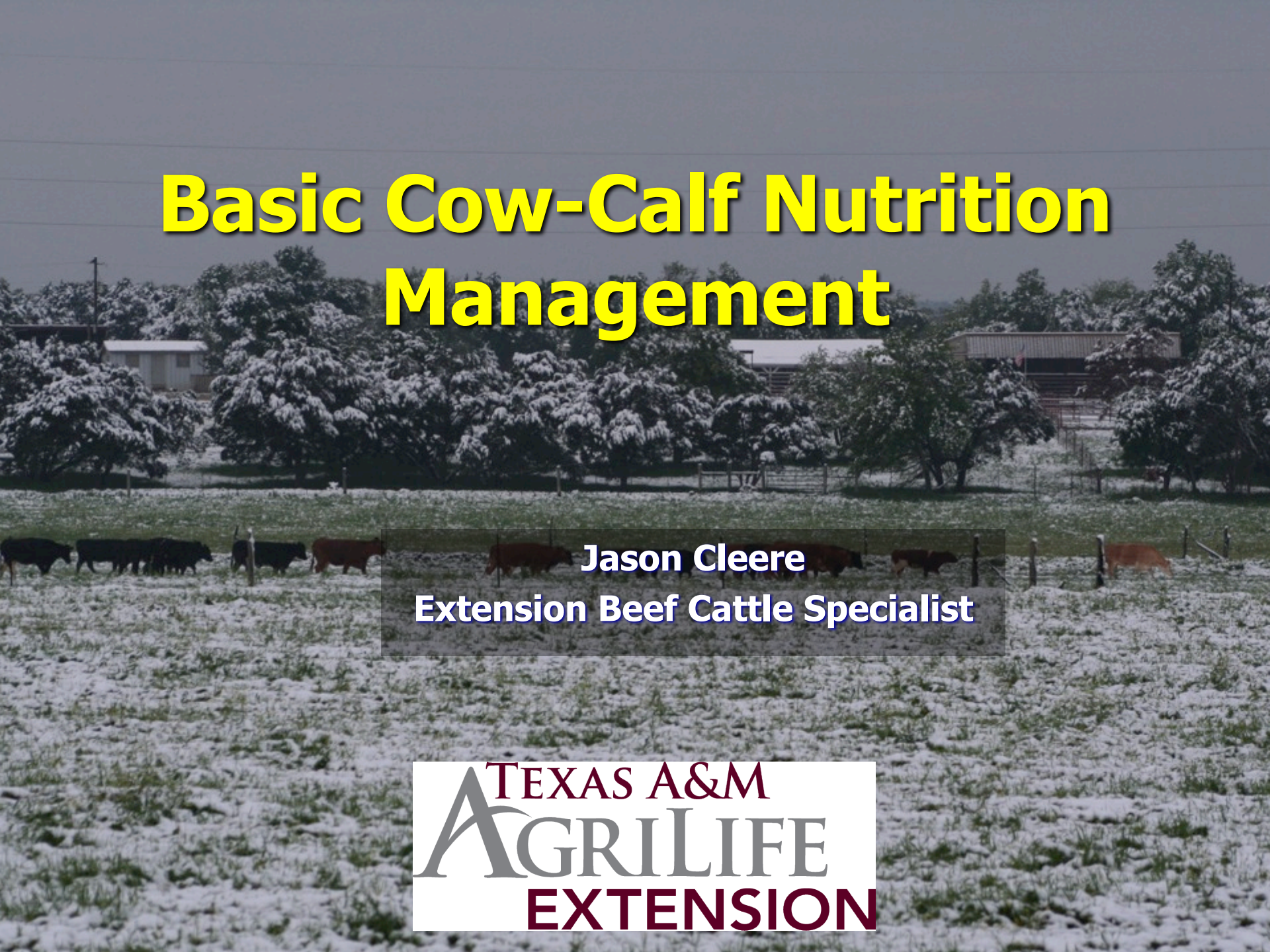
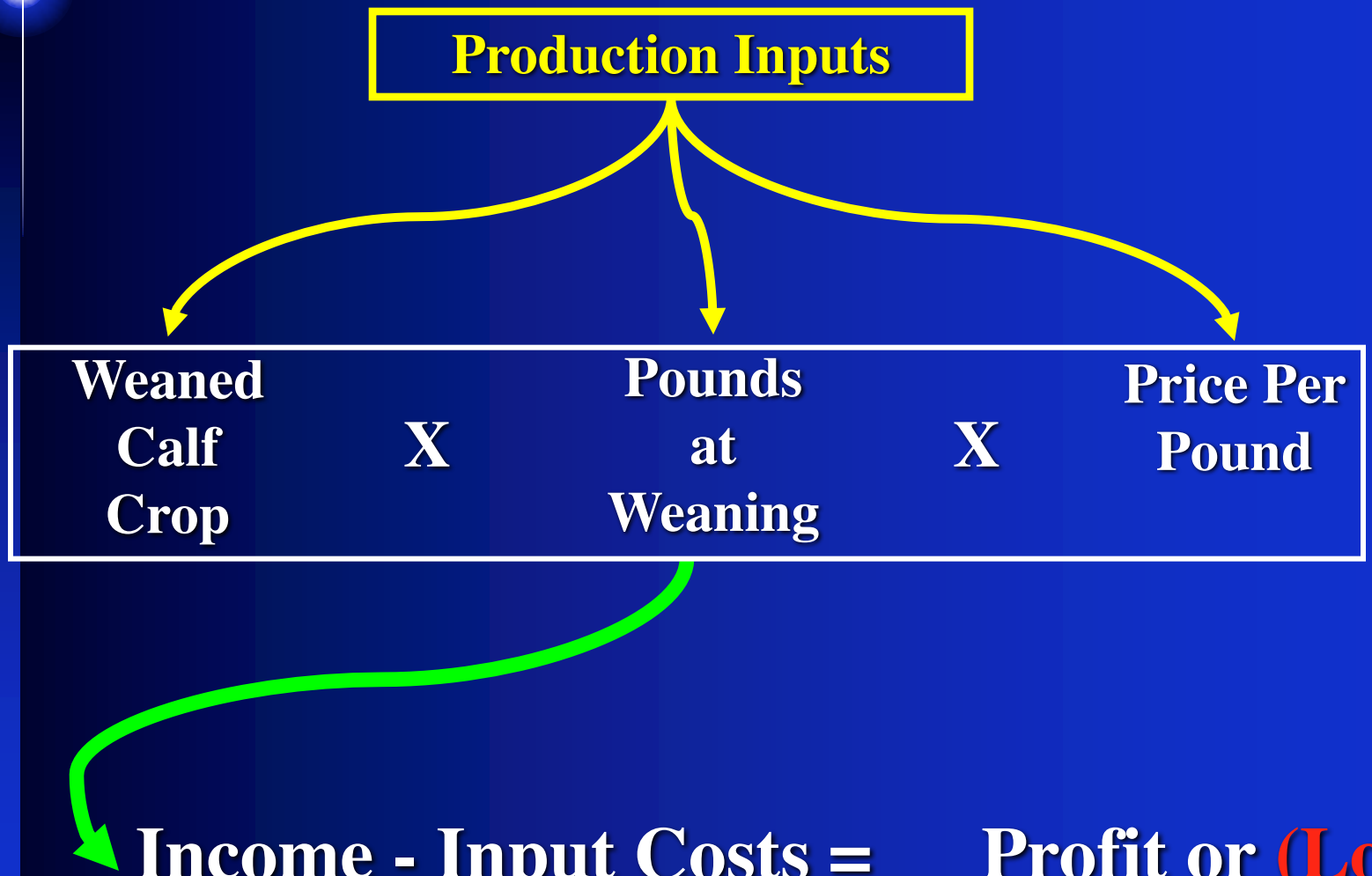
Basic Cow-Calf Nutrition Management

