W1354

Assessing Value-Added Dairy Business Expansion

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Business owners are often faced with the question of whether they should grow or expand their operations. In fact, expansion is often viewed as a tangible sign of success and something that a business owner may aspire to. However, there are numerous questions related to marketing, scale, financials, labor, organizational structure, distribution, quality and regulatory compliance that operators need to thoroughly consider before expanding their value-added dairy foods (VAD) enterprise.

This publication contains an overview of issues and questions that dairy foods processing business owners should consider and answer prior to embarking on a business expansion. It also describes an approach to analyzing the feasibility of expansion through the use of sales forecasting and net present value investment analysis. Finally, there is a short discussion of some common mistakes that are made when attempting to grow a business.

Considerations for Expanding a Value-Added Dairy Foods Processing Business

The issues that must be considered before embarking on a business expansion range from consumer-facing areas of marketing and sales to internal issues such as operations, distribution, human resource management and regulatory compliance. It is important to ensure that processors give equal consideration to each area.

These issues should be familiar ones for value-added dairy foods processors, as they are issues that also needed to be considered when starting their business. However, there is a difference between making plans for a new business versus one that is already established. Exploring these considerations when deciding whether to grow an established small business comes with the added challenge of integrating changes required for growth within existing operations.

Marketing

Processors who are expanding a VAD business already have an established market for their products. When considering a change to your business's current product lineup, thought should be given as to whether or not the target market audience would change in response. Changes to your product's target audience could impact both product pricing and promotional strategies, as well as the market outlets utilized. Questions to consider include:

- Do you primarily serve retail or wholesale customers?
- Will your mix of retail and wholesale accounts change?
- What is required to gain access to the new markets you have identified and are hoping to enter?
- How will you get a meeting with the right people to showcase your product?
- What will it take to service those accounts? For instance, will a dedicated salesperson be needed to properly maintain accounts?
- For wholesale accounts, will third-party audit certifications be required, and if so, who will conduct any required audit(s)?
- What do your customers want from your business and product line? Will your product satisfy their wants and needs?
- Where are your customers located and how will you reach them?
- How far from your processing facility are customers located?
- Logistically, what will be needed to deliver your product to them in the right packaging and at the right temperature?
- Will you deliver to the store(s) directly (direct store delivery or DSD), or will you work with a distributor?
- What price will you assign to new products or are price changes required on existing products?

- What will it cost you to produce the product?
- Can you provide the quality and quantity of the product to your customers at a price they will be willing to pay and that will be profitable for your business? (Involvement with wholesalers and retailers means they will take a cut of final revenue.)
- How will the competitive landscape change?
- How do your products and customer service compare to theirs?
- What characteristics does your product have that will make it different or better? For instance, will it have a longer shelf-life, improved taste, or other qualities that will appeal to specific consumer groups?

Operations and Facilities

It can be challenging to forecast the size and scale of equipment and facilities needed for growth. An estimate of future sales volume is needed in order to determine the size of equipment needed to manufacture the quantity of product that the market calls for. Sales forecasting is covered in greater depth later in this publication. In many cases, it is helpful to talk to others who have expanded and ask what they might have done differently. For example, many processors report that the equipment they first purchased was far too small and inefficient to accommodate growth.

It may be possible to remodel or better utilize existing space to accommodate equipment that is needed in an expansion. However, in some instances, the existing footprint of the building and facility does not lend itself to remodeling, and starting over with a new structure may be required. To avoid this consider the following questions as early in your expansion planning as possible.

- Is ample space available for dry storage of the increased inventory of containers and ingredients that will be needed as a result of expansion?
- Do you have the space that will be needed to receive and send deliveries of supplies and products in the quantities that will be needed?
- Do you have the cold storage space that will be needed to store the finished product before it's distributed? **Note:** A lack of cold storage space is one of the most common bottlenecks that new processors face. It is important to give considerable thought to what cold storage space is needed initially and how it will be expanded over time.
- Do you have an area to load vehicles with product efficiently and without allowing products that need to be refrigerated get too warm?
- Is your driveway accessible and in good condition? Is there a place for vehicles to park or dock?
- If you have purchased equipment that gives you greater processing capacity than you are currently using, can your equipment also be used to make products other than just dairy products, such as juices and teas? **Note:** This may be an opportunity to spread the fixed cost of larger scale equipment over more units of production and thereby lower the cost per unit.
- Are existing utilities capable of handling increased use or capacity needs? For instance, will three-phase power be needed in the expansion? Can the existing facility be adapted or modified to provide that?
- Are your loading areas sufficient to accommodate delivery trucks and allow you to receive large quantities of supplies such as packaging, raw milk, and ingredients?
- Where will you get the training needed to operate new equipment that allows you to expand your product offerings or become more efficient?
- Are there companies in your area that are able to fix your equipment and/or have replacement components in stock?

