# Case Study: Cashflow of a Cow

Answers to Analysis Questions

1. Buying milk producing calves poses a risk of reduced lifetime revenue due to shortened productive lifespan. As a result, there is a potential of non-optimal use of calf’s potential and a pressure on cashflow, even with an impact of initial investment. This results in a lower internal rate of return eventually. Given, the nature and revenue trajectory of the business, the optimal years of milk production are only realized after a couple of years, relative to cost before they start dipping again. For example, from our model there is steady income in the first year that grows significantly into the second year and is moderate in the following 3 years, dipping in the final year.
2. Receiving calves for free implies an initial cost of 0, which means that there was no investment to begin with. While there is no impact on the initial cost of investment, it also implies that there’s no meaningful return to calculate in IRR. Nevertheless, after the 5 years the free calves taken to the butcher would have a financial gain to the farmer.
3. Risks to a Farmer
4. Market Price Fluctuations: The price of milk and meat can vary significantly due to changes in demand, supply chain disruptions, or economic conditions.

Incorporating into the Model:

1. Scenario Analysis: Introduce different scenarios in the model where the price per litre of milk and the price per cow at the butcher fluctuates. Analyze how these changes affect overall income, net income, and the Internal Rate of Return (IRR).
2. Sensitivity Analysis: Create a sensitivity analysis to assess how variations in milk and meat prices impact the financial outcomes.
3. Health and Mortality of Livestock: Diseases, poor health, or mortality of cows can drastically reduce milk production or result in the loss of an animal, leading to a direct financial loss.

Incorporating into the Model:

1. Probability of Health Issues: Introduce a variable that accounts for the probability of health-related issues or mortality among the cows.
2. Impact Assessment: Model the financial impact of losing a cow or reduced milk production due to illness. Investigate how these risks impact the overall profitability and IRR by adjusting the relevant parameters in the model.
3. Feed Cost Increases: The cost of feed is a significant operational expense. Any increase in feed costs due to supply shortages, increased demand, or other economic factors can reduce the farmer's margins.

Incorporating into the Model:

1. Cost Inflation Scenarios: Although the current model assumes no inflation, you can introduce scenarios where feed costs increase by a certain percentage each year. This could be done by adjusting the cost per animal per month in the model and observing how this impacts overall expenditures and net income.
2. Breakeven Analysis: Perform a breakeven analysis to determine how much the feed cost can rise before the farm becomes unprofitable. This would provide insight into the farm's vulnerability to feed cost fluctuations and help the farmer plan accordingly, such as by considering alternative, cost-effective feed options or locking in long-term contracts with suppliers.
3. Factors that are going to change:
4. Increased Revenue:
5. Milk Production**:** Additional milk from female calves boosts long-term revenue, potentially raising IRR.
6. Calf Sales: Selling calves adds a new income stream, enhancing revenue and IRR.
7. Increased Costs:
8. Feeding and Maintenance: Higher operational costs for raising calves may reduce net income, affecting IRR.
9. Veterinary Care: Increased veterinary costs for calf health could further impact expenses, potentially lowering IRR.
10. Breeding Management:
11. Timing of Births: Staggered births could smooth cash flow but also increase costs at certain periods, with varied effects on IRR.
12. Calf Gender: Female calves increase long-term milk revenue, while male calves add to short-term income, both impacting IRR differently.
13. Infrastructure Investment:
14. Space and Resources: More calves might require additional facilities, raising capital costs and potentially lowering IRR in the short term.
15. Risk and Uncertainty:
16. Calf Mortality: Loss of calves reduces expected revenue, negatively impacting IRR.
17. Market Fluctuations: Variations in calf and milk prices could enhance or diminish revenue, affecting IRR.

Conclusion

The introduction of two calves per cow during its lifetime could potentially increase revenues and improve the IRR, provided that the costs associated with raising the calves are well managed and the additional income streams are realized. The overall impact on the model would depend on a careful balance of increased operational costs against the anticipated revenue from milk production and calf sales. To ensure a positive impact on IRR, the farmer would need to optimize the timing of calving, efficiently manage costs, and mitigate risks associated with livestock management.