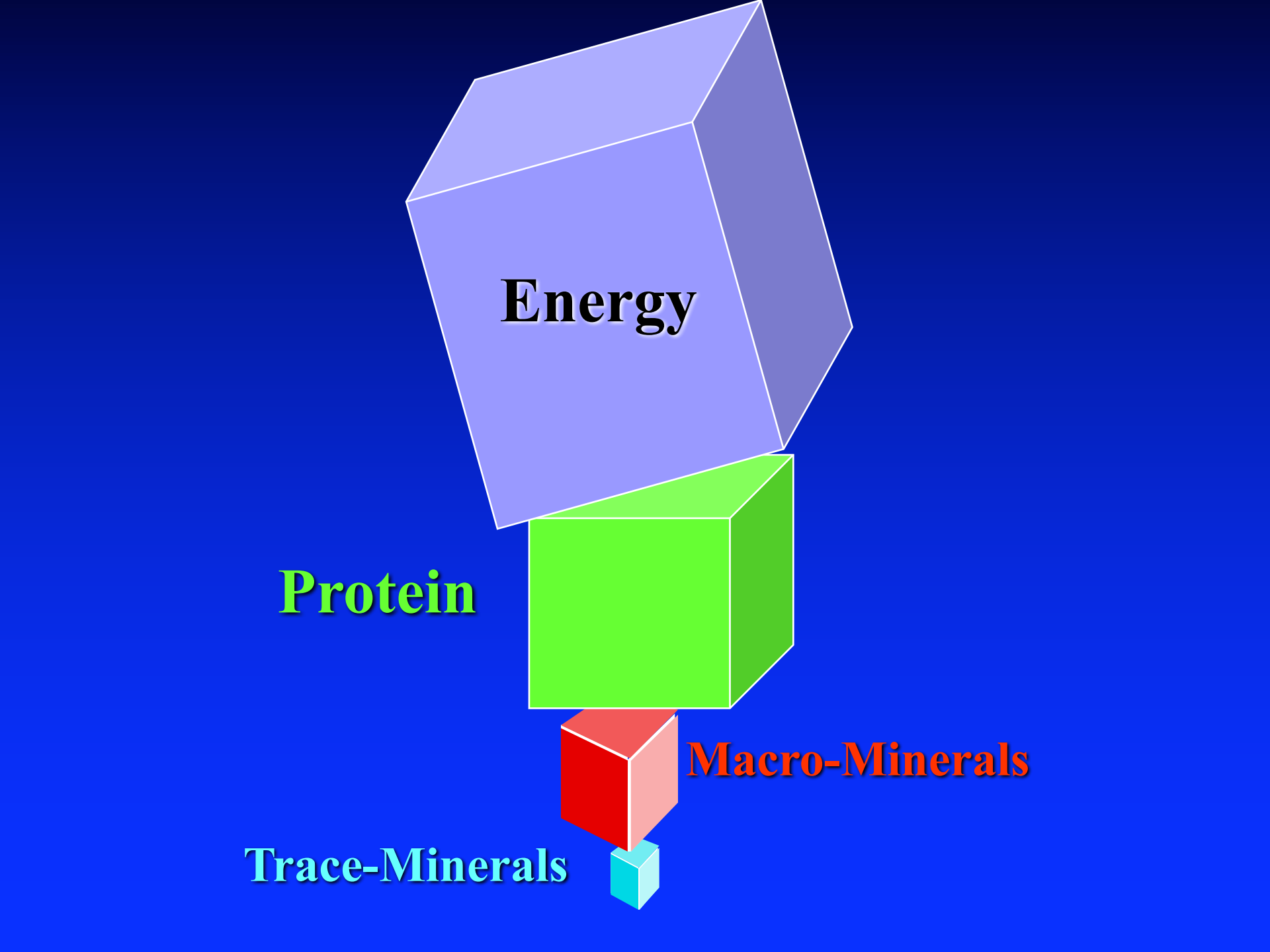


Jason Cleere
Extension Beef Cattle Specialist

Texas A&M AgriLife Extension

Cow-Calf Production




Energy
Protein
Macro-Minerals
Trace-Minerals

Nutrient Requirements

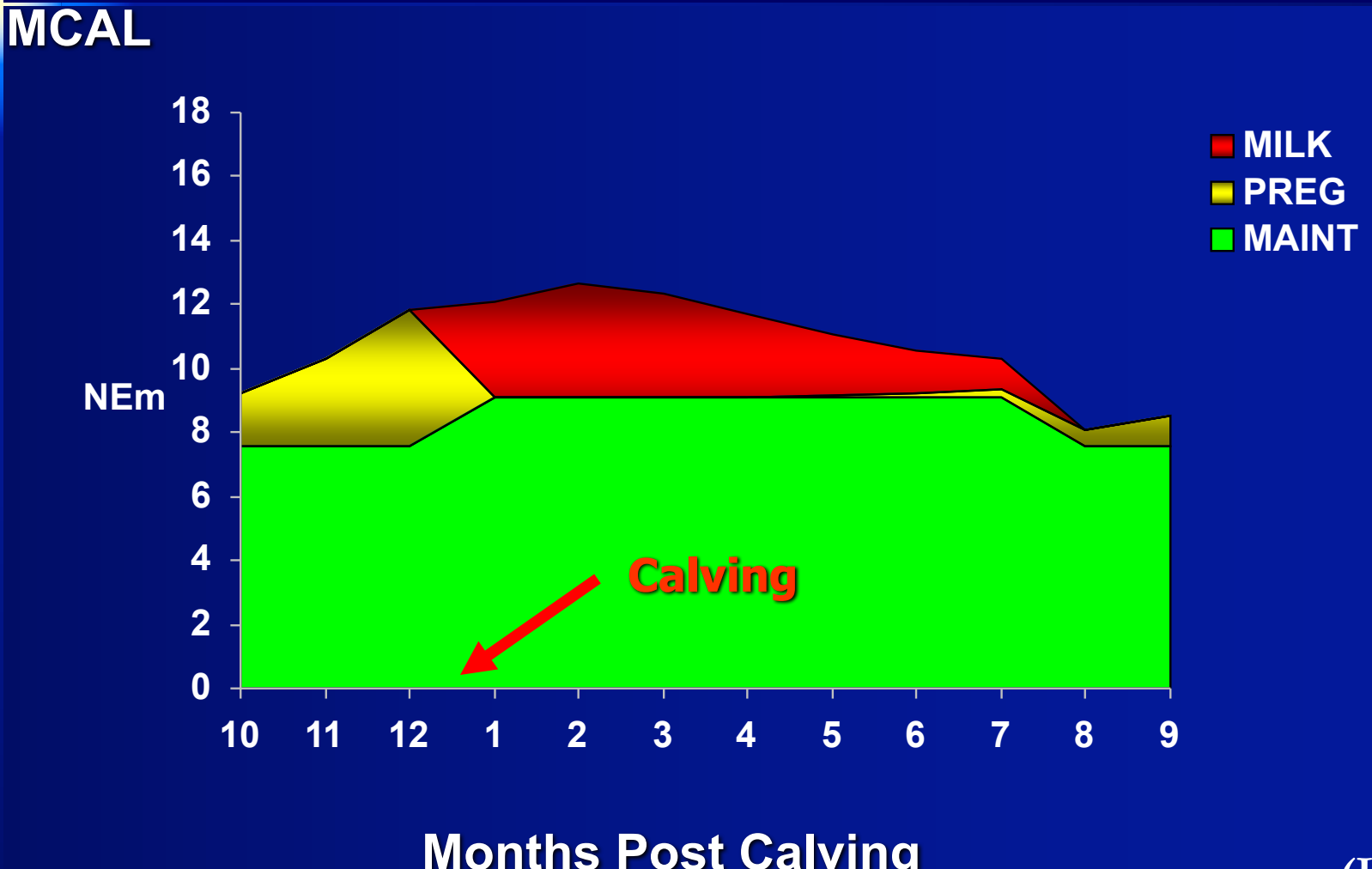
- maintenance
- pregnancy
- lactation
- gain

energy
protein
minerals
vitamins
water
all other nutrients

maintenance energy – the amount of energy it takes to maintain an animal (i.e. the animal is not gaining or losing weight or condition)