Management and Finance

The ability to manage and afford an expansion are two crucial issues that need to be assessed. Successful business growth requires a plan that all owners and managers agree upon. By taking the time to plan out an expansion, weaknesses in current operations that could endanger success can be identified and dealt with. Strong planning involves accurate bookkeeping, financial planning and budgeting. Consider these managerial and financial questions as you assess your expansion plans:

- Do you have a written business plan?
- Will your expansion fit within the mission, goals and objectives you previously laid out?
- Are business owners, partners and key personnel in agreement with the expansion as you envision it?
- Will your expansion be sustainable given the financial resources, human resources and equipment you have or can reliably expect to acquire?
- Where will you obtain the capital needed to remodel or build a new facility and purchase equipment?
- Will you have the cash flow that will be required to continue operating during the expansion and have you projected when shortfalls may occur?
- Where will you acquire any needed funds to maintain operations if the expansion does not go as planned?

- What will you need to pay yourself to be able to survive and pay your personal bills? **Note:** You might be willing to work for "free" if you are retired, have significant savings or a source of passive income. If not, however, you need to be realistic about what it takes to support yourself and your family and budget accordingly.
- Are there creative ways to reduce costs such as establishing partnerships with other businesses for delivery or working with a co-packer?
- What grants and low-interest loan opportunities are available?

Labor and Organizational Structure

Finding capable employees is a challenge for most businesses. There will be turnover, and you need to consider how you will train employees and who will conduct the training. Adding employees in an expansion is more complicated than training employees during times when the workflow is more predictable. Employees entering your business during an expansion will need more training and instruction. Consider the following to make sure the transition is as smooth as possible.

- How many hours of your time are you willing to devote to the business?
- When demand for your product increases and you need employees to work longer hours, will they be willing and available to work the extra hours?
- Can the business afford to hire a manager and/or an assistant manager if expansion requires it
- Do you have standard operating procedures (SOPs) and an employee handbook with written job descriptions?
- Will there be new job descriptions and SOPs to write? Will these mean increasing the specialization of existing positions or retraining existing staff on new procedures?

Distribution

Distribution can become more efficient as a result of both expansion and increased production quantity. This is due largely to the ability to work with distributors and markets that require greater minimum product quantities. On the other hand, distribution can become a logistical challenge for businesses that self-distribute and increase the number of outlets serviced. Inefficient distribution could jeopardize both product quality and relationships with sales outlets. Determining a strategy for delivering your product to your customers on time and ensuring it arrives consistently in a high-quality condition is essential when you expand.

- Will you or an employee be making the deliveries of your product?
- Will the customer contact you or will you contact the customer when it is time for them to reorder?
- Will you use a distributor to transport and deliver your product?
- How will you train salespeople to make sure that your product is handled and marketed properly?
- If you are making agreements regarding promotions and specials with companies who sell your products, have you carefully considered the details of those agreements and whether you can meet these requirements?
- Who will oversee quality assurance for your products and what standards/procedures will they follow?
- How will you make sure they have the authority and visibility of processes to see that quality is maintained?
- How will you trace batches of product in case of a recall or a batch that goes bad prematurely so that you can contact customers who received the affected product and have them pull it from the shelves?
- What will your credit policy be for product that is returned or that cannot be sold because it no longer meets quality standards?

Regulatory Compliance

Business growth may be accompanied by a need to acquire or additional permits, licenses, or follow additional regulations. It is vital to research these regulatory aspects prior to purchasing new equipment as well as before building or modifying facilities.

