

Beef Cowherd Expansion Decisions: Is Bigger Always Better?

Introduction

This chapter will discuss expansion of a beef cow-calf enterprise and different strategies for achieving it. Alternative expansion routes may include:

- Buying replacement heifers
- Raising replacement heifers
- Leasing breeding stock and/or a share or cash agreement
- Retaining ownership of raised calves

Each of these strategies will be discussed in terms of level of risk, profitability, cash flow feasibility and tax management implications.

Strategies for Expansion

While a traditional cowherd strategy for expansion such as buying cows will work for many producers, there are alternatives that may be more appropriate for some people. In this chapter we will discuss three options for expanding the cattle enterprise: buying or raising heifers, leasing breeding stock, and retaining ownership of calves.

Buy versus Raise Replacement Heifers

A management decision facing all beef cowherds is whether to raise their replacement heifers or buy them. The analysis is not as simple as it may seem. It includes several production and market factors as well as economic costs and tax considerations. The preferred choice varies with farm resources and market conditions.

First, the decision may differ if it is for expanding the herd rather than maintaining it. As part of an expansion, will the forage supply and forage demand from cattle match better if the heifers are raised or purchased as a group? Second, for an expansion does the herd have enough good quality heifer candidates for normal replacement and expansion? Finally, how does the cash flow compare for raised versus purchased heifers? While it may be possible to absorb the cost of heifer development within the farm, it may be easier to get outside financing to purchase heifers. Also, if the reduced income and increased development costs

of retaining heifers for an expansion puts a strain on short term cash flow, it may be better to finance the additional animals and repay it over multiple years.

Other factors enter the buy or raise decision as part of an on going herd replacement strategy. Can you buy as good or better health, performance, disposition, and carcass quality than you can raise? What is your cross breeding program? Is it easier to manage if you buy heifers instead of trying to manage breeding rotations within the herd? What is consistency in the calf crop worth, and can you manage it better by buying heifers? Specifically, if all the cows and heifers are of the same breed composition bred to the same breed of bull, will you be able to sell at a higher price or market more total pounds (hybrid vigor) than if you have varying combinations of the same or more breeds?

What is the cost to develop your own heifers? In addition to feed and out of pocket expenses, do you have the facilities and time to manage heifers properly? Heifer development also uses feed resources that could go to other cattle. How many more cows can you carry if you do not have to raise and develop heifers? Estimates are that as high as 15% more cows can be maintained in herds that purchase bred replacements over raising heifers. What does that do to the average cost of producing a weaned calf?

Raising replacement heifers is a way to manage health risk, particularly if you have a healthy herd and are unsure about the supplier of purchased heifers. The same can be said for the genetics of the heifer and the calf she is carrying. Buying heifers, particularly bred heifers, is vulnerable to price risk driven by supply and demand for heifers. There are also tax considerations in that purchased heifers can be depreciated while raised heifer development costs are ordinary expenses. Under the current tax rules with the Section 179 provisions, producers can chose to deduct the cost of purchased heifers in the year they are purchased. On the other hand, when purchased heifers are sold, any depreciation expense previously claimed must be recaptured before any capital gains income is reported. When raised heifers are eventually sold as cull cows, 100 percent of the income is capital gain, which is taxed at a lower rate than ordinary income and is not subject to self-employment tax. Generally speaking, purchasing heifers will cost more than developing heifers in the operation because the seller is standing more risk, and needs to be compensated accordingly. Resources about heifer development costs and factors to consider when deciding whether to buy or raise heifers are available in the article “The Costs of Raising Replacement Heifers and the Value of a Purchased Versus Raised Replacement” in *Managing for Today’s Cattle Market and Beyond* (http://ag.arizona.edu/arec/wemc/cattlemarket/Cost_of_Raising_Replacement.pdf).

Beef Cow Share Leases

Cowherd can be expanded through leasing as well as ownership. There are many types of beef cow leases, but this discussion will focus on share lease agreements in which each party provides part of the inputs to the cowherd and revenue is shared in proportion to the inputs provided. Leases can be for a fixed duration or on-going. Some are crafted to transfer assets over time, while also sharing risk. The beef cow share agreement is one example that allows individuals with complimentary inputs to benefit from working together. Share agreements

can also help younger producers enter the beef industry by providing labor and daily herd management to the agreement in lieu of a significant investment in land or breeding stock.

In a beef cow share agreement, the operator acquires the use of a cow herd and shares the costs and returns of the cow herd operation with the owner. This process has advantages to both the owner and operator. The owner can retain ownership of the herd even when not active in farming, adjust the scale of the operation to a manageable size by leasing out part of the livestock assets, or have access to good management if his/her own experience is limited. The operator can test an enterprise before making an investment, gain experience in beef production under the direction of an experienced producer, or acquire the use of resources without making a direct monetary investment in the assets. Moreover, the risk and the profit associated with livestock production are shared, and the land, capital and labor can be used more efficiently.

There are also disadvantages to beef cow leasing that must be considered before entering into a lease agreement. Leases may not be preferred in times of rising markets when low cost cows produce high priced calves in the following years. Outright ownership of the cows yields profits that do not have to be shared with the other party. Disagreements about the care and management of the herd may rise. These problems may be compounded by the personalities involved. Many disadvantages to leasing arise from misunderstandings about what the lease says or doesn't say. That is why it is essential that the lease be in writing and carefully read, understood, and signed by both parties. Managing a lease takes more time, effort, and records to be successful than does working alone.