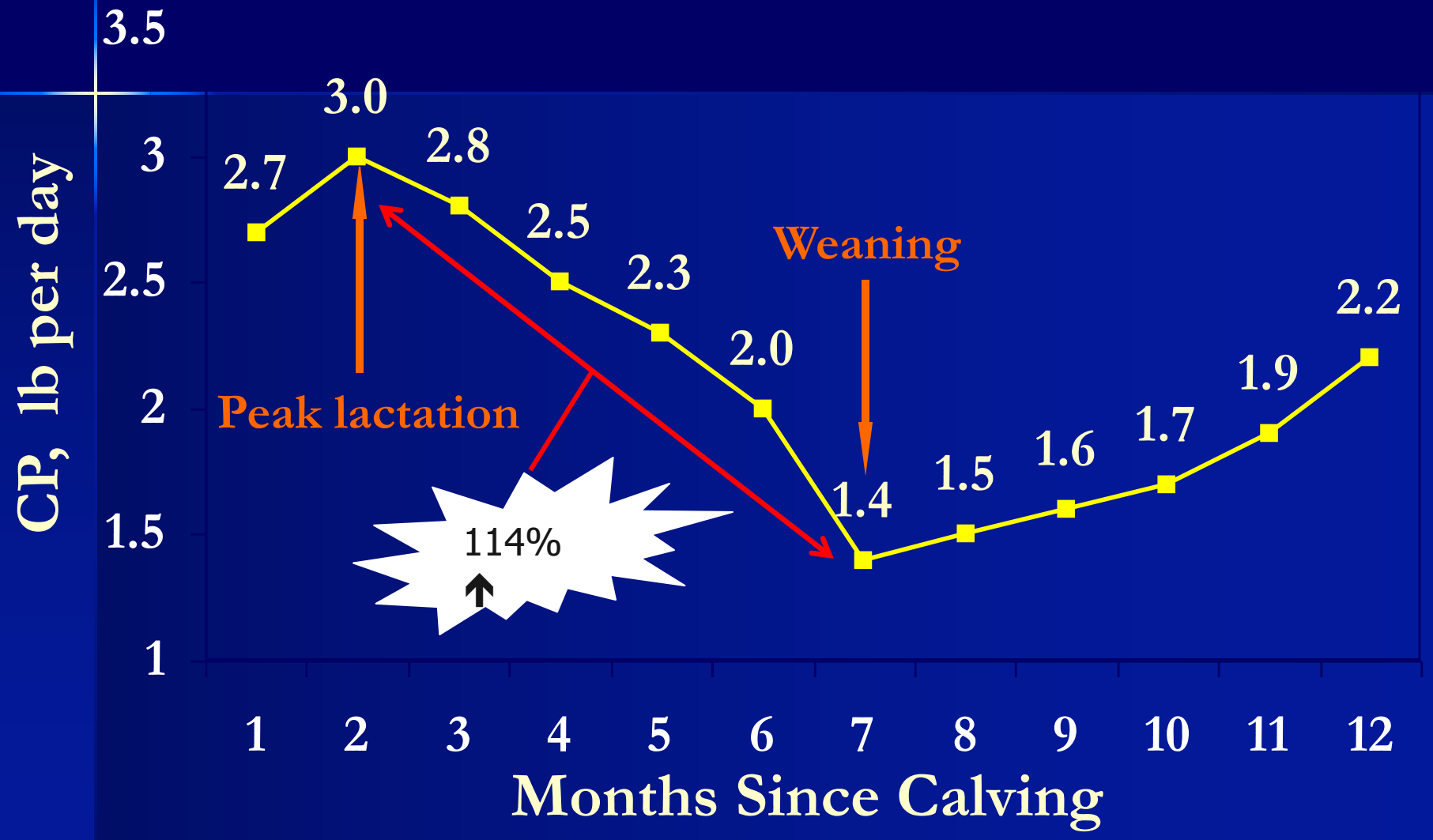
ENERGY REQUIREMENTS

1000 LB COW, 11 LB PK MILK, 70 LB BW



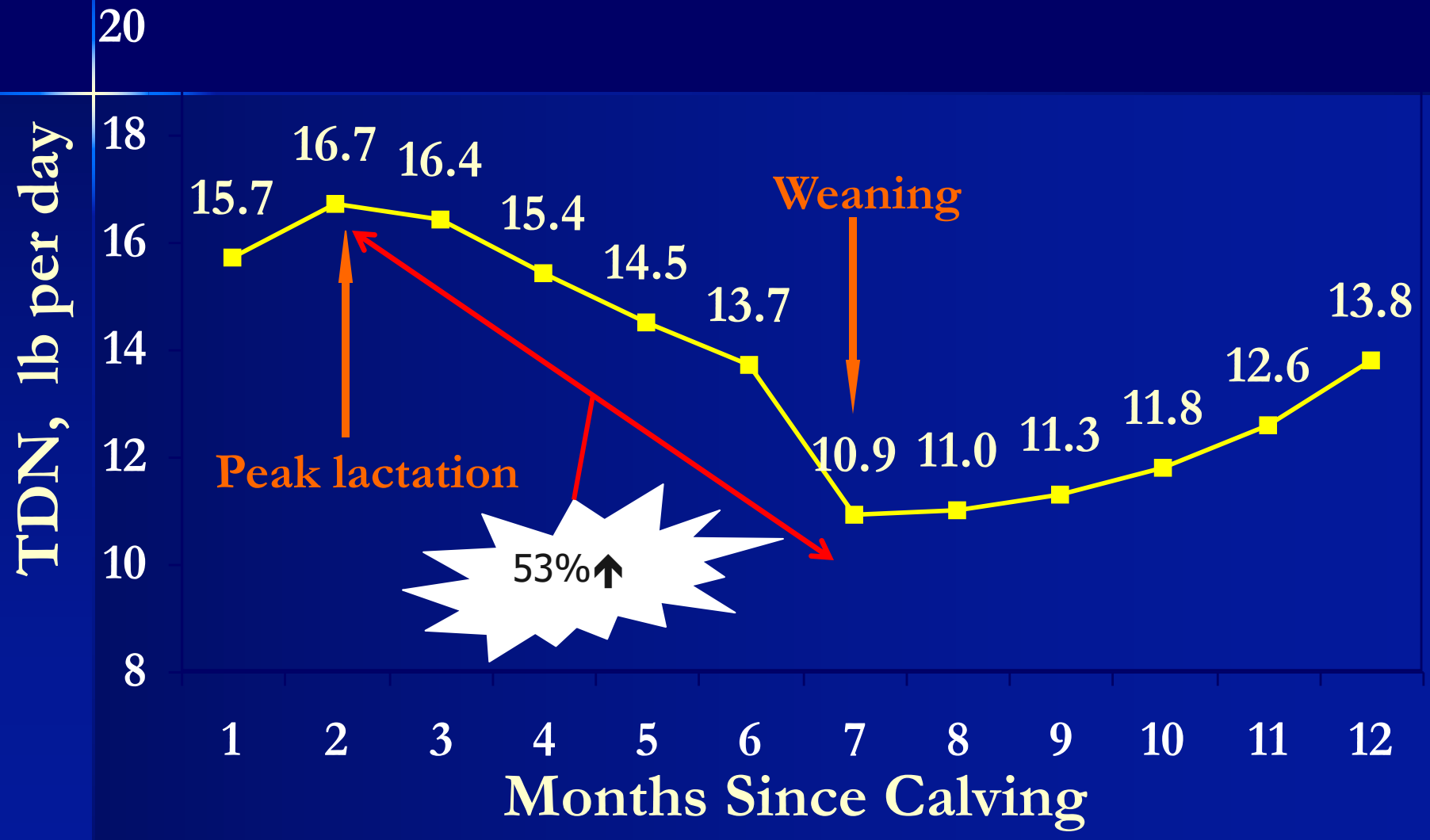
(Herd)

Crude Protein Requirements of a 1200 lb Mature Cow



(NRC, 1996; Appendix Tables 21-23)

TDN Requirements of a 1200 lb Mature Cow



(NRC, 1996; Appendix Tables 21-23)

Body Condition Scoring of Cattle

"BCS"

