College of Agricultural, Consumer and Environmental Sciences

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Herd Management and Drought

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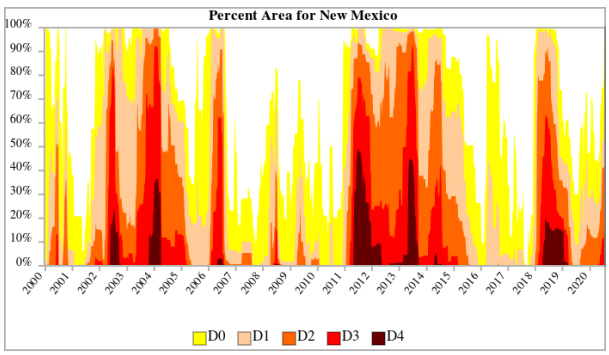
The College of Agricultural, Consumer and Environmental Sciences is an engine for economic and community development in New Mexico, improving the lives of New Mexicans through academic, research, and Extension programs.

Drought



- Herd reduction due to drought is one of the largest threats for ranch sustainability in the Southwest
- Efficient use of resources is important to reduce the effects or need for significant herd reductions

https://www.drought.gov/drought/states/new-mexico

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Tying it all together

- ✓Culling Criteria
- ✓Record Keeping
  - ✓Pregnancy
  - ✓Body Condition
- ✓Genetic Selection

Culling Criteria/Records

- Cows
  - ✓Check for pregnancy
  - ✓If a cow is at the tail end of the breeding season she needs to be looked at closely.
  - ✓Age?

If average age of culls is less than 4 years of age. The herd may not be fully profitable or efficient.

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The Three Year Old

- Poor conception rates
- Smaller calves
- Lower milk production (Dairy industry)
- High cull rates

Biggest economic drain on a cow herd

Tying in to profit

Item	Early Preg Check	Mid term check d205	No check
% open	15	15	15
Feed Intake-10h	35T	54T	96T
Feed $ for Opens	$2,385	$5,310	$11,550
Preg Check$	$500	$300	0
Labor Cost$	$100	$100	0
Income from the Cow+Calf	$24,000	$27,487	$27,487
TOTAL ***Net Income***	$21,015	$21,177	$15,937
Net Difference			-$5163

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Culling Criteria/Records

- ✓Other notables
  - ✓Body Condition
  - ✓Weaning Weights
  - ✓Calf age and quality
  - ✓% Pregnant
  - ✓% Calf Crop

A Cow's Survival Priority

Priority	Function
1	Maintenance
2	Growth
3	Milk Production
4	Reproduction

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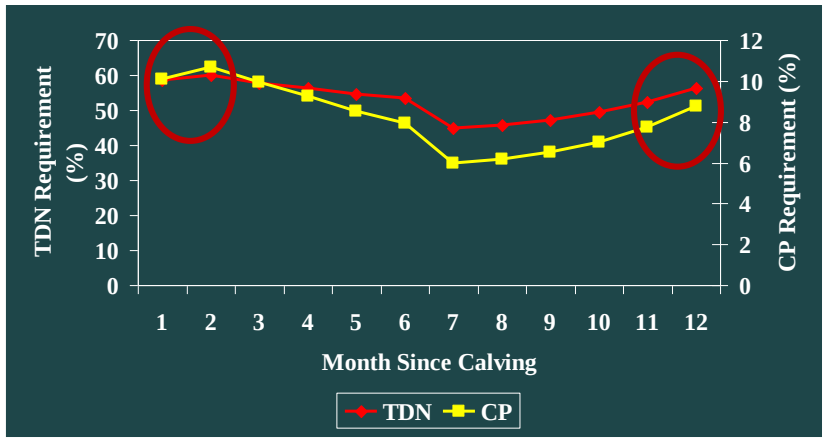
Effect of Stage of Production on Nutrient Requirements of Beef Cows

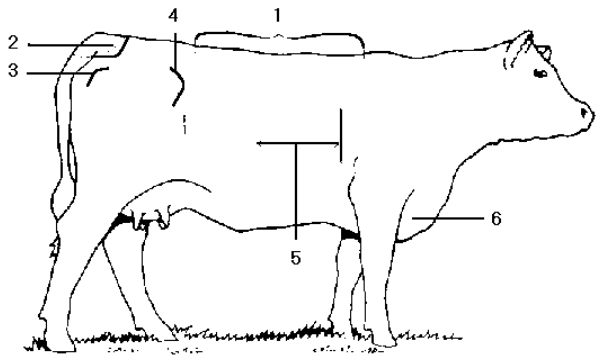


Cow Body Condition

- Quickest assessment of nutritional status
- BCS at Calving is critical
- Want to be at least a 5 (on a scale of 1-9) at calving
- Thin cows have higher requirements