Livestock share leases are not magical and do not by themselves create wealth when there was none before. They only define how to divide the costs and returns between two parties. However, beef cow herd leases can be beneficial if they allow individuals to work together to achieve something that they could not have done alone.

Sharing the income from livestock, land and other resources can have an infinite number of possible arrangements. Therefore, it is important that both parties document their expected contributions and value. The contribution from each party may vary considerably. The standard for an equitable share agreement is one in which the two parties share the income in the same proportion that they share the total production costs. If the cow owner provides 40 percent of the production costs for the beef cow herd and the operator provides 60 percent, then the owner should receive 40 percent of the total calf income and the operator should receive 60 percent of the calf income.

Expenses can be shared in many different ways. In some cases the cow owner provides the cows, the bulls, and sometimes even the summer pasture. Typically, however, the owner of the cows provides only the cows, bulls, and replacement heifers, and the operator provides all of the rest of the resources. The income can be generated from four sources: steer calf sales, heifer calf sales, cull livestock sales, open yearling heifer sales.

The breeding herd should be treated as a capital asset, just like land, machinery or buildings. Ownership records of each individual animal should be carefully maintained, for tax records. The income received from selling cull cows, bulls and heifers should go to the owner(s) of the livestock, regardless of how the calves are shared. Likewise, the owner of the herd should provide replacement bulls and heifers. These may be purchased from outside or drawn from the herd owner's share of the calf crop.

When a good working relationship exists between the parties, all management decisions may be made by mutual agreement. The person providing the labor is usually responsible for day-to-day management decisions about feeding, breeding and treating health problems. However, larger decisions such as buying or selling livestock or setting the general feeding, breeding and health programs should be discussed well in advance. The type of records needed to verify these goals and the system to be used should also be discussed and agreed on.

Written agreements help avoid disagreements later on. They also provide a record for tax preparers and heifers. A cow-calf operation represents a substantial investment, in livestock, pasture and handling facilities. A sharing agreement should be set up to last for at least 5 years or more. Details may be reviewed annually, however.

A sample cow-calf lease agreement is available from the Manitoba Agriculture and Food Agency, at: <http://www.gov.mb.ca/agriculture/financial/farm/caf22s01.htm>.

Often beef cow leases are viewed as an ongoing enterprise between two parties. Because successful lease agreements build upon complementary inputs, it is also possible to use a share lease agreement to transfer ownership of the assets from one generation to the next. For example, the older generation may own the cows and land but want to reduce the amount of labor provided. The younger generation is typically short on capital but has extra labor to provide. Working together these two parties can continue the herd and potentially transition the ownership over time to the younger generation. This requires a careful delineation of how ownership shares and the division of operating costs and income will change over time, however.

Case Farm Cow Share Lease Exercise

Frank Case is exploring a business venture with one of his high school classmates, Cliff, who is now a successful lawyer in Des Moines. Cliff is willing to invest some money in additional breeding stock if Frank will provide all the labor and management. He is also looking at a buying a small farm in the community. They haven't discussed how feed and other costs will be handled, yet.

Using the values from the enterprise budget below, how would you recommend they split the calf income under each of the following arrangements?

Alternative 1

Cliff will purchase all the added breeding stock for a share of the calf check. Frank will pay all other expenses, provide all the feed, and provide labor and management.

Proposed income split: Frank _____% Cliff _____%

Comments:

Alternative 2

Cliff will purchase all the added breeding stock and rent the necessary pasture for a share of the calf check. Frank will pay all other expenses, provide all other feed, and provide labor and management.

Proposed income split: Frank _____% Cliff _____%

Comments:

Alternative 3

Cliff will purchase all the added breeding stock, provide all the feed, and pay all other operating expenses. He will purchase a farm with pasture, hay land and handling facilities. Frank will provide labor and management, only.

Proposed income split: Frank _____% Cliff _____%

Comments:

BEEF COW-CALF -- One Cow Unit

Nov 1 wean and sold

INCOME	No.	Weight	Unit	Price/unit	Total
Steer calf	0.46	550	lbs	\$ 1.30	\$328.90
Heifer calf	0.46	500	lbs	\$1.20	<u>\$276.00</u>
GROSS INCOME					<u>\$604.90</u>
COW VARIABLE COST					
Pasture		2.5	acre	\$30.00	\$75.00
Pasture fert, misc costs		2.5	acre	\$20.00	50.00
Corn		4	bu	\$1.95	7.80
Supplement & minerals		50	lbs	\$0.18	9.00
Alfalfa - brome hay		2.1	tons	\$80.00	168.00
Corn stalks		4	acre	\$5.00	<u>20.00</u>
Total Feed Costs					<u>\$329.80</u>
Veterinary and health					\$25.00
Machinery, equipment, fuel and repairs					15.00
Miscellaneous and marketing					20.00
Labor		8	hours	\$9.00	72.00
Interest on feed & other costs		6	months	8.00%	15.59
Interest, insurance on breeding stock		12	months	9.00%	<u>87.30</u>
TOTAL COW VARIABLE COST					<u>\$564.69</u>
COW FIXED COST					
Machinery, equipment, fences					\$40.60
Breeding stock replacement					44.00
Management					<u>65.00</u>
TOTAL FIXED COST					\$149.60
TOTAL COW COST					<u>\$714.29</u>