Priorities of a Lactating Cow

Calf

↓

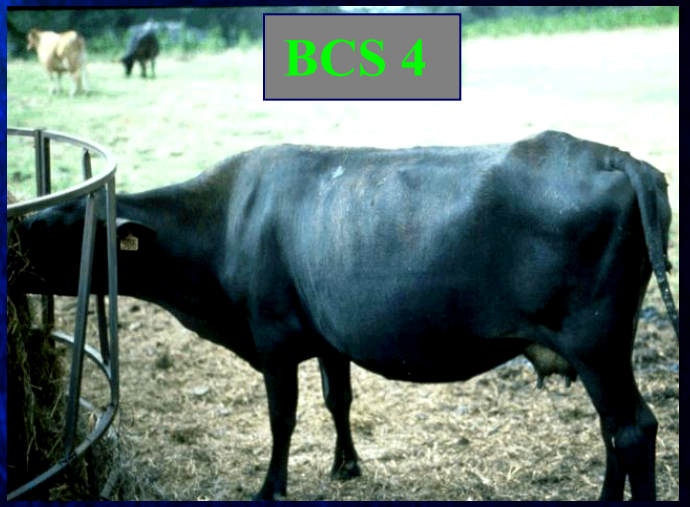
Cow's Body Condition

↓

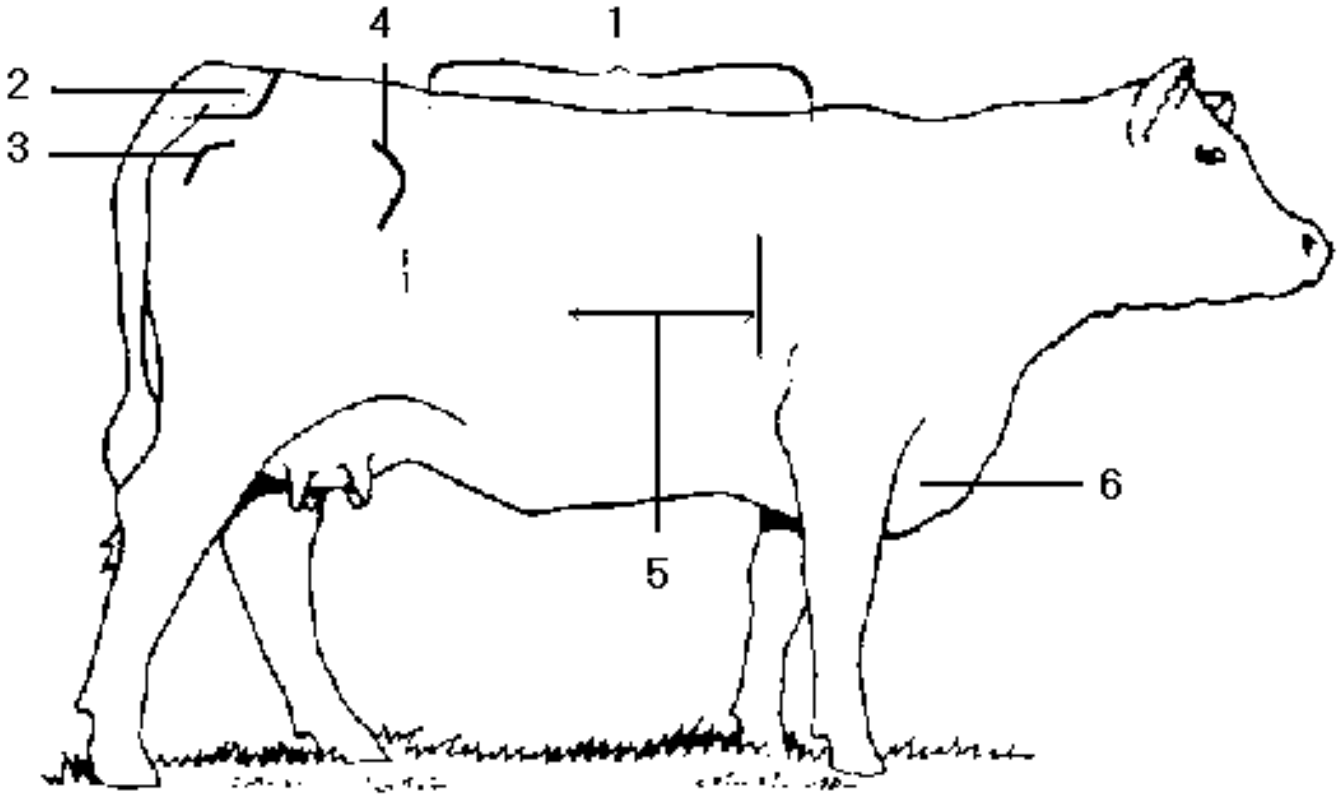
Reproduction

Evaluate Body Condition

- We know that cattle should be at least a Body Condition Score of 5 at calving

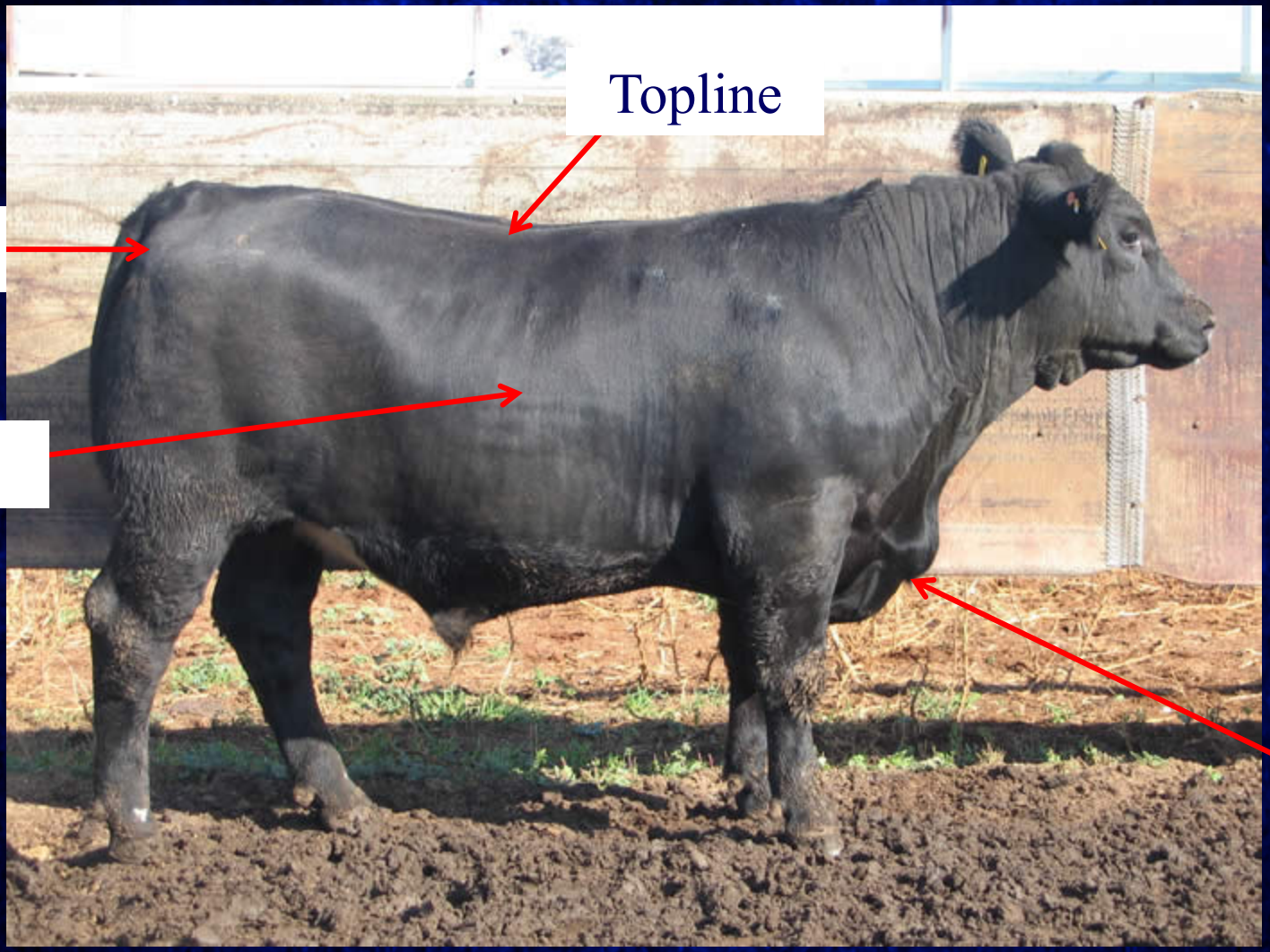


Areas to evaluate Body Condition

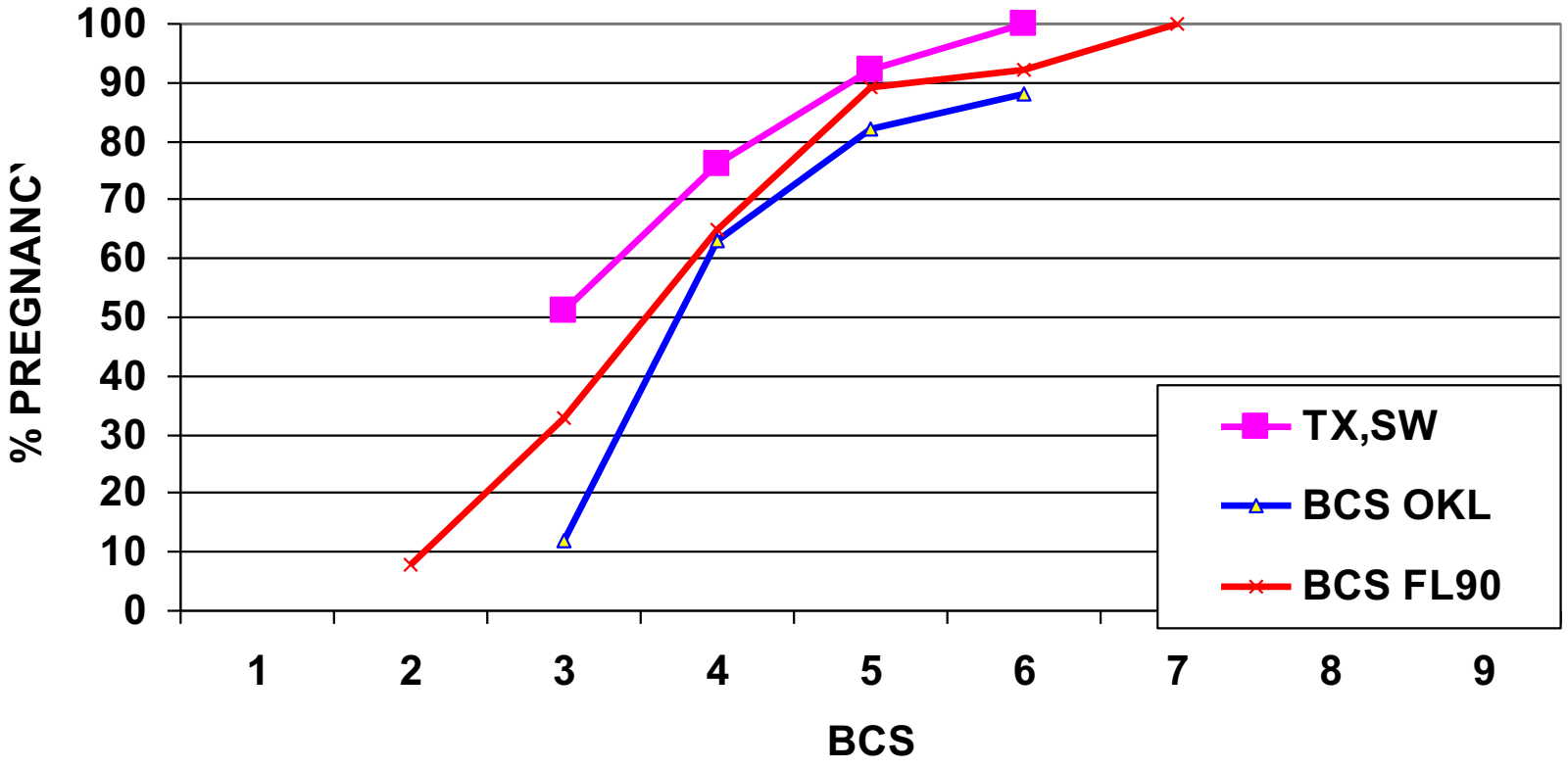


1. BACK
2. TAIL HEAD
3. PINS
4. HOOKS
5. RIBS
6. BRISKET

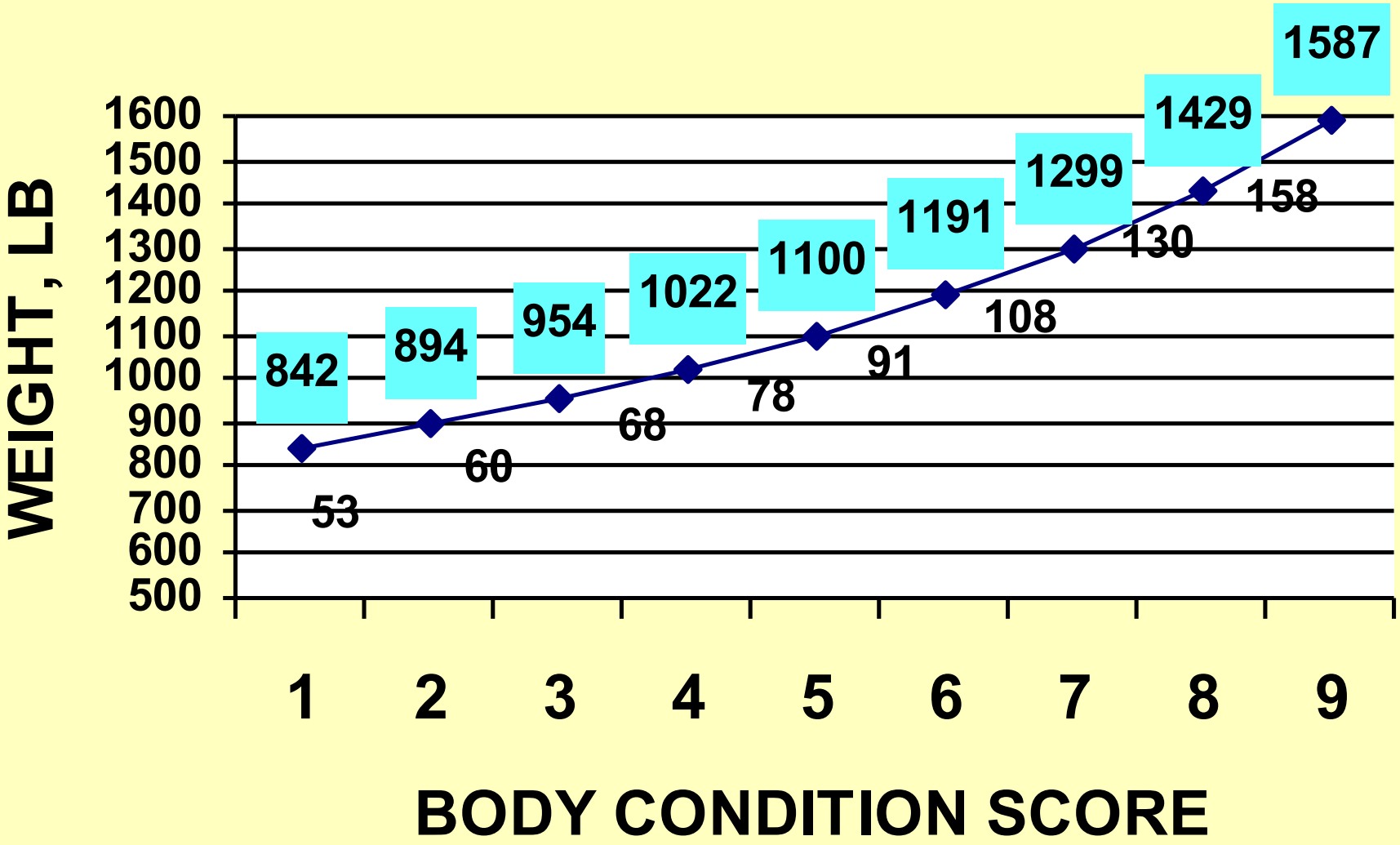
Areas to Evaluate Condition



EFFECT OF BODY CONDITION SCORE (BCS) ON % PREGNANCY



VARIATION OF WEIGHT FOR A 1100 LB COW AT BCS 5



Herd, 2004

Relationship of Cow BCS to Production and Income

Cow BCS	Preg. Rate	Calv. Int.	Calf Age	Calf ADG	Calf WW	Calf Price	Calf Income	Income/cow[a]
3	43%	414 d	190 d	1.60 lb	374 lb	$1.60	$598.40	$236.70
								$137.62
4	61%	381 d	223 d	1.75 lb	460 lb	$1.45	$667.00	$374.32
								$195.03
5	86%	364 d	240 d	1.85 lb	514 lb	$1.40	$719.60	$569.35
								$46.34
6	93%	364 d	240 d	1.85 lb	514 lb	$1.40	$719.60	$615.69

