



Dr. Curt Lacy
Extension Economist-Livestock
University of Georgia

ECONOMICS OF IMPROVED GRAZING SYSTEMS

Will Improved Grazing Management Pay??

- It depends!!
- Additional revenue
- Reduced cost
- Additional expense
- Reduced income



Speaking of costs

Variable Costs

- Aka direct costs → changing these impacts level of production.
 - Fertilizer
 - Seed
 - Feed
 - Vet

Fixed Costs

- Aka Indirect costs → changing these has no impact on production
 - Depreciation/interest or principal and interest payments (prorated establishment costs)
 - Taxes
 - insurance

Partial Budgeting Form for Analyzing Grazing Profitability

Additional Costs

Additional fencing costs
Increased fertilizer costs
Increased labor costs
Additional Cow investment

Additional Revenue

Increased conception
Increased weaning weights
Higher stocking rate
EQIP/CSP???

Reduced Revenue

Reduced stocking rate
Reduced weaning weights

Reduced Costs

Lower fertilizer costs
Reduced equipment costs
Reduced feed needs

**Total additional costs
+reduced revenue = A**

**Total additional revenue
+reduced costs = B**

Total Profit = B-A

EXAMPLES



Eliminate Hay Enterprise

Hay Enterprise

- 200 acres of fescue-bermuda pasture
- 35 acres of hybrid bermuda hay (\$500/acre VC)
- 3 pastures of 60,70, and 70 acres
- Currently 2 acres pasture per cow (100 cows)
- Cows currently consume 1.50 tons of hay/cow/year
- 90% calf crop with 500# calf @\$125/Cwt.

No Hay Enterprise

- Fence in hay field with perimeter fence of 5-strand high-tensile fence.
- 2.35 acres per cow.
- Cows consume 1.00 tons of hay/cow/year
- Hay cost = \$75/ton

Purchasing Instead of Raising Hay

Additional Costs

Purchase 100 tons of hay @ \$75/ton = \$7,500
Fertilize 35 acres of pasture @ \$175/acre = \$6,125
Fencing = \$5,000 @ 8% for 15 years = \$585
Total additional costs = \$14,210

Additional Revenue

Reduced Revenue

**Total additional costs
+reduced revenue = \$14,210**

Reduced Costs

35 acres of hay @ \$500 per acre = \$17,500

**Total additional revenue
+reduced costs = \$17,500**

Total Profit = \$3,290

Inside the numbers

- $3,290/100$ cows = \$32.90 per cow
- $\$3,290/450$ CWT = \$7.31/cwt. reduction in cost.
- Breakeven price for hay = $(\$17,500/100$ tons) $=\$175$ /ton.

Replace 100 Acres of Commercial N with Clover

Current Situation

- 120# N/acre
- N cost \$0.70/lbs.
- 2 acres/cow
- 90% calf crop with 500# calf @\$125/Cwt.

Clover

- 3#/acre of Durana @ \$5.25/# - good for 3 years
- Additional 10# P/acre required @ \$.60/#
- Additional 10# K/acre required @ \$0.55/#
- 2.13 acres per cow
- Weaning weights increased 20#

100 Acres in Clover

Additional Costs

3#/acre of Durana or Patriot @\$5.25/pound
good for 3 years = \$525/year

Additional 10# phosphorous/acre per year
@\$0.60/# = \$600

Additional 10# potash/acre per year
@\$0.55/# = \$550

Total additional costs = \$1,675

Reduced Revenue

Stocking rate reduced by 15% → 7
cows @ 90% calf crop, 500 pound calf
@ \$125/Cwt. = \$3,938

**Total additional costs
+reduced revenue = \$5,613**

Additional Revenue

Additional 20 pounds on calves from 43
cows @ 90% calf crop sold for
\$125/cwt. = \$968

Reduced Costs

Savings on 2 applications of 60#/acre of
commercial nitrogen @
\$0.70/pound = \$8,400
7 fewer cows @ \$400/cow = \$2,800

**Total additional revenue
+reduced costs = \$12,168**

Total Profit = \$6,555

Impacts of Fertilizer Cost & Usage on Profitability

Lbs. of N/acre	Price per Pound for Nitrogen			
	\$ 0.35	\$ 0.50	\$ 0.75	\$ 1.00
80	\$ 530.00	\$ 1,730.00	\$ 3,730.00	\$ 5,730.00
100	\$ 1,230.00	\$ 2,730.00	\$ 5,230.00	\$ 7,730.00
120	\$ 1,930.00	\$ 3,730.00	\$ 6,730.00	\$ 9,730.00
150	\$ 2,980.00	\$ 5,230.00	\$ 8,980.00	\$ 12,730.00

What if Pounds Weaned do Not Increase?

Lbs. of N/acre	Price per Pound for Nitrogen			
	\$ 0.35	\$ 0.50	\$ 0.75	\$ 1.00
80	\$ (468.75)	\$ 731.25	\$ 2,731.25	\$ 4,731.25
100	\$ 231.25	\$ 1,731.25	\$ 4,231.25	\$ 6,731.25
120	\$ 931.25	\$ 2,731.25	\$ 5,731.25	\$ 8,731.25
150	\$ 1,981.25	\$ 4,231.25	\$ 7,981.25	\$ 11,731.25

Two questions

1. What happens if we “grow” into more cows?
2. How do I handle shared assets and liabilities?



Growing into more cows

1. Same process as with partial budget.
2. Develop an “average” cash flow projection sheet for years after you reach herd objective
3. Develop projected annual cash flows for 5-7 years with and without additional cows leading up to the year where you are fully online.
4. Sum the annual cash flows for the two scenarios.
5. Make you decision based on potential net income and your risk tolerance.

Shared Assets/Liabilities

- Common question when considering co-grazing.
- Also comes up when land is used for more than one enterprise or purpose.
 - Tractor used for crops, cattle and hay
 - Combination equipment shed/livestock facility
- Same principle applied to allocating overhead expenses.



Allocating assets/liabilities-the contribution approach

1. Determine the total cost
 1. Fixed
 2. Variable
2. Can you identify specific costs that can be allocated to specific enterprises?
 1. Extra expenses for goat or sheep
3. If not, allocate expenses by percentage of income.
 1. If co-grazing cows and sheep and cows generate 60% of income then charge cows 60% of expenses.
4. Apply enterprise contribution percentage to appropriate variable and fixed costs.

***** If one enterprise will not cover its variable costs, it can't reduce fixed or total costs**

Important Considerations

- Include only changes
- Make sure expected production increases are relevant to your scenario
- Take into account the start up period
- Don't base calf prices on today's prices
- Think it through!!



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