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BENCHMARKING

Benchmarking:

- Tool to compare financial-production performance to similar ranches and identify areas to be more efficient.
- Makes possible the evaluation of potential management interventions using actual values from the operation.

Key Performance Indicators:

- EPD's for the business.
- Start at ranch level then move to an accurate enterprise analysis.

CAUTION: Understand how the benchmark is calculated!

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Ranch Problem

Management Accounting Challenges:

- Cash accounting only for tax purposes.
- Accrual adjustments are rarely made.
- No scheme to allocate overhead expenses.

Process to Calculate Measures:

- Accurate inventories are needed.
- Break into "Centers": Profit; Cost; Support
- Start at ranch level then move to an accurate enterprise analysis.

Calculating an accurate UCOP/Breakeven is challenging!

KEY PERFORMANCE INDICATORS			
	2022	2021	2020
Key Performance Indicators	2022	2021	2020
Production	1,000	950	900
Cost of Production	\$1,200,000	\$1,100,000	\$1,050,000
Financial	\$100,000	\$150,000	\$200,000
Cost Centers	\$50,000	\$60,000	\$70,000
Profit	\$150,000	\$100,000	\$100,000
UCOP	\$1,050,000	\$1,000,000	\$950,000
Breakeven	\$1,000,000	\$950,000	\$900,000

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T.R.A.C. Benchmarks

Production

Cost of Production

Financial

Cost Centers

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Total Ranch Analysis Colorado

Geographic Location (region)

Annual % Revenue from Cattle (C)

2022: 48% (Target: 42%)

2021: 40% (Target: 42%)

Question Base (Q) (C)

2022: 30% (Target: 30%)

2021: 40% (Target: 30%)

Ranch Operational (R)

2022: 25% (Target: 75%)

2021: 75% (Target: 75%)

Based on Current Status (C)

2022: 6% (Target: 33%)

2021: 33% (Target: 33%)

Range of Ranch Management Improvement (R)

2022: 12% (Target: 19%)

2021: 19% (Target: 19%)

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1 PRODUCTION METRICS

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Total Ranch Analysis Colorado

- Production efficiency remains a challenge for a few but **NQI** most.
- Cost to improve all these metrics is important consideration.
 - Most productive ranch may **NQI** be most profitable.
- WW** = Resource limitation might be creating a production plateau.

KPI #1: Pounds Weaned/Exposed Female: Target = 480 lbs

Metric	Top 30%	Median	Bottom 30%
Pregnancy (%)	96.0	93.0	89.5
Calving (%)	93.0	89.1	85.0
Weaning (%)	90.0	85.0	81.0
Weaning Wt. (lbs.)	608	558	480
Pounds Weaned/Exposed Female (lbs.)	528	487	417
Acres/Female	18.4	43.5	81.0
Pounds Weaned/Acre (lbs.)	29.0	11.6	6.00

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KEY PERFORMANCE INDICATOR # 1

#1: Pounds Weaned/ Exposed Female:

- Not a measure of profitability.
- Management impacts but rainfall is the greatest influencer.

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2 COST OF PRODUCTION METRICS

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Total Ranch Analysis Colorado

- Big (4) expenses represent leverage points for change.
 - Depreciation
 - Feed
 - Labor
 - Pasture

KPI #4: Total Cow Cost: Target = \$900

Category	Value
TOP 30%	799.20
MEDIAN	1,013.35
BOTTOM 30%	1,326.00

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Total Ranch Analysis Colorado

Depreciation (Median %)

BUILDINGS IMPROVEMENTS: 15.2%

EQUIPMENT & SUPPLIES: 21.5%

LANDWORK: 63.3%

Big Five Expenses of Total Cow Costs (%)

DEPRECIATION: 55.0%

FEED: 41.7%

PASTURE: 36.8%

Metric	Top 30%	Median	Bottom 30%
Depreciation	116.95	231.51	320.51
Feed	73.06	187.12	297.15
Labor	65.61	163.46	241.77
Pasture	49.69	112.08	213.52
Interest	7.45	40.59	130.31
Repairs & Maintenance	14.48	40.44	85.01
Vet & Breeding	20.76	31.41	55.20
Utilities	10.36	26.69	59.26
Taxes & Insurance	16.81	42.52	86.62
Fuel	22.01	33.39	65.08
Freight & Trucking	3.36	6.12	28.66
Supplies	15.45	24.01	46.59

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Total Ranch Analysis Colorado

- UCOP is the most important number to compare against.
- Efficiency of resource use on the ranch.
- Incorporates productivity and expense to get it.
- Most leverage is on the cost side.

KPI #5: Cost/CWT of Weaned Calf: Target = \$165/CWT

Category	Top	Median	Bottom
COST/CWT OF WEANED CALF	159.87	211.12	280.88
PRICE RECEIVED/CWT	168.33	165.58	145.95

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Total Ranch Analysis Colorado

- Percent of days cattle graze pasture with no supplemental forage.
- Feed costs are high and most variable.
- Maximizing grazed days can help reduce costs.

★ **KPI #6: Grazed vs Fed Days:**
Target = 80%

Group	Percentage
TOP 30%	92.5%
MEDIAN	70.0%
BOTTOM 30%	53.0%

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3 FINANCIAL METRICS

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Total Ranch Analysis Colorado

- Financial situation #1 barrier to success.
- Net income and ROA varies widely among producer groups.