[a] Income per cow calculated from Calf Income x Pregnancy Rate x Survival Rate (.92%)

Kunkle, Sand and Rae 1998

Feeding For Maintenance

1,200 lb, late gestation, BCS 3, 11% CP/56% TDN Hay

Balancer

Feed Number	Description	Lbs per day As fed
36	Range Cube, 12%	
37	Range Cube, 20%	
40	Range Cube, 38%	
15	Bermuda hay, mature	
16	Bermuda hay, good	23

Cost/day	$1.15
Protein Ratio	1.22

Estimated ADG	0.00
Desired ADG	1.65

Days to one condition score	gain 40705

Intake Ratio	0.91
DM Intake	20.2
Predicted DM Intake	22.3

Calcium Ratio	1.75
Phosphorus Ratio	1.33

Feeding For Maintenance

1,200 lb, late gestation, BCS 3, 11% CP/56% TDN Hay

$0.94/day additional cost
$92.12 to move from a BCS 3 to BCS 5

Feed Number	Description	Lbs per day As fed
36	Range Cube, 12%	6.5
37	Range Cube, 20%	
40	Range Cube, 38%	
15	Bermuda hay, mature	
16	Bermuda hay, good	21

Intake Ratio	1.02
DM Intake	24.3
Predicted DM Intake	23.9

Cost/day	$2.09
Protein Ratio	1.55

Estimated ADG	1.56
Desired ADG	1.65

Days to one condition score	gain 49

Calcium Ratio	4.05
Phosphorus Ratio	2.33

Relationship of Cow BCS to Production and Income