Worksheet for Frank Case Cow Sharing Agreement Exercise

	Alternative 1		Alternative 2		Alternative 3	
	Frank	Cliff	Frank	Cliff	Frank	Cliff
COW VARIABLE COSTS						
Pasture	_____	_____	_____	_____	_____	_____
Pasture fert, misc costs	_____	_____	_____	_____	_____	_____
Corn	_____	_____	_____	_____	_____	_____
Supplement & minerals	_____	_____	_____	_____	_____	_____
Alfalfa - brome hay	_____	_____	_____	_____	_____	_____
Corn stalks	_____	_____	_____	_____	_____	_____
Veterinary and health	_____	_____	_____	_____	_____	_____
Machinery, equipment, fuel and repairs	_____	_____	_____	_____	_____	_____
Miscellaneous and marketing	_____	_____	_____	_____	_____	_____
Labor	_____	_____	_____	_____	_____	_____
Interest on feed & other costs	_____	_____	_____	_____	_____	_____
Interest, insurance on breeding stock	_____	_____	_____	_____	_____	_____
COW FIXED COSTS						
Machinery, equipment, fences	_____	_____	_____	_____	_____	_____
Breeding stock replacement	_____	_____	_____	_____	_____	_____
Management	_____	_____	_____	_____	_____	_____
TOTAL COW COSTS	_____	_____	_____	_____	_____	_____
Share paid by each party	_____%	_____%	_____%	_____%	_____%	_____%

For more information about cow share leasing look at the following resources:

- Returns to Beef Cow Share Agreements, 1980-2004
- An electronic spreadsheet is available to help analyze the respective shares of each party in a cow lease agreement. Beef Cow Share Agreement Analysis - an Excel Spreadsheet (<http://www.iowabeefcenter.org/content/BeefCowShareAgreementAnalysis.xls>)
- Beef Cow Share Agreements Fact Sheet (<http://www.iowabeefcenter.org/content/BeefCowShareAgreementFactSheet.pdf>)
- Sample Cow-Calf Lease Agreement (<http://www.gov.mb.ca/agriculture/financial/farm/caf22s01.html>)
- Leasing Arrangements for Cattle in Managing for Today's Cattle Market and Beyond (http://ag.arizona.edu/arec/wemc/cattlemarket/Leasing_Arrangements_for_Cattle)

Cash Leases for Beef Cows

Cash leases are also a popular way for an operator to expand a cow-calf enterprise without investing a large amount of capital. Some investors prefer to earn a fixed return on their investment in breeding stock. This leaves the operator to bear all the risks of production and prices. However, the operator generally has complete management freedom, and enjoys all the profits that accrue to superior management or favorable prices.

The cash payment is usually fixed as a certain percent of the original value of the breeding stock. For existing livestock, an impartial third party may be contracted to estimate their current value. A fixed value per head for each class of livestock may be agreed upon, with the total lease payment depending on the actual numbers in the herd each year. The payment may be once a year, after the calves are marketed, for example, or spread out on a monthly schedule.

As with the share lease, proceeds from the sale of cull breeding stock go to the owner, and the owner is responsible for providing replacement animals. If heifers are retained from the same herd, the owner should purchase them from the operator at their current market price.

The owner and operator need to agree on how to handle death loss of the breeding herd. A certain level of death loss may be assumed to be absorbed by the owner, but losses in excess of this level may be shared. For example, the operator may pay the owner a predetermined amount for each cow, heifer or bull death loss beyond a certain number per year, unless covered by insurance. It would generally be the owner's responsibility to carry the insurance.

Cash lease payments would be considered an ordinary operating expense on the operator's tax return. For the owner, lease payments would represent rental income and would usually not be subject to self-employment tax, unless the owner is deemed to be materially participating and at risk in the operation.

Summary of Breeding Herd Expansion Alternatives

	Cash Flow	Risk	Profits	Taxes
Raise Replacements	No direct cash outlay, but calf sales are reduced. Added cash inflows are delayed.	Genetics are known. Operator takes all the financial.	Depends on future prices.	Raised breeding stock has a zero tax basis. Cull income is all capital gains, taxed at 5% or 15%. No SE tax.
Buy Replacements	Immediate cash outlay. Added cash inflows come sooner if replacements are already bred.	Genetics are less known. Operator takes all the financial.	Depends on future prices.	Purchased breeding stock can be depreciated (up to \$105,000 per year expensing). Cull sales fully taxed (up to original purchase price).
Cow Cash Lease	Annual cash outlay.	Cow lease costs are known—no cull value. Operator takes all the financial. Who stands death loss?	Depends on future prices.	Lease payments are deductible. Owner's income is probably not subject to SE tax.
Cow Share Lease	No cash outlay.	Genetics are less known. Operator and owner share the financial.	Depends on future prices. (and losses) are shared.	No direct tax effects for operator. Owner's share of is probably subject to SE tax.

Retained Ownership

The marketing chapter worked through examples of retained ownership and discussed historical analysis of different strategies. The discussion focused on costs and returns per head retained and didn't look at the impact on the whole farm from retaining ownership of the calves beyond weaning. There are advantages and disadvantages to retained ownership and factors that must be considered before changing the production and marketing system.

Retaining ownership of calves beyond weaning is a value-added process that provides cow owners opportunities for additional gross income and net profit. It turns lower value calves and feedstuffs into higher value animals. The accelerating trend toward value-based marketing also provides an opportunity for cow owners to more fully capture their investment in genetics. It increases the size of the operation while adding diversification and improving marketing flexibility. Producers considering retained ownership must consider first year cash flow and income tax implications for their operation. Producers must also decide whether to feed their calves at home or in a commercial feedyard.