- What are the regulatory requirements for your state? How will you meet them?
- If adding new Grade A dairy products, have you read the relevant sections of the Pasteurized Milk Ordinance (PMO)? The PMO addresses Grade A products, so while products such as cheese (Grade B) may not be included, it is the standard used by regulators for all dairy products, making it a valuable resource for processors of any size and making any product because the regulations are so detailed and complete for both farm and processing plant.
- Have you spoken with the regulatory agent who will be working with you about your plans to expand?
- Will you hire a consultant or an engineer to design the expansion to ensure it meets regulations?
- Who will do the construction of the expansion and how will you verify that it is compliant with regulations before construction begins? **Note:** It is very important to make sure before you move any dirt that you have talked to your regulator and that they know what your plans are and that they meet regulatory requirements.

- Do you have a food safety plan and recall plan?
- If you will be shipping fluid milk out of state, who will be responsible for making sure that you are on the Interstate Milk Shippers (IMS) list?
- What are the labeling requirements for your new product? If nutritional information is required on labels, who will perform the analysis?
- Will you be subject to the requirements of the federal milk marketing order region that you are located in?

Analyzing Feasibility and Profitability

Sales forecasting and investment analysis are two tools that can be used to aid in assessing the viability of an expansion of your processing business. A sound sales forecast will provide you with reliable data to use for the investment analysis.

Sales Forecasting

When considering an expansion of your business, you need solid estimates of what you can sell. You may be considering accessing new markets or market channels that you may be less familiar with. For example, if you are currently selling product via direct marketing but want to target new, less familiar customer audiences or channels such as wholesale accounts, sales forecasting may be beneficial to your planning efforts.

Sales forecasting allows you to assign numbers to your market research and will allow you to estimate future revenue. Such forecasts are critically important for developing pro forma financial statements and are integral in investment analysis (which is discussed in the next section)

Sales forecasting also is useful for planning, organizing, implementing and controlling your operating activities. For example, as you expand production and sales, you may need to implement an additional shift or team of employees in your processing facility. Your sales forecasts also may lead you to reconsider delivery logistics and what market channels you will try to access for the most efficient use of your resources. It takes time to determine whether new market channels are feasible.

The process of assigning numbers to your research will enable you to analyze and make a logical decision about whether to pursue each market which will help with matching supply with demand. As you begin to understand the sales that you forecast for different channels and outlets, you can determine whether there is a need to make changes to your processing operations. Perhaps this requires bringing in greater milk supply at certain times of the year so that you can meet higher demand or having a plan about where to shift milk supply if demand is less than your production.

Sound sales forecasting will improve your ability to calculate the potential profitability of an expansion. Your goal with a business is to achieve long-run profitability (while understanding that in the short run it may be less profitable than desired). Having solid sales forecast numbers will allow you to calculate expected profitability and determine whether to proceed with an expansion.

One of the foundations of marketing is determining your customer's wants and needs. A list of several marketing questions that should be considered prior to an expansion were provided earlier in this publication. You must understand customer wants and needs to assess whether new expansion will be driven by wholesale customers or by the need to expand on direct sales. Consider the following questions as you examine the wants and needs of your customer base.

- Who are your target customers?
- Where are these customers? How far will they travel to get to a market outlet or to your location?
- What are their needs and values? That is, what motivates them to purchase certain products?
- What is their ability to pay? For instance, if you want to pursue higher end outlets you need to be aware of the customers' ability to pay premium prices. Are you targeting customers with the ability to withstand economic shocks (such as a recession) and still be able to pay a premium for your product?
- What is their anticipated demand and their purchasing behavior? For example, do your target customers purchase the type of product you sell on a weekly basis or only for special occasions?
- How will you reach customers with marketing and sales messages? Customers need to be aware that your product is available to them.

These questions fit into the four categories of consumer target market research—demographics, geographics, psychographics and behaviors. Understanding your ideal customer allows you to create customer profiles (Note: these are also sometimes called customer "avatars," "personas," etc.). Existing businesses should have profiles for current customers that synthesize customers market research and describe your ideal customer. As you expand into new outlets or channels and identify new audiences, you should create profiles for these new customers. For additional information on developing customer profiles, consult the resources listed at the end of this publication.

Understanding customer values will assist in decisions regarding product placement. When businesses expand, they often need to sell through new market outlets. Therefore, it is necessary to understand the customers who frequent those new outlets. Additional questions to consider for these new customers include:

- What are their values?
- What is going to draw them to your product in an outlet that is new for you but that they already frequent?
- How can you connect with them?