3 5 7

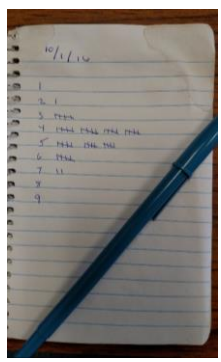
Visually Assessing Body Condition Score

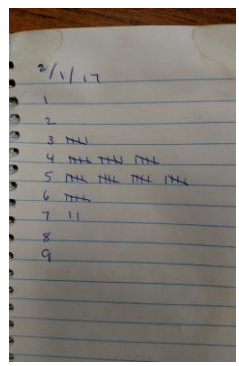


1. BACK
2. TAIL HEAD
3. PINS
4. HOOKS
5. RIBS
6. BRISKET

CRYSTALYX Beef Cow Body Condition Scoring App

"Pocket App"





Effect of BCS on Postpartum Interval and Conception Rates

BCS @ Calving	Post Partum Interval (d)	Conception Rate (%)
3	89	70
4	70	80
5	59	94
6	52	100
7	31	100

Houghton et al., 1990

The New Mexico Cow…

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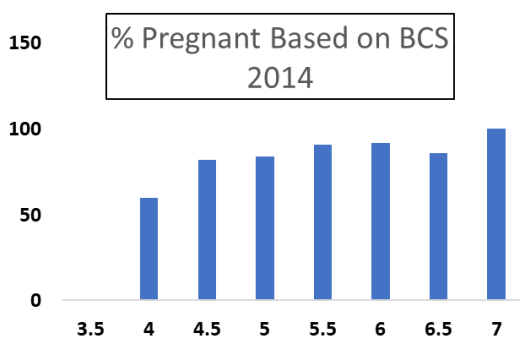
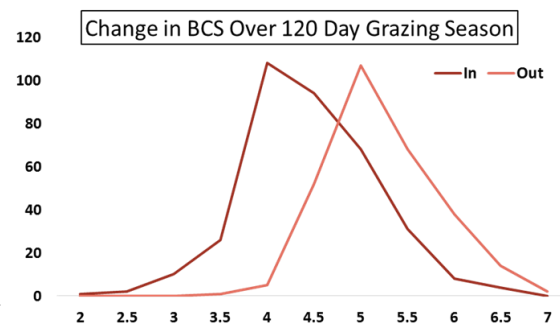
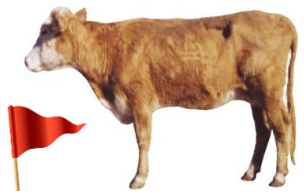
BCS 4


2014 NMSU GRAZING PROGRAM AT THE VALLES CALDERA NATIONAL PRESEVE


% Pregnant Based on BCS 2014
150
100
50
0
3.5
4
4.5
5
5.5
6
6.5
7


Change in BCS Over 120 Day Grazing Season
In
Out
120
100
80
60
40
20
0
2
2.5
3
3.5
4
4.5
5
5.5
6
6.5
7

Body Condition Scoring is the Best Method for Monitoring Nutritional Status of the Cow

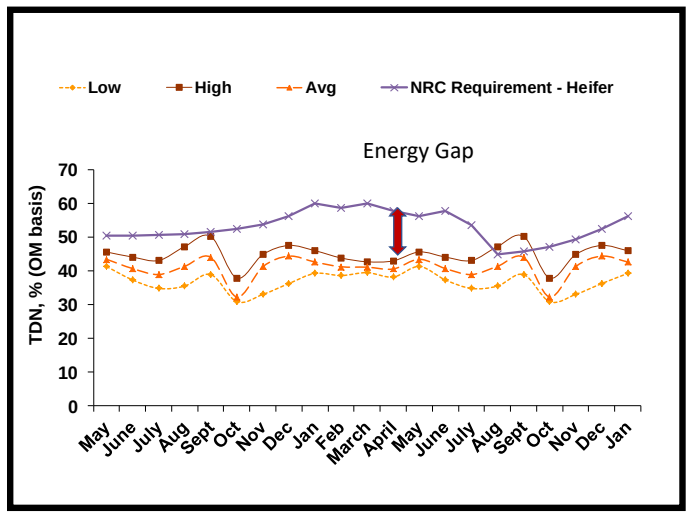


Thin = 1

Average = 2

Fat = 3

- If forage is abundant the "Energy Gap" is not an issue. The cow can eat enough to make up the difference.
- In drought, she physically cannot eat enough to meet her nutritional needs.
- Will first give up production (milk, growth)
- Will next lose fat and muscle to compensate



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If the rains don't come…

- Don't wait until condition is lost.
- Bred heifers, young pairs, and feeder/replacement heifers are all very desirable and easily marketable.