Retained ownership increases marketing flexibility as to when, how, and where the cattle are sold. Calves can be sold as feeder cattle of different weights up to approximately 900 pounds or sold as fed cattle. While it is difficult to attract a packer buyer to the farm for a small pen of cattle, the producer can increase market access and competitive bids by feeding the cattle in a commercial feedyard that is visited by several buyers. Selling some at weaning, some as feeders, and some as fed cattle spreads marketings and price risks over time.

The cow owner must decide whether to feed the calves at home or in a feedyard. Feeding cattle in a commercial feedyard allows the cow owner to hire specialists and utilize state-of-the-art facilities and equipment. On the other hand, feeding the calves at home adds value to farm resources that may otherwise be difficult to market, i.e., labor, forages, facilities, and equipment. While feeding the cattle at home may not produce gains that are as efficient as those of a commercial feedyard, net farm income may increase by marketing available resources that would otherwise be unused.

Cash flow requirements may be complicated for the first year that a producer retains ownership. In addition to not having the income from selling calves in the fall, the producer must retain or buy feed, increasing the cash outflow. If the producer typically sold calves and sold corn that he is now feeding, the cash flow can be dramatically reduced. Debts may remain unpaid for a few additional months, increasing interest costs. While the cattle are collateral for the loan, the producer's financial risk may increase. Lenders must be aware of the producer's plans and see the benefit of the retained ownership strategy. Financing packages offered by feedyards that free up part of the value of the calf and finance the feed can greatly ease cash flow binds.

Feeding calves one year and not the next will complicate income tax management. This is only a problem for a cow owner on cash accounting that switches from a retained ownership program to selling both calves and fed cattle in the same tax year. In a diversified farming operation in which cattle sales are only a part of total income, selling two calf crops in one year may not cause a problem because sale of grain may be reduced at the same time. However, if cattle sales are a major part of total revenue, tax considerations are significant. Pre- or post-paid feed bills may provide some relief for an uneven income stream. It is generally only a problem if producers end a retained ownership program and sell their calves at weaning in the same tax year.

In addition to the market flexibility, resource utilization, and specialization advantages discussed above, retained ownership can capture additional efficiencies if properly planned. Because the cattle are under single ownership over their lifetime, management practices that favor either the buyer or seller but not both can be utilized. For example, creep feeding is known to reduce stress at weaning and help get calves started on feed sooner, but sellers are typically discounted for having fleshy calves. A cow owner can creep feed and reap the benefit of giving a quicker start to healthier calves in the feedlot. The cow owner can also benefit from a sound health program without the costly duplication of vaccination that might occur in a custom feedlot.

Retained ownership can also increase financial risk over selling at weaning. The producer is putting in more inputs (feed, vet, interest, yardage) and selling more pounds, but fed cattle prices can be quite volatile. Review the retained ownership risk analysis in the marketing chapter. Particularly, in the stage of the cattle cycle when sharply lower prices are possible, operators who retain ownership should consider some type of price risk management (futures, put options, or livestock revenue protection). At the time to make the decision

between selling or retaining, if a higher life time profit cannot be protected through the feedlot then selling at weaning may be the safest strategy.

In the Case Farm example Frank could retain ownership through to slaughter on his calves, but he would like to have more information. First, does Frank have the equipment and skills to be a successful cattle feeder? If he already has a total mixed ration feed wagon that he uses for his winter cow feeding then it could be used for feedlot cattle. He has excess corn that he sells, but does he have access to low cost distiller grains? Does he have a suitable feedlot location that won't cause a water quality problem? Is there a packer near by that would provide a competitive bid on his cattle? What is the trucking cost to the packing plants? Finally, what is the quality of Frank's cattle? Will they perform well in the feedlot and produce carcass premiums or are they below average on both counts?

Resources to help producers think through the retained ownership questions include:

- "Alternative Retained Ownership Strategies for Cow Herds"
(http://www.econ.iastate.edu/faculty/lawrence/Acrobat/Retained_Ownership_08.05.pdf)
- "Retained Ownership of Cattle: Factors to Consider in Managing for Today's Cattle Market and Beyond"
(http://ag.arizona.edu/arec/wemc/cattlemarket/Retained_Ownership.pdf)

Cattle Cycle Economics and Expansion

The cattle cycle is a well documented economic force in the industry that is relatively slow moving and predictable. As a result, there are opportunities to profit from the cattle cycle by choosing when to invest and when not to invest. While trying to pick the top or bottom of the market is difficult if not impossible, there are simple strategies that incorporate prices and cycle economics into the heifer retention decision. Like the "stock market", beef cowherds require a high initial investment with a payoff over future years. Wall Street investors and pension fund managers have developed long term investment strategies to profit from these economic realities.

One simple strategy is "Dollar Cost Averaging" in which the investor buys the same dollar amount of stock each time period. In the case of a pension plan it might be the same dollar amount from each monthly paycheck. In the case of a cowherd it might be the same dollar amount of heifers retained each fall at weaning time, unlike the typical cowherd that keeps the same number of heifers every year. When heifers are cheap more heifers are kept than when they are higher priced. Also, because of the cyclical prices the lower cost heifers are producing calves during the stage of the cycle with higher calf selling prices.