Cow BCS	Preg. Rate	Calv. Int.	Calf Age	Calf ADG	Calf WW	Calf Price	Calf Income	Income/cow[a]
3	43%	414 d	190 d	1.60 lb	374 lb	$1.60	$598.40	$236.70
								$137.62
4	61%	381 d	223 d	1.75 lb	460 lb	$1.45	$667.00	$374.32
								$195.03
5	86%	364 d	240 d	1.85 lb	514 lb	$1.40	$719.60	$569.35
								$46.34
6	93%	364 d	240 d	1.85 lb	514 lb	$1.40	$719.60	$615.69

[a] Income

Kunkl

Value of Nutrition Today

$332.65 - $92.12 = $240.53

Relationship of Cow BCS to Production and Income

Cow BCS	Preg. Rate	Calv. Int.	Calf Age	Calf ADG	Calf WW	Calf Price	Calf Income	Income/cow[a]
3	43%	414 d	190 d	1.60 lb	374 lb	$3.25	$1,122.00	$482.46
4								$771.65
5	86%	364 d	240 d	1.85 lb	514 lb	$2.60	$1,336.40	$1,149.30
6	93%	364 d	240 d	1.85 lb	514 lb	$2.60	$1,336.40	$1,242.85

Value of Nutrition July, 2015

$666.84 - $73.80 = $593.04

$289.19

$377.65

$93.55

[a] Income per cow calculated from Calf Income x Pregnancy Rate x Survival Rate (.92%)

Kunkle, Sand and Rae 1998

BCS of 2

Little evidence of fat deposition. The spinous processes feel sharp to touch.