Competing businesses are another important consideration as you expand your business. How will you set your business apart from others selling similar products? Your ability to define the differentiating factors will enable you to communicate with individual customers, wholesalers or distributors as to why they should purchase from you rather than your competitors. Additionally, you also need to assess other competitive aspects such as price, location, accessibility, image, and reputation of those competitors as well as broader issues such as market share, growth pattern, and the target consumer groups of those competitors. This will allow you to identify your niche.

Investment Analysis

Investment analysis is a financial analysis tool that can be used when considering either a business startup or an expansion. Specifically, net present value (NPV) investment analysis can serve as a tool for determining the feasibility of a dairy processing investment by calculating whether the discounted value of all cash flows is positive (e.g. greater than zero).

To understand NPV analysis, let's start with an example. Consider this choice: would you prefer to receive $100 now or in one year? Typically, most people would choose to take the money now with the expectation that in a year they have the potential to have more than $100 (usually achieved through some form of investment).

Now, consider a scenario where you had to choose between $100 now or $110 in one year. Additionally, assume a 6 percent interest rate. Under these circumstances, most people would choose to wait one year and receive $110. The present value of the $110 that will be received in one year is calculated to be $103.40, which is greater than the other option of receiving $100 immediately.

Does the decision change if the interest rate increases to 12 percent? At 12 percent, it is preferable to take the $100 that is being offered now because the present value of $110 ($97.90) is less than the $100 that is being offered. Table 1 shows these examples in table format.

Through this example, we can see that at higher interest rates the preference is to receive money now. The decision depends on the interest rate, which gets to the heart of investment analysis. That is, looking at the present value of a future amount of money.

Interest Rate	Value in 1 year	Present Value
6%	$110	$103.40
12%	$110	$97.90

Table 1. *Present value of $110 one year from now at different interest rates.*

Understanding Net Present Value Investment Analysis

Net present value (NPV) investment analysis is a method for determining the current value of projected cash flows for an investment. If you're considering expanding a value-added dairy business, you likely need to make additional capital investments—for instance, acquiring higher capacity processing equipment.

Often, value-added processing businesses will launch with small equipment due to uncertainty regarding how their business will grow or because of the presence of financial constraints that they must operate within. In the future, some businesses find that they have outgrown the capacity of the equipment they started with and need to invest in larger buildings, higher capacity pasteurizers, etc. With a new investment, it is important to think about the resulting projected cash flows. This is where sales forecasting is helpful because well-researched sales forecasts will allow you to better estimate and understand future cash flows.

Key advantages to net present value (NPV) investment analysis are that this method considers (1) the time value of money and (2) it considers the size of cash flows over the life of the investment—that is, looking at multiple years, not a single point in time. By performing an NPV analysis you will be able to answer the question of whether an investment is profitable (given the assumptions used).

Performing Net Present Value Investment Analysis

Net present value investment analysis is performed by discounting each year's cash flow to the present value and summing. The mathematical equation is:

If the net present value (NPV) is greater than zero, then the investment is profitable.

$$NPV = -INV + \frac{P_1}{1+i} + \frac{P_2}{(1+i)^2} + \ldots + \frac{P_N}{(1+i)^N}$$

Information Requirements

To perform a net present investment analysis, you need four pieces of information:

1. **Initial investment amount (*INV*)**
2. **Net cash flows over the lifetime of the investment (*P*)**
3. **Planning horizon (*N*). How many years you are planning for. This typically aligns with the lifetime of the investment.**
4. **Discount rate (*i*)**

Let's take a closer look at each.

Initial Investment

What is the total expense for the capital resources required to expand the processing business? For instance, facilities (new build or retrofit), additional and/or greater capacity equipment (vats, bottling machine, cheese press, etc.), and additional multi-use supplies (ex. cheese molds).

Net Cash Flows

Map out the anticipated net cash flow over the investment's planning horizon. Net cash flow is the difference between revenue and expenses. This is the point at which your sales forecasts come into play—sales forecasts should allow you to estimate cash revenues. Keep in mind that when performing an NPV analysis non-cash expenses (e.g. depreciation) are not included.

Planning Horizon

The planning horizon is the number of years over which the projected cash flows for the investment will be calculated. One way to determine an investment's planning horizon is to use the useful life of the investment. For example, if a pasteurizer has a useful life of 15 years, you may decide to use 15 years as the planning horizon. Determining an appropriate planning horizon becomes more difficult when the capital resources being invested in have variable useful lifetimes. In this situation, it may be appropriate to use the average lifetime of the most expensive investments under the assumption that less costly items with shorter lifetimes (such as multi-use cheese molds) would not significantly impact the analysis.