For more resources about managing the cowherd through the cattle cycle and an analysis of dollar cost averaging specifically, see the following Managing for Today's Cattle Market and Beyond publications:

- “Profiting from the Cattle Cycle: Alternative Cow Herd Investment Strategies” (http://ag.arizona.edu/arec/wemc/cattlemarket/Profiting_from_Cattle_Cycle.pdf)
- “Should Producers Attempt to Behave Counter-Cyclically During Cattle Cycles?” (<http://ag.arizona.edu/arec/wemc/cattlemarket/ShouldProducers.pdf>)

Economic Analysis of the Expansion Decision

The planning process must balance the forage needed for expanding the cattle operation with the cattle demands for feed and the capital necessary to ramp up the business. The production chapters went through the forage balance procedure that should be done for each year of an expansion. The producer must also decide if the cattle are going to be purchased or raised from within the herd, and if new pasture is going to be rented, purchased, or converted from row crop or Conservation Reserve Program acres. The timing and costs of these options are different.

One common denominator between forage and cattle is cash flow. If forage supply is short relative to cattle, more feed can be purchased. Likewise, if forage is ready before the cattle, additional stocker cattle can be purchased to utilize available forage or it can be cut for hay. However, the timing and availability of cash or loans is critical for the success of an expansion, and cash flow projections are important planning tools to predict potential shortfalls or surpluses.

There are two key economic questions to answer when considering an expansion. First, is the expansion feasible from a cash flow standpoint? Second, is the expansion profitable? These may seem like the same question, but they are somewhat different. You should have a positive response to both questions before proceeding.

“Is the expansion profitable?” means will the resources used generate sufficient income to pay for themselves and provide a positive return on investment? An expansion is feasible if it generates enough cash flow to pay the bills, loan payments, and other cash outlays. It is possible to have a profitable investment that is not feasible. An example may be buying land and cows to expand the herd. It might be profitable, but if you can’t borrow enough money to buy the land it will not be financially feasible. Likewise, you may be able to cash flow an expansion by taking depreciation on assets and not charging for family labor or owned pasture even though the enterprise is not profitable enough to pay a market rate of return for these resources.

In the marketing chapter Frank Case had a total cost of production of \$566 per head to produce a calf. If he adds more cows some of his costs per cow may decline, such as machinery and equipment per cow, labor per cow, and even pasture per cow if he is currently under stocking pastures. However, in order for the investment to be profitable the added revenue must exceed the added expenses. Furthermore, because Frank is making an

investment this year that will produce income in future years the true measure of profit is the Net Present Value (NPV), which compares future earnings the initial investment.

The NPV is computed with the formula below. It begins with the initial investment I made in year t and discounts future earnings E by a discount rate r in each following year. The formula should include the value for the entire project and the investment and earnings must be measured in the same units. Earnings are the net returns after expenses that can be attributed to the project. The discount rate is at the discretion of the manager, but should reflect a target rate of return or rates of return available from other investments.

$$NPV = -I_t + E_{t+1}/(1+r)^{t+1} + E_{t+2}/(1+r)^{t+2} + E_{t+3}/(1+r)^{t+3} + E_{t+4}/(1+r)^{t+4} + \dots$$

If the NPV is positive, meaning that the discounted future earnings are greater than the initial investment, then the project has earned a rate of return greater than the discount rate and is profitable to pursue. If the NPV is negative it means that future earnings discounted back to the time of the investment are less than the investment. The project will earn a rate of return less than the discount rate, and it is not profitable.

Consider an example in which Frank wants to add 25 cows and a bull to the operation by adopting management intensive grazing. He estimates that it will cost \$2,500 for cross fences and water lines to move to rotational grazing, and the cows and bull will cost \$1,200 and \$2,000, respectively. His total investment is \$34,500 in year 1 and his target rate of return and discount rate is 10%. Frank estimates that his operating expenses will increase by \$300 per cow for the 25 cows, or \$7,500 per year. He is considering the cull value of the cows and bull at the end of 7 years to be about \$12,500.

Table 1 summarizes Frank's analysis. The income is based on the FAPRI price forecast for each year, and year 7 includes the cull cow income. The earnings are gross sales less his estimated expenses, and the discounted row is his annual net earnings discounted each year at the 10% rate. The total of the discounted earnings is \$30,239, which is less than his initial investment of \$34,500 thus this investment is not profitable at this time.

Table 1. Example Net Present Value Calculation for Frank Case

Year	1	2	3	4	5	6	7	Total
Income	\$13,399	\$13,034	\$12,655	\$12,185	\$11,817	\$11,518	\$23,640	
Expenses	7,500	7,500	7,500	7,500	7,500	7,500	7,500	
Net Cash Flow	5,899	5,534	5,155	4,685	4,317	4,018	16,140	
Discounted Net Cash Flow	\$5,362	\$4,573	\$3,873	\$3,200	\$2,680	\$2,268	\$8,282	\$30,239

Net Present Value of investment = Total discounted earnings \$30,239
 - Initial investment \$34,500
 = (4,261)

Case Farm Exercise

Adopting rotational grazing will reduce Frank's cost of production because he can carry more cows on the same acres. Yet, the NPV analysis shows it is not a profitable project at this time.

- What change in the project or analysis might make it profitable or at least generate an NPV that is less negative?
- If Frank was willing to accept a rate of return of 5 percent instead of 10 percent would the NPV be positive.

Had the investment to adopt rotational grazing been profitable at this time Frank would still need to determine if it was financially feasible. Does Frank have the cash available to buy the cows, bulls, and equipment? Even if he does, is that a good use of working capital? From the financial chapter we learned about keeping the balance sheet in balance. The cows, bull, fence, and water lines can all be expensed for tax purposes, but they also have multiple year lives and are intermediate term assets. It may be more appropriate to borrow the money for the project to create an intermediate term liability. There is a risk of using working capital to buy an asset that appears on the intermediate portion of the balance sheet. Besides the fact that the current ratio is drawn down to a low level, there will be other demands on working capital from the cowherd and cropping operation. Frank will also have higher expenses (vet, purchased feed, etc) occurring before he has more calves to sell.

