

Economic Considerations for Expanding a Cow Calf Operation

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Missouri is graced with vast forests and a climate suitable for growing trees as well as grass and cropland. As a result, Missouri landowners have many options available for managing land to meet their goals. In times of increased cattle prices, many landowners may perceive an economic benefit to converting forest into pasture to expand their cow calf herd. Another consideration to increase profitability of a cow calf operation is improving the management of the existing pasture acres.

The analysis of these options will vary from operation to operation. However, as a starting point, this article presents an economic assessment of converting forest to pasture for cow calf production and improving grazing management to show potential operation benefits for a cow calf operator with a tract of land consisting of 160 acres of pasture and 50 acre of forest. The existing pasture is currently stocked, and the producer is looking for ways to expand the cow calf operation. All options are assessed over a 20 year lifespan.

Option 1: Expand Grazing Acres by Converting Forest to Pasture

The following assumptions are made to assess the economics of converting the 50 acres of forest to pasture to expand the total acres of grazing available for the cow calf operation:

- Feeder calf prices are \$175 CWT
- Land clearing costs are offset by marketing some of the timber being removed
- Costs include grass establishment on the cleared land and infrastructure such as fence, watering facilities and pipeline, and annual fertilizer management
- The cleared land will be managed without grazing management (no rotation grazing)

Results:

The conversion of 50 acres of forest to pasture is not economically beneficial (present net value is negative) because the costs of the conversion are greater than any returns the producer will receive from adding the additional cows (Table 1).

Table 1: Results of Converting 50 Acres of Forest to Pasture with no Grazing Management

Present Value Costs ^a (\$/ac)	Present Value Returns ^b (\$/ac)	Present Net Value (Returns-Costs)	Stocking Rate
\$1,216	\$744	-\$472	9

However, what if the converted land was managed with a high level of grazing management where cows are rotated through eight or more paddocks? Table 2 shows that with improved grazing management on the converted acres, the producer can increase the stocking rate to 19 cows, and the conversion of forestland to pasture can be economically beneficial over the 20 year period of analysis (Present Net Value is positive). However, the producer will not profit from the conversion until year 10.

Table 2: Results of Converting 50 Acres of Forest to Pasture with High Grazing Management

Present Value Costs (\$/ac)	Present Value Returns (\$/ac)	Present Net Value (Returns-Costs)	Stocking Rate	Payback Period
\$1,086	\$2,122	\$1,036	19	9 years

The analysis above shows that converting forest to pasture for cow calf production may only be economically beneficial if the converted acres are managed to maximize stocking rate and per acre returns. Additionally, the analysis assumes that the land clearing costs are offset by marketing the timber. However, if the land clearing costs cannot be offset, then those costs will cause the payback period in Table 2 to be longer than 9 years. Another option for producers to consider is improving the existing pasture.

Option 2: Improve Existing Pasture Management

The following assumptions are made to assess the economics of improving management of 160 acres of existing pasture:

- Feeder calf prices are \$175 CWT
- Pasture is not currently managed with rotational grazing, and will be improved by incorporating a high level of grazing management where cows are rotated through eight or more paddocks
- Costs are any additional infrastructure needed to facilitate improved grazing management (fence, watering facilities, pipeline)
- Stocking rate increases from 28 to 60 cows

Results:

The improvement in grazing management of the existing pasture is economically beneficial (returns > costs). In addition, the modest investment in additional infrastructure to facilitate the grazing management is recovered by the improvement in per acre returns due to the increased stocking capability. As a result, the producer realizes profits from the improvement in the second year after the improvement.

Table 3: Results of Improving Management of Existing Pasture from No Management to High Grazing Management

Present Value Costs (\$/ac)	Present Value Returns (\$/ac)	Present Net Value (Returns-Costs)	Annual Equivalent Value (\$/ac)	Payback Period
\$63	\$1,734	\$1,671	\$112	1.6 years

Conclusion:

Based on the assumptions used in the model presented here, improving management on the existing pasture is the best investment economically because this option returns the highest net value per acre. The results will vary depending on the specifics of each operation, and the current management.

Producers interested in an analysis specific to their operation can access two MS Excel based tools from the following site;

<http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/technical/econ/stateresources/?&cid=stelprdb1044088>

To assess the economics of converting forest to pasture use the tool entitled:

[The Economics of Converting Existing Forestland to Pasture version 1.xlsm](#)

To assess the economics of improving grazing management on existing pasture use the too entitled:

[The Economics of Improved Grazing Management version 1.xlsm](#)

For questions about this information, or assistance in using the tools please contact Lauren Cartwright at lauren.cartwright@mo.usda.gov or (573) 876-9415.