

# Economics of Better Grazing Management

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# Objective

- Determine the net change in profit from the use of a rotational grazing system
- Adding 21 cows to a 70 cow operation on 200 acres
  - Overseeding ryegrass on 30 of these acres
- Increased revenue, decreased cost, and increased cost associated with this change
- Determine cash flow and debt requirements to make the change

# Profitability

- Profitability is a long-term consideration
- While cash flow is important in the short run, profitability tells us if a given change to the operation will increase the farm's value over time
- To evaluate profitability, a partial budget is useful
  - Here's a link to the spreadsheet: <http://bit.ly/2xMyUFW>

# Partial Budget

- Compares the increased revenue and decreased cost associated with the change to the operation to the increased costs
- If the increases in revenue and decreases in costs exceed the increase in the cost, the investment is profitable

# Partial Budget

- To start, let's look at the increased revenue we will get from the additional calves and the extra hay we will be able to sell by moving to a rotational grazing system
- We will be selling an additional 19 calves, accounting for the death loss and cows that don't breed in an average year
- Thanks to the improved resource efficiency, we won't need as much hay as we did before and, in this example, we will sell it

# Partial Budget

<b>Increased Revenue</b>	
Additional Calves	19 head
Revenue per Calf	\$ 720.00
Additional Calf Revenue	\$ 13,680.00
Extra Hay	18 tons
Revenue per Ton	\$ 85.00
Additional Hay Revenue	\$ 1,530.00
<b>Total Increased Revenue</b>	<b>\$ 15,210.00</b>

# Partial Budget

- Next let's look at decreased costs
- As a result of the improved nutrient management, we will need less nitrogen
- We will also reduce our hay feeding costs

<b>Decreased Costs</b>	
Reduced N Usage	30 lbs/ac
Total Acreage	200 acres
Price of N	\$ 0.42
Reduced N Cost	\$ 2,520.00
Reduced Hay Feeding	600 lbs/head
Total Head Fed	70 head
Price of Hay	\$ 85.00
Reduced Hay Cost	\$ 1,785.00
<b>Total Decreased Cost</b>	<b>\$ 4,305.00</b>



# Partial Budget

- Finally, we need to consider the increased costs associated with this change to the operation
- In this section, I'll use annual repair and depreciation figures from the Investment section of the spreadsheet linked above
  - Let me know if you have additional questions about that part of the analysis

<b>Increased Cost</b>	
Depreciation & Repairs	
Woven Wire Fence	\$ 303.60
Poly Tape for Fence	\$ 792.00
Underground Water Line	\$ 182.16
Portable Water System	\$ 175.00
Pasture Renovation	\$ 1,750.00
Cow Depreciation	\$ 1,139.25
Total Depreciation and Repair Cost	\$ 4,342.01
Additional Cow Variable Cost	
21 more cows @ \$245/head	\$ 5,145.00

Additional Labor	
Hours per month	15
Months per year	6
Cost per Hour	\$12.50
Total Additional Labor Cost	\$1,125.00
<b>Total Increased Cost</b>	<b>\$10,612</b>

# Partial Budget

- Putting it all together we get:
  - Increased Revenue of \$15,210
  - Decreased Cost of \$4,305
  - Increased Cost of \$10,612
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- Which gives us a net increase in profit of
  - $\$15,210 + \$4,305 - \$10,612 = \$8,903$

# Cash Flow

- Profitability is important, but it is also crucial to examine the cash flow aspect of the investment to be sure that
  - Sufficient cash is on hand to keep the operation going
  - There is enough money to pay the banker
- What follows is a summary of the investment cost and cash flow analysis. Consult the spreadsheet for more details on the investment portion.

Woven Wire Fence	\$3,036
Poly Tape	\$1,980
Underground Water Line	\$3,036
Portable Water System	\$500
21 Cows	\$23,100
Total Loan Amount	\$31,652

Loan Payment (5 yrs, 5%)	\$7,311
Increased Costs	\$8,704
Total Additional Cash Flow Required	\$16,014
Increase in Available Cash	\$19,515
<b>Net Cash Flow</b>	<b>\$3,501</b>

# Cash Flow

- Since the Increase in Available Cash exceeded the Total Additional Cash Flow Required, the investment provides a positive cash flow.
- The analysis indicates that this investment is both profitable and is able to generate sufficient cash to pay for the capital costs (i.e. make principal payments).

# Other Considerations

- Calf value was a big part of the increased revenue. I assumed a 550 lbs calf would bring on average \$130/cwt. Prices fluctuate and everyone's situation is different, so this number might need to be changed.
- NRCS has a cost-sharing program that you can apply for. They will share up to 75% of approved costs. See your local NRCS for details.
- How you value your labor is up to you, my numbers are just a starting point
- All of these numbers are assumptions. I would suggest going through the spreadsheet using numbers that more accurately reflect a change you're considering



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