

Repro School, April 2024
South Florida Beef Forage Program

The Economics of Reproductive Efficiency

Hannah Baker

State Specialized Extension Agent
Beef and Forage Economics
UF/IFAS Range Cattle Research and
Education Center
Ona, Florida

Photo by UF/IFAS: Cat Wofford

1

REPRODUCTION

One calf : One year
(365 Days)

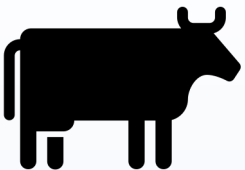


Calve -> Lactation -> Rebreed -> Wean -> Gestation

\$ \$ \$ \$ \$

How can we manage our cows economically??

2

Importance of Efficient Reproduction

<p>Timely Bred, Healthy Cows</p> 	<p>Consistent & Uniform Calf Crop</p> 	<p>Happy Rancher</p> 
---	--	---

3

Where to Start

- ❖ Nutritional Requirements
- ❖ Controlled Calving Season
- ❖ Estimate Costs & Returns
- ❖ Aim to Increase Weaning Rates & Have More Calves Born Earlier in the Calving Season
- ❖ Implement an Efficient Plan **FOR YOU**

RETURN ON INVESTMENT & PLANNING AHEAD



4

Nutritional Requirements

this is a simplified scenario to show basic calculations & thought process

Example Scenario:

❖ Quality of your forage/hay

Bahiagrass – 90% DMI
50% TDN
6.8% CP

❖ Nutritional

requirements of cows
in their current stage

DMI of 1200 lb Beef Cow

Dry : 1.8% of BW = 22 lbs (24 lbs)

Lactating: 2.2% of BW = 26 lbs (29 lbs)

5

Know the Cost of Meeting Requirements

❖ 100 head (1200 lbs) for 210 days (Sept.-March)

- 70 lactating – need roughly 2.2 lbs CP/hd/day
- 30 dry – need roughly 1.5 lbs CP/hd/day

Dry Cows' Needs:

6.8% CP → 24 lbs DMI x 6.8% = 1.6 lbs of CP



Lactating Cows' Needs:

6.8% CP → 29 lbs DMI x 6.8% = 1.9 lbs of CP



Need: 0.3 lbs of CP



Feed: 32% CP Supplement



Rate: 1 lb/hd/day

<https://edis.ifas.ufl.edu/publication/AN190> - Basic Nutrient Requirements of Beef Cows

6

Know the Cost of Meeting Requirements

70 Lactating Cows' Needs:

1 lb/hd/day x 70 head x 210 days = 7.5 tons (\$350/ton)

❖ Sorted Groups:

\$2,625 total or \$26.25/cow

❖ All Together:

- Need 10.5 tons of feed

\$3,675 total or \$36.75/cow

DIFFERENCE

\$~1,100/herd

\$~11/hd

7

Controlled Breeding Season

❖ 80% weaning rate = 80 calves

Calves Sold In Each Weight Class (avg. price of steers & heifers)

Group	<u>320 lbs</u>	<u>365 lbs</u>	<u>420 lbs</u>	<u>465 lbs</u>	<u>520 lbs</u>	<u>Avg. lbs Weaned</u>
\$/lb	\$3.92	\$3.67	\$3.44	\$3.11	\$2.90	
Non-Uniform	16	16	16	16	16	418
Uniform	0	0	20	30	30	474

Group	<u>Revenue</u>	<u>Avg. Calf Revenue/Cow</u>	<u>Difference</u>
Non-Uniform	\$111,886.40	\$1,118.86	\$ 56.35/cow
Uniform	\$117,520.50	\$1,175.21	\$ 5,634.10 total

8

COMPARISONS

Supplement Program	ALL TOGETHER	SORTED	SORTED
Calving Program	NON-UNIFORM	NON-UNIFORM	UNIFORM
Supplement			
Total Cost	\$3,675	\$2,625	\$3,675
Cost/Cow	\$36.75	\$26.25	\$36.75
Calf Revenue			
Total Revenue	\$111,886.40	\$111,886.40	\$117,520.50
Revenue/Cow	\$1,118.86	\$1,118.86	\$1,175.21
Total Return to Feed Expense	\$108,211	\$109,261	\$113,845
Return/Cow to Feed Expense	\$1,082	\$1,092	\$1,138

9

This is only the beginning...