Summary and Take Home Points

There are many reasons for expanding a cow-calf enterprise: a desire to increase overall net income from the farm or ranch; an opportunity to more fully utilize feed and labor resources; or a need to employ and support another operator. Several different strategies can be followed to carry out the expansion. More breeding stock can be owned, either by purchasing cows or heifers outright, or by holding back more replacement heifers from the existing herd. Breeding stock can also be leased, either for a fixed cash payment or for a share of the calf crop. Finally, the enterprise can be expanded by retaining ownership of the calves until they reach market weight rather than producing more calves. This can be accomplished at home or in a custom feedlot, depending on the feed and labor available. Whichever path for expansions is chosen, a careful analysis of the profit potential and financial feasibility is crucial. The point in the cattle cycle at which the expansion is undertaken has a large impact on its ultimate success.

Strategic Planning for Cow-Calf Producers: Tying the Pieces Together

Introduction

Forage-based beef enterprises by their nature require longer range planning and financing than either crop production or livestock feeding. Forage and animal production must be in balance, it takes time to get pastures and breeding herds established. Inputs such as land, fencing, and livestock are capital intensive, with payoffs over multiple years. These enterprises are also subject to production, financial, and marketing risks as has been discussed in earlier chapters. This makes them particularly vulnerable during times of transition and expansion. Before a major change in the cow-calf operation is undertaken, careful thought should be given to the long-term goals of the operators, the skills and resources that they have to offer, and the external factors that will impact the beef industry over the next decade.

Goals and Objectives

Most farmers who decide to expand their operation have a long term vision of growing their farm income and assets. However, few have clearly defined, written goals and objectives for their farm or even for the beef herd expansion. Obviously, plans will have to be altered as opportunities and constraints, physical or fiscal, arise, but it is important to have a destination to work toward. Expansion decisions should be made in the context of existing farm resources and external factors such as price trends and market opportunities.

Goals generally represent a long-term destination for a business or individual. They should be reviewed from time to time to determine if they are still appropriate and are consistent with the wishes of the family and farming operation. Often these goals involve growing the operation over time. An important starting point is to determine why you want to grow the cattle operation, what resources do you have, and what you hope to achieve. The answers to these questions will impact how you go about growing your business.

Consider the list of possible motivations for expansion:

- Fully utilize available resources such as grass or labor
- Increase annual farm income
- Accumulate net worth with emphasis on retirement income
- Bring another person into the operation

Objectives are shorter term steps that are necessary to achieve a stated goal. They should be measurable and obtainable and lead the operation toward the ultimate goal. A well written objective will be based on a number and time frame. For example, “Increase forage production on the farm by 20 percent in three years.” First, does having 20 percent more forage contribute to the long term goal for the farm? Second, forage production is based on acres in production and pasture and hay yields, and can be measured this year and again in three years to determine if the objective has been reached.

There are several ways to achieve an expansion goal. What ever the decision, it should take into account the physical, financial, and human resources internal to the firm and external factors such as market prices and trends. The list below is not exhaustive nor will it work on every farm. Rather it is intended to show that there are alternative paths to reach identified goals. The bullet points under each may be pathways to reach the long term goal. They can be developed into objectives by identifying a desired level of performance and a time frame for reaching it.

Goal 1: Use all available grass and labor.

Alternatives without long-term investment:

- Add or increase a stocker operation
- Add or increase a heifer development enterprise
- Custom graze cattle owned by others
- Harvest and sell hay in small square bales to the hobby market

Alternatives that require long-term investment:

- Buy more cows or heifers
- Retain heifers to expand the cowherd

Goal 2: Increase annual income when pasture is limiting.

Alternatives that increase production from the existing resource base:

- Implement management intensive grazing (MIG)
- Supplement pasture with distillers grain solubles (DGS)
- Convert hay ground to pasture and feed corn stalks and DGS in the winter
- Retain ownership of calves to yearling weight or slaughter
- Buy heifers or have them developed offsite

Goal 3: Accumulate net worth with emphasis on retirement income.

Alternatives that expand the operation with emphasis on long term growth:

- Expand the cowherd through raised heifers
- Retain ownership to slaughter to increase value added income
- Buy lower value land and improve fertility through management intensive grazing

Goal 4: Bring another person into the operation.

Alternatives that are not limited by current land base:

- Buy or rent additional pasture acres and buy or custom graze cattle

- Convert crop or CRP ground to pasture to expand a cattle enterprise that adds value and uses more labor, i.e., stocker/backgrounder, custom heifer development, or feedlot.

Each of the alternative strategies can achieve the stated goal, and some address multiple goals. However, some of the strategies that address one goal may work against achieving a second goal. For example, buying more land doesn't address the goal of utilizing excess forage or retaining ownership of calves in a custom feedlot doesn't help employ another operator. The strategy selected to achieve a goal depends on the resources available. For example, how you balance the growth between owned and rented land and owned or custom-grazed cattle and stockers or cows has a significant impact on how to best finance the growth.

Case Farm Exercise

Given the information you have about the Frank Case cattle operation and his plans for the future, write a possible goal statement for his operation. Then identify at least three objectives necessary for him to achieve the goal that you develop. Include a time frame and a measurable result.