BCS of 2

BCS of 3

Beginning of fat cover over the loin back and foreribs. Spinous processes can be identified by touch and may be visible.

BCS of 4

Foreribs are not noticeable, 12th and 13th ribs can be seen. Individual spinous processes not visible. Hooks and pins not as sharp.

BCS of 5

12th and 13th ribs are no longer visible. Areas on each side of the tail head are fairly well filled. Hooks and pins are not as prominent. Hindquarters are beginning to fill.


BCS = 5 - 6

BCS of 6

Ribs are fully covered. Hindquarters are plump and full. Beginning to take on an overall smooth appearance.

BCS of 5 to 6

BCS of 6 to 7

Smooth appearance. Abundance of fat cover on either side of the tail head. Begin to see patchiness develop.

BCS of 6 to 7

BCS of 8

Animal begins to take on a smooth, blocky appearance. No longer can see the bone structure. Fat cover is thick and patchy.

BCS of 8

BCS of 9

Bone structure not seen or easily felt. “Globs of fat” down the top, around the tail head, and down the rump.

Final Exam


Cow A
Cow B


406


154
105
137

Determining Nutrient Intake

- Fecal pad scoring
  - 1 = High quality
    - CP > 12%
    - TDN > 65%
  - 2= Medium quality
    - CP 10 – 12
    - TDN 50 – 65%
  - 3 = Low quality
    - CP < 10
    - TDN < 50%

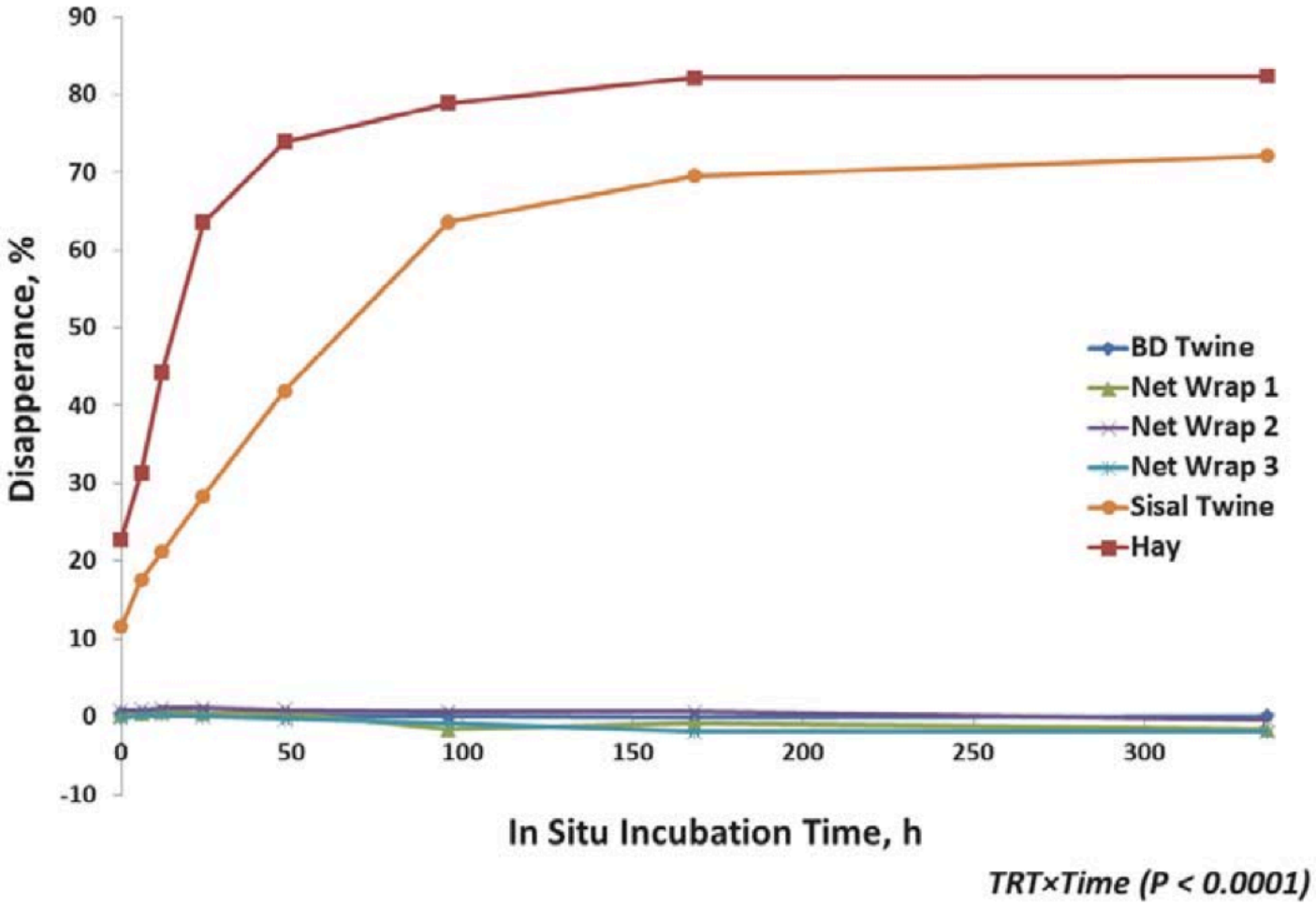


Figure 1. In situ disappearance of bale-binding materials during a 14-day period of incubation.

Klein and Dahlen, 2014

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