- Other variable costs?
 - Breeding, pasture, health, labor, etc.
- Other pregnancy rates?
 - 80%, 85%, 90%
- Other calving distributions?
 - 38-38-25, 45-35-20, 50-35-15

So

Glad

You

Asked !

Adapted from UT Extension Analysis, 2020
Andrew Griffith & Justin Rhinehart

10

Variable Costs

RANGE:
\$600-800/COW

Variable Costs for a 100 Head Beef Cow Herd in Florida, 2024		
Expenses	\$/cow	Total
Grazing (pasture costs)	\$ 133.48	\$ 13,348.00
Hay	\$ 262.50	\$ 26,250.00
Breeding (bulls)	\$ 44.80	\$ 4,480.00
Supplemental Feed	\$ 38.50	\$ 3,850.00
Mineral	\$ 82.13	\$ 8,212.50
Health (vet & meds)	\$ 35.00	\$ 3,500.00
Labor	\$ 104.00	\$ 10,400.00
Production Total	\$ 717.91	\$ 71,790.50
Interest	\$ 38.52	\$ 3,852.23

TOTAL/COW

\$ 738.93

TOTAL

\$ 73,892.73

11

Different Weaning Rates

- 100 head beef cow herd
- **80% weaning rate**
- 38-38-25 calving distribution

Return to Variable Expenses for a 100 Head Beef Cow Herd in Florida, 2024		
	\$/cow	Herd Total
Variable Expenses	\$ 738.93	\$ 73,892.73
Revenue	\$ 1,175.21	\$ 117,520.50
Return to Variable Expenses	\$ 436.28	\$ 43,627.77

12

Different Weaning Rates

100 head beef cow herd, **85% weaning rate**, 38-38-25 distribution



\$73.53/cow

**\$7,353.10
total**

Return to Variable Expenses for a 100 Head Beef Cow Herd in Florida, 2024

	\$/cow	Herd Total
Variable Expenses	\$ 738.93	\$ 73,892.73
Revenue	\$ 1,248.74	\$ 124,873.60
Return to Variable Expenses	\$ 509.81	\$ 50,980.87

13

Different Weaning Rates

100 head beef cow herd, **90% weaning rate**, 38-38-25 distribution



\$147.06/cow

**\$ 14,706.20
total**

Return to Variable Expenses for a 100 Head Beef Cow Herd in Florida, 2024

	\$/cow	Herd Total
Variable Expenses	\$ 738.93	\$ 73,892.73
Revenue	\$ 1,322.27	\$ 132,226.70
Return to Variable Expenses	\$ 538.34	\$ 58,333.97

14

Different Calving Distributions

- 100 head beef cow herd
- 80% weaning rate
- **38-38-25 calving distribution**

Return to Variable Expenses for a 100 Head Beef Cow Herd in Florida, 2024

	\$/cow	Herd Total
Variable Expenses	\$ 738.93	\$ 73,892.73
Revenue	\$ 1,175.21	\$ 117,520.50
Return to Variable Expenses	\$ 436.28	\$ 43,627.77

15

Different Calving Distributions

100 head beef cow herd, 80% weaning rate, **45-35-20 distribution**



\$3.76/cow

**\$376.50
total**

Return to Variable Expenses for a 100 Head Beef Cow Herd in Florida, 2024


	\$/cow	Herd Total
Variable Expenses	\$ 738.93	\$ 73,892.73
Revenue	\$ 1,178.97	\$ 117,897.00
Return to Variable Expenses	\$ 440.04	\$ 44,004.27

16

Different Calving Distributions

100 head beef cow herd, 80% weaning rate, **50-35-15 distribution**

Return to Variable Expenses for a 100 Head Beef Cow Herd in Florida, 2024		
	\$/cow	Herd Total
Variable Expenses	\$ 738.93	\$ 73,892.73
Revenue	\$ 1,181.50	\$ 118,149.80
Return to Variable Expenses	\$ 442.57	\$ 44,257.07