Group	Whole Ranch	Cow-Calf Enterprise
Top 30%	121,825	1,675
Median	3,592	-66,325
Bottom 30%	-69,913	-238,017

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Total Ranch Analysis Colorado

- Should be measured overtime and the bottom-line for ranch owners.
- Driving force behind long-term decline in producer numbers.

★ **KPI #2: Return on Assets:**
Target = 1.5%

Group	Percentage
TOP 30%	5.91
MEDIAN	-0.93
BOTTOM 30%	-4.85

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4 COST CENTERS METRICS

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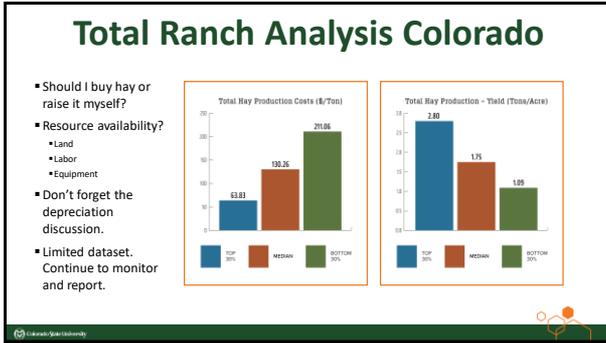
Total Ranch Analysis Colorado

- Should I buy replacement females or raise them myself?
- Consider challenging conventional paradigms.
- Remember the depreciation discussion?
- Limited dataset. Continue to monitor and report.

Replacement Heifer Development (\$/Female)

Metric	Top 30%	Median	Bottom 30%
Cost to Wean (\$)	921.50	1152.00	1376.00
Year 2 Heifer Cost (\$)	270.00	453.00	621.00
Total RRH Cost (\$)	1200.00	1585.00	1947.00

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5 ANALYSIS OF BENCHMARKS FOR PROFITABILITY

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Model Selection:

- The best subset model selection was conducted in R based on Akaike Information Criterion (AIC)

Independent Variables Considered:

- Herd size (cows)
- Pregnancy (%)
- Calving (%)
- Weaning (%)
- Weaning Weight (lbs.)
- Female Replacement (%)
- Pounds Weaned per Exposed Female (lbs.)
- Pounds Weaned per Acre (lbs.)
- Feed Purchased Costs (\$)
- Pasture Rent or Lease (\$)
- Hired Labor & Management (\$)
- Depreciation (\$)

Dependent Variable:

- Accrual adjusted net returns for the cow-calf enterprise

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Profitability Indicators

Regression Results

Predictors	Estimates	CI	p
(Intercept)	121825.62	54785.41 - 188865.83	0.001
Depreciation Cost	-277.86	-505.05 - -50.66	0.018
Feed Cost	-174.97	-326.10 - -23.84	0.025
Pounds Weaned Per Acre	-2643.78	-3897.24 - -1390.31	<0.001
Pasture Cost	-116.52	-327.71 - 94.66	0.268
Observations	34		
R ² / R ² adjusted	0.531 / 0.466		

Cow-Calf enterprise net income was greater in operations with:

1. Reduced Depreciation Cost (p = 0.018),
2. Reduced Feed Cost (p = 0.025), and
3. Reduced pounds weaned per acre (p < 0.001)

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Discussion

Significant indicators of profitability

Our Results

- Feed cost, depreciation cost, and pounds weaned per acre

Other Studies

- Kansas¹: depreciation cost, acres per female, and operator age
- Illinois & Iowa²: feed cost and depreciation cost

¹Pendell and Herbel, 2021. ²Miller et al., 2001

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6 USING BENCHMARKS FOR INFORMED DECISION-MAKING

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Using Benchmarks for Informed Decision-Making

- Requires development of appropriate strategies
 - We develop a partial budgeting framework
 - Outline a standardized decision sequence
- Case studies illustrate the practical application
 - Use benchmark data to identify changes
 - Example: Increase weaning rate to 85%

Weaning Rates (%) from TRAC Benchmark

Third-Quartile = 81%

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Compare Changes in Benefits/Costs

Do 'total positive changes' outweigh the 'total negative changes'?

Total Positive Changes:	Total Negative Changes:
Increased Revenue	Increased Costs
Decreased Costs	Decreased Revenue

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Compare Changes in Benefits/Costs

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Total Positive Changes:	Total Negative Changes:
<u>Increased Revenue</u> <ul style="list-style-type: none"> Reduced mortality/morbidity Improved growth rates Enhanced market value Improved reproductive performance <p>+\$14,670.94</p>	<u>Increased Costs</u>
<u>Decreased Costs</u> <ul style="list-style-type: none"> Sick calf care 	<u>Decreased Revenue</u>

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Compare Changes in Benefits/Costs

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<u>Decreased Costs</u> <ul style="list-style-type: none"> Sick calf care 	<u>Decreased Revenue</u> <ul style="list-style-type: none"> None

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Concluding Comments

- Benchmarking**
 - Know your numbers.
 - Identify a potential area of improvement.
 - Evaluate with partial budgeting process.
- Keys To Profitability**
 - Optimize production.
 - Costs offer the greatest opportunity to improve profitability.

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THANK YOU!

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