ^{az}	50 ^{ay}	55 ^{ay}

Endecott et al., 2007

Influence of supplementation on Days to estrus, Pregnancy Rate, Milk and Weaning Weight

Response	RUP0	RUP80	RUP160
Days from nadir to estrus	24	14	18
Pregnancy Rate, %	96	100	96
Milk, lb/d	22.0 ^a	18.6 ^b	21.2 ^a
Weaning Wt, lb	554	550	550

P = 0.08

Endecott et al., 2007

Response on Days to estrus, Pregnancy Rate, Milk and Weaning Weight

Response	2	3	4
Days from nadir to estrus	33 ^a	22 ^a	1 ^b
Pregnancy Rate, %	100	91	97
Milk, lbs	17.3	20.7	23.7
Weaning Wt, lbs	504	548	603

a, b = P = 0.01
Milk & Weaning Wt. = linear effect P = 0.01

Endecott et al., 2007

Conclusion

- Body condition score is an excellent indicator of reproductive performance
 - Evaluate early for management changes
- Cows in moderate BCS have higher probability getting pregnancy
- Glucogenic precursors decreases days to estrus in young cows
- Additional research into Glucogenic precursors in the Northern Great Plains is needed