\$6.29/cow
\$629.30 total

17

Highest Weaning Rate & Calving Distribution

100 head beef cow herd, **90% weaning rate, 50-35-15 distribution**

Return to Variable Expenses for a 100 Head Beef Cow Herd in Florida, 2024		
	\$/cow	Herd Total
Variable Expenses	\$ 738.93	\$ 73,892.73
Revenue	\$ 1,329.19	\$ 132,919.20
Return to Variable Expenses	\$ 590.26	\$ 59,026.47


\$153.98/cow
\$ 15,398.70 total

18

Comparison of All Scenarios

Return to Variable Expenses for a 100 Head Beef Cow Herd in Florida, 2024 (per cow)			
Weaning Rate	80%	85%	90%
Calving Distribution			
38-38-25	\$ 436.28	\$ 509.81	\$ 583.34
45-35-20	\$ 440.04	\$ 513.57	\$ 587.72
50-35-15	\$ 442.57	\$ 516.73	\$ 590.26

19

Key Takeaways

- Weaned calves (**revenue**) are not possible without efficient reproduction (**expenses**)
- **REPRODUCTION STARTS WITH A SOLID NUTRITION PLAN!**
- Increasing weaning rates & weaning weights (calving season) will increase chances of a higher return.

"Good genetics cannot outwork bad nutrition."

"Are my management practices setting the **future of my cow herd** up for **profitable success?**"

20

Repro School, April 2024
South Florida Beef Forage Program

QUESTIONS???

MAY GOD BLESS YOUR STEWARDSHIP!!!

Contact Me @
h.baker@ufl.edu
or
863-374-7051

Photo by UF/IFAS: Cat Wofford

21

Variable Costs

Variable Costs for a 100 Head Beef Cow Herd in Florida, 2024					
Expenses	unit	quantity/cow	\$/unit	\$/cow	Total
Grazing (pasture costs)	acre	2	\$ 66.74	\$ 133.48	\$ 13,348.00
Hay	bale	3.5	\$ 75.00	\$ 262.50	\$ 26,250.00
Breeding (bulls)	head	1	\$ 1,120.00	\$ 44.80	\$ 4,480.00
Supplemental Feed	ton	0.16	\$ 350.00	\$ 56.00	\$ 5,600.00
Mineral	pounds	91.25	\$ 0.90	\$ 82.13	\$ 8,212.50
Health (vet & meds)	head	1	\$ 35.00	\$ 35.00	\$ 3,500.00
Labor	hours	8	\$ 13.00	\$ 104.00	\$ 10,400.00
Production Total				\$ 717.91	\$ 71,790.50
Interest	dollars	\$ 717.91	5.50%	\$ 39.48	\$ 3,948.48
TOTAL				\$ 757.39	\$ 75,738.98

22

Costs used to estimate fertilizer and herbicide cost (grazing)

Urea at \$534/tn = \$0.58/lb of N; ((50 lbs of N/acre * \$0.58/lb)* 2 applications) = \$58/acre

*P and K should be applied based on results from soil and tissue samples

Paraquat at \$35/gal = \$4.37/pt; 2 pt/acre * \$4.37/pt = \$8.74/acre

Costs used to estimate hay

26 lbs of DMI/cow/day * 120 days = 3,120 pounds of hay/day /880 lb round bale = 3.5 bales @ \$75/bale

Costs used to estimate breeding

1 bull = depreciation/annual cost of \$520 + \$600 maintenance cost = \$1,120 per bull / 25 cows = 44.80 per cow

Costs used to estimate supplemental feed2024 repro school presentation calculation specific

1 lbs of 32% CP feed/cow/day * 210 days = 210 lbs or .11 tons @ \$350/ton = \$38.50/ cow

general calculation

2 lbs of 32% CP feed/cow/day * 210 days = 420 lbs or .21 tons @ \$350/ton = \$73.50 per cow

Costs used to estimate mineral

4oz/cow/day * 356 days = 1,460 oz or 91.25 pounds per cow; 50 lb bag @ \$45/bag = \$0.90/pound