Discount Rate

The discount rate is the rate used when calculating the present value of a series of cash flows. The rate may represent an opportunity cost, cost of capital or required rate of return. Factors that influence the discount rate used in NPV analysis include expected and current returns, project/investment risk, inflation rate and type of financing. Each is explained in greater detail below.

Expected and Current Returns

What sort of return do you expect on your investments? If you are currently operating a dairy farm and you are considering expansion into on-farm processing, then you should consider whether the return on assets (ROA) from the expansion would eventually be greater than operating the farm alone. ROA is calculated by dividing net income by total assets (ROA = Net Income / Total Assets). One approach is to look at the current returns of your own dairy farm business. You also may want to look at summary data for the dairy industry as a whole by using the University of Tennessee Institute of Agriculture's Dairy Gauge program or Northeast Dairy Farm Summary. Table 2 shows the ROA from farms that participated in Dairy Gauge and Table 3 shows the return on assets (ROA) for dairies included in the 2022 Northeast Dairy Farm Summary. The 2022 summary included 139 farms from Connecticut, Maine, New Hampshire, New York and Vermont. Previous years' ROA percentages as well as the 3-, 5-, and 10-year averages are shown.

Year	Return on Assets (ROA)
2020	3.7%
2021	1.2%
2022	5.2%
2023	6.4%

Table 2. *Return on Assets for Southeast Dairy Farms: Dairy Gauge Reports 2020-2023, University of Tennessee Institute of Agriculture*

Year	Return on Assets (ROA)
2017	3.7%
2018	1.2%
2019	5.2%
2020	6.4%
2021	3.8%
2022	6.9%
3-year Average	5.7%
5-year Average	4.7%
10-year Average	4.2%

Table 3. *Return on Assets for Northeast Dairy Farms. This data can be accessed here: Northeast Dairy Farm Summary 2022, Farm Credit East, ACA*

Project/Investment Risk

You also will want to assess the risk associated with a project. Study the potential risk that may occur with an expansion to your creamery business. Current consumer demand for local farm products may make an expansion less risky compared to pre-2000 when farm-based creameries were less prevalent. You would also want to consider factors such as the number of competitors in your area. For instance, if there are other dairy farms launching or expanding their own creamery business then there may be greater risk than if there are fewer surrounding farms pursuing the same goals.

Inflation Rate

The inflation rate at the time an investment is being made, as well as the projected rate during the planning horizon is another factor that may influence the choice of discount rate used in NPV analysis. During times of high inflation, it may be wise to use a higher discount rate. Figure 1 shows the annual inflation rate since 1990.