Goal Statement: _____

Objectives:

1. _____

2. _____

3. _____

Resource Assessment

Equally important to the planning process is a resource assessment. The earlier production chapters in this series helped you think through summer and winter forage resources. The financial chapter discussed balancing the balance sheet and cash flow considerations for expansion. Financial and forage resources are important factors when planning an expansion, as are other resources such as labor and management capabilities to handle the added work.

Benchmarking your herd against others is a useful assessment process. The ISU-Standardized Performance Analysis (SPA) records program is a useful source of benchmarking data. It provides accurate animal performance rates, production costs, and financial measures for beef

cowherds and forage production, and allows participants to compare the strengths and weaknesses of their operation to others. Records from the Iowa Farm Business Association also provide averages and a range of values for several key financial variables. Individuals who are in these programs or who calculate the variables similarly can determine how they compare to other producers.

Begin the assessment by looking at existing resources and determine if and how the business can be grown within the resources available. For example, will the current land base carry more cattle through fertilization, pasture renovation, rotational grazing, supplementation, etc? Is the current system efficient and operating at low-cost? Success is more likely if you expand an efficient, low-cost enterprise rather than multiplying the size of an inefficient operation.

If the current operation is not a low-cost enterprise the assessment should identify what factors are causing the higher costs. What actions are needed to lower costs, and will expanding the enterprise bring the system into better balance? Or, will the expansion simply multiply the current problem or create a new one that leads to a larger, less efficient operation? For example, if stored winter feed costs are significantly higher than other herds because the herd has no corn stalk grazing and purchases much of its winter hay, then adding more cows to existing acres will only result in purchasing more winter feed. However, if renting or buying additional land allows for corn stalk grazing, stockpiled grazing, or lower cost hay production, the expansion may result in lower cost of production for the entire herd. The partial budgeting tool discussed in the financial chapter is useful for evaluating alternative changes to an operation.

Case Farm Exercise

Based on the information provided about the Frank Case cattle operation:

Identify two potential strengths and how they can be leveraged.

Strengths:

1. _____
2. _____

Identify two potential weaknesses and what can be done to address them.

Weaknesses:

1. _____
2. _____

Are the goal and the objectives identified earlier feasible with the existing resources of Frank Case? How could the goal or resources be changed to be more compatible?

External Factors

There are several external factors that impact forage based beef operations. By definition, these factors are beyond the control of the farm, but they should still be incorporated into the planning process. Obvious examples include market prices for cattle, land, and feed. Factors that tend to drive these price variables are cattle inventories, availability of pasture and competing land uses, international trade decisions, U.S. farm policy, and weather. While not known with certainty, these factors are still somewhat predictable. The U.S. farm program is revised every 5 to 7 years and may impact the availability and value of pasture or feedstuffs. Demand for pasture land for recreational uses has been increasing for a number of years, reducing the supply of grazing land and increasing the price of rough land. Cattle prices follow a fairly predictable cycle, as total beef production capacity increases or decreases. While the exact high and low price years are difficult to predict in advance, once the direction is set the annual prices are fairly predictable.

It is important that producers recognize the trends of the external factors and how they will impact their business. Often people spend a lot of energy wishing for a different outcome or complaining about the external factor rather than reacting to it. Successful producers are those that adjust their business to take advantage of the change in external factors, or at least minimize its impact.

Case Farm Exercise

Identify one major external factor that will impact forage based beef production systems over the next five years.

What is the external factor?

What is its impact and direction (helpful or hurtful for a cowherd)?

What is at least one strategy that a cowherd manager can use to minimize the impact of the factor or to increase profit due to the change in the factor?

Cattle Market Situation and Outlook Information

Perhaps the biggest external factor for a cowherd is selling prices. Unlike cattle feeding and stocker operations that are margin enterprises, cowherds cannot as easily take advantage of lower prices to buy inputs. Thus, feeder cattle prices are a major driver of profitability for beef cowherds. The marketing chapter talked about seasonal price patterns and price risk management tools, futures, options, and livestock price and margin insurance. However, these tools and trends are short term price management tools, only. While they can postpone the impacts of lower prices, they cannot help a cowherd avoid them completely. It is useful to know where to find long term price forecasts and management strategies at different stages on the cattle cycle.

While there are many sources of short term supply and demand and price forecasts, such as universities, USDA, and private sector analysts, there are very few that offer longer term forecasts. There are two sources worth looking into, however.

The Livestock Marketing Information Center (LMIC) has provided economic analysis and projections about issues and conditions concerning the livestock industry since 1955. Center resources contribute to economic education, support applied research projects, and carry out policy evaluation. Center staff continuously update forecasts, projections and support materials related to market situation and outlook. While providing analysis on all red meat, poultry and feed grains, LMIC's strength is cattle.

The LMIC is a unique cooperative effort between state university extension specialists, USDA economists, industry cooperators and Center staff. Center members represent three types of participating institutions: 25 state land grant universities, USDA agencies, and associate organizations. Associate institutions are leading livestock industry organizations in the US and Canada with missions that include supporting and conducting education and research.

LMIC is a members only organization, but it does have public web sites that are worth monitoring on a regular basis.

- **Situation and Analysis** at <http://www.lmic.info/index.shtml>. This page is updated regularly and provides short term analysis as well as insight to longer term trends.
- **Publications** at <http://www.lmic.info/memberspublic/pubframes.html> Includes a quarterly outlook report and publications of interest on topics such as National ID and Managing for Today's Cattle Market and Beyond.
- **Member newsletters** at <http://www.lmic.info/memberspublic/membersreports.html>.