Supplementation

	Alfalfa (18%)	Grass Hay	20% Cube	32% Cube	30% Protein Tub
Lbs needed/h	3.25	5	3	2.5	1.0
Supp $/h/d	.40	.45	.60	.75	.50
Overhead	.45	.45	.35	.35	.20
$/h/d	.85	.90	.95	1.10	.70

*Alf = $250/T, Grass = $180/T, Cubes at $400 +$600/T, $115.00/tub respectively
*Overhead = fuel charge, labor, and feed loss

*Added fat supplements can help maintain, or improve body condition without feeding more pounds.

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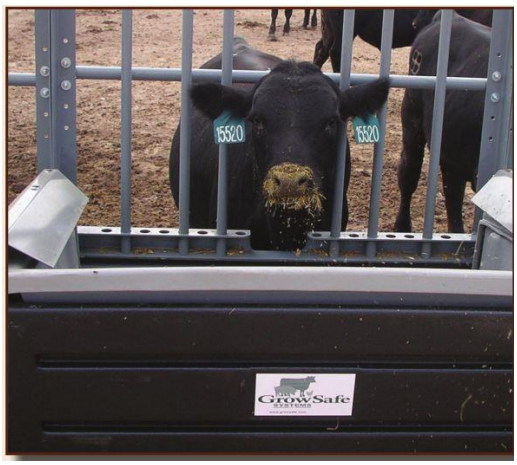
Feed Efficiency is 35% Heritable…..

- Can you tell if he is efficient?

Feed Efficiency is 35% Heritable…..



Actual Data for Efficiency

- ✓Average Daily Gain
- ✓Dry Matter Intake
- ✓Feed Conversion
- ✓Residual Feed Intake

Table 1. 2020 Tucumcari Bull Test Data of Two Angus Bulls from Same Ranch

Item	Bull A	Bull B
In Body Weight (lbs)	710	718
Average Daily Intake (lbs)	20	23.5
End Weight (lbs)	848	814
Feed Conversion (lbs feed:1lb gain)	5.12	7.52
Potential Feed Savings(lbs)/yr	1278	

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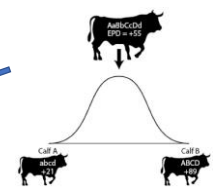
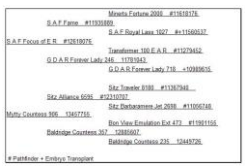
EPD
Expected Progeny Difference

- The predicted performance of the future offspring of an animal for a particular trait, calculated from measurement(s) of the animal's own performance and/or the performance of one or more of its relatives.

EPD
Expected Progeny Difference

$$EPD_{i|EG} = \sum_{m=0}^{k_G-1} \alpha_{im}\phi_m(EG)$$





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EPDs For Efficiency

- **DMI = Dry matter intake** potential of offspring. A negative number of DMI means this animal requires less intake than the breed average for body weight maintenance.

- **rADG = Residual average daily gain** is a value only found in the Angus breed. The more positive this number indicates the animal will have greater growth and performance on the same amount of intake as the breed average.

Cows drive herd efficiency

- Begins with heifer replacement
  - AGE
    - Older heifers breed earlier, better chance to stay in herd
  - SIZE MATTERS
    - Large framed heifers = large cows
  - DAM
    - Reproductive efficiency
    - Size
    - Calf Quality

Herd Efficiency = Reduced Impacts from Drought

- ✓ Select bulls with proven efficiency in feed conversion and lower intake needs
- ✓ Culling Criteria
  - ✓ Open Cows
  - ✓ Late Bred Cows(?)
  - ✓ Can't maintain body condition in good years
  - ✓ Poor/young calves
- ✓ Heifer Replacements
  - ✓ Oldest
  - ✓ Moderate framed
- ✓ **Records is the best tool**

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When do I know I can start rebuilding?

- Body condition
- WW averages
- Reproductive performance
- Range assessment

RECORDS!

THANK YOU!

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Is Great