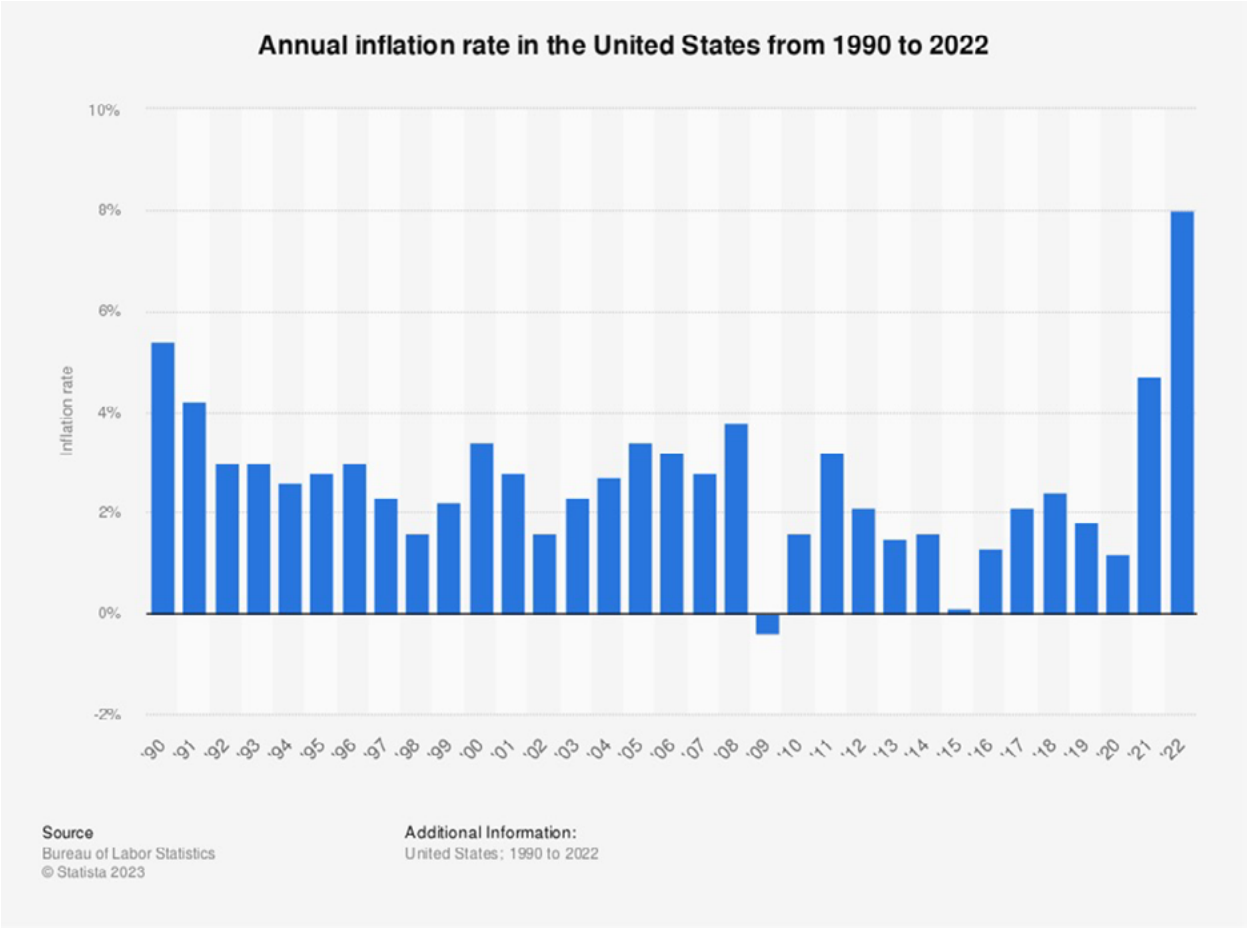

Figure 1. *Annual inflation rate in the United States from 1990 to 2022. This chart can be accessed here: Statista*

Project/Investment Financing

A final influencing factor is how the project is being financed. Are you using equity financing, or do you have cash reserves that you can use to expand the business and make the necessary investments, or will you be going to a bank for a loan? Will you be able to take advantage of existing grant programs? If you will be financing the expansion, you should use a discount rate at least equal to the interest rate of the loan.

Example NPV Investment Analysis

To illustrate how NPV analysis is used for investment decision-making, consider three scenarios each within same initial investment of $200,000.

Figure 2 illustrates the annual cash flows for scenario. Scenario A has cash flows that start at $20,000, and increases annually over a five-year period until reaching $100,000. Scenario B has equal cash flows for all five years at $60,000. Scenario C starts out with a high cash flow in the first year of $100,000, but with each successive year, the cash flow decreases until it is less than $20,000 in Year 5.

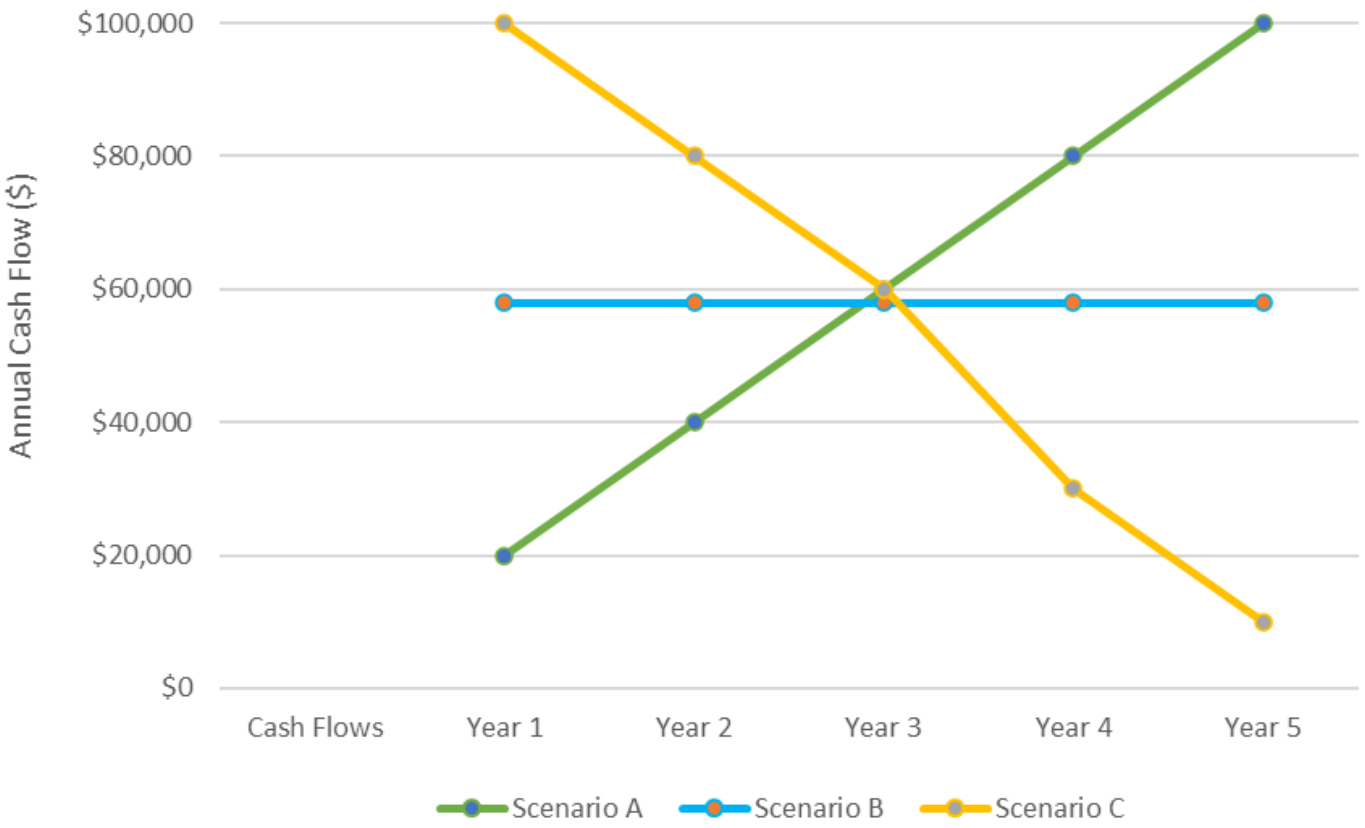

Figure 2. *Annual Cash Flows for Three Scenarios*

Table 4 provides the net present value of each scenario given discount rates of 2 percent, 4 percent and 6 percent.

	Scenario A	**Scenario B**	**Scenario C**
Initial Investment	$200,000	$200,000	$200,000
NVP, i =			
2%	$79,075	$73,381	$68,245
4%	$60,130	$58,206	$57,322
6%	$42,938	$44,317	$47,152

Table 4. *Net present value of three investment scenarios Source: Barry and Ellinger, 2012.*

To show how the net present value of scenario A is calculated, recall the equation given earlier:

$$NPV = -INV + \frac{P_1}{1+i} + \frac{P_2}{(1+i)^2} + \ldots + \frac{P_N}{(1+i)^N}$$

For an interest rate of 6 percent, the calculation is as follows:

$$NPV = -200{,}000 + \frac{20{,}000}{1.06} + \frac{40{,}000}{(1.06)^2} + \frac{60{,}000}{(1.06)^3} + \frac{80{,}000}{(1.06)^4} + \frac{100{,}000}{(1.06)^5}$$

Using conversion factors for 1.06^(-n) from Appendix III in Barry and Ellinger for i=0.06 and n = 1 to 5, we get:

$$NPV = -200{,}000 + 20{,}000(0.9434) + 40{,}000\ (0.8900) + 60{,}000(0.8396) + 80{,}000(0.7921) + 100{,}000(0.7473)$$

$$NPV = 42{,}938$$

Depending on the discount rate used, the most profitable investment changes. At a discount rate of two percent, Scenario A, which had increasing cash flows throughout the life of the investment, is the most profitable because it has the highest net present value ($79,075). However, at the highest discount rate of 6 percent the decision changes and Scenario C is the most profitable because it has the greatest net present value ($47,152).

This example illustrates an important point when performing net present investment analysis—higher discount rates favor investments with greater cash flows in the near future.