A second long term forecast is available from the Food and Agriculture Policy Research Institute (FAPRI). This is a joint program between Iowa State University and the University of Missouri, funded by Congress to provide unbiased agricultural forecasts and policy analysis. FAPRI prepares baseline projections each year for the U.S. agricultural sector and international commodity markets. Their multi-year projections are published as FAPRI Outlooks, which provide a starting point for evaluating and comparing scenarios involving macroeconomic policy, weather, and technology variables. These projections are intended for use by farmers and ranchers, government agencies and officials, agribusinesses, and others who do medium-range and long-term planning.

FAPRI baseline projections are grounded in a series of assumptions about the general economy, agricultural policies, the weather, and technological change. The projections generally assume that current agricultural policies will remain in force in the United States and other trading nations during the projection period. The projections are also based on average weather conditions and historical rates of technological change. The FAPRI Outlook is available at <http://www.fapri.iastate.edu/about.aspx>.

The March 2006 FAPRI outlook is summarized in Table 1. The FAPRI forecasts are reported in metric tons but the values in the table have been converted to pounds. Note that expansion is expected to continue until 2012 before inventories decline, and that total beef

production will continue at a high level for two years beyond the peak inventory. They assume a slow rebuilding of beef exports.

The benchmark price that FAPRI forecasts is the Nebraska Direct Trade Fed Steer Price. They are predicting that prices peaked in 2005 and will trend lower until 2012-2013. As a point of reference, 1998 was the low point in the previous cycle with annual average NE Fed Steer prices at \$60.50/cwt. Prices were in the \$64-66/cwt range in 1995-1999 with the exception of 1998. Thus, they are forecasting a higher low for the current cycle, but one that is \$16 below the 2005 average price.

Table 2 uses price relationships from the 1996-2005 time period to predict prices for other classes of cattle based on the FAPRI fed cattle price forecast. For example, 500-600 pound steer calf prices in the fourth quarter have average 1.31 times the averaged fed cattle price for the year. First quarter yearling steers, second quarter fed cattle, and fourth quarter cull cows have ratios of 1.12, 1.00, and .55, respectively. This ratio adjustment varies as is seen in 2005. Actual prices for calves, yearlings and culls were \$128, \$106, and \$51 rather than \$113, \$96, and \$47 as projected by the ratios. The feeder cattle price ratios can vary widely from year to year, and are impacted by corn prices. The higher the corn price, the lower the feeder cattle price is relative to fed cattle prices.

Also keep in mind that heifer prices will average \$7-8/cwt less than steers of the same weight. Thus, the average feeder cattle price a cowherd is predicted to receive at the low point of the next cycle is in the upper \$80s (\$92 for steers and \$85 for heifers). This is considerably higher than the low in the last cycle near (\$60/cwt). If the large beef supply coincides with high corn prices, feeder cattle prices will be lower than this forecast, however.

Regardless of the flaws in the forecasts, they still provide a direction in prices and some indication of the variation in prices. This long term forecast can be augmented with shorter term (one to two year) forecasts that take into account near term information about the direction of the market.

Table 1. FAPRI Long Term Cattle Outlook Released March 2, 2006

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Cattle Inventory	Million Head	95.8	97.5	99.3	100.9	102.0	102.7	103.2	103.4	103.0	102.1	101.3
Production	Billion Lbs	25.2	26.4	27.1	27.9	28.7	29.3	29.8	30.3	30.6	30.6	30.4
Imports	Billion Lbs	3.6	3.6	3.6	3.6	3.5	3.4	3.3	3.3	3.3	3.3	3.4
Exports	Billion Lbs	0.7	0.9	1.4	1.8	2.0	2.2	2.3	2.4	2.4	2.4	2.4
NE Fed Steers	\$/cwt	\$86	\$83	\$80	\$78	\$75	\$73	\$71	\$70	\$70	\$72	\$73

Table 2. Forecast for Other Classes of Cattle Based on FAPRI's Long Term Forecast and Historic Price Relationship to Fed Cattle Prices

Class of cattle	Price ratio	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Steer Calves 4th Q	1.31	\$113	\$109	\$106	\$103	\$99	\$96	\$94	\$92	\$92	\$94	\$96
Yrlg Steers 1st Q	1.12	\$96	\$93	\$90	\$88	\$84	\$82	\$80	\$78	\$79	\$80	\$82
Choice Steers 2nd Q	1.00	\$86	\$83	\$81	\$78	\$76	\$73	\$71	\$70	\$70	\$72	\$73
Cull Cows 4th Q	0.55	\$47	\$46	\$44	\$43	\$41	\$40	\$39	\$38	\$39	\$39	\$40

Summary and Take Home Points

Maintaining and expanding a successful beef cowherd can be a challenging task. However, it goes without saying that it is easier than maintaining an unsuccessful or unprofitable cowherd. Managing production, financial and market risk are fundamental to a successful operation. This correspondence course addressed these aspects of management and discussed risk factors that producers must manage.

When considering changes in the cattle enterprise it is important to first identify the long-term goals of the farm and what objectives must be achieved to reach the goals. Too often producers focus on adding cows rather than achieving the goal of increasing income or net worth. Once the goals are stated there may be a variety of routes for achieving them. Producers must evaluate these alternatives based on a thorough assessment of their internal strengths and weaknesses, and external factors that will impact the operation.

Once the goals and objectives are identified and resources and external factors assessed, the planning process can begin by looking at both profitability and financial feasibility of a major change. Reliable economic forecasts such as those produced by the LMIC and FAPRI can improve the reliability of these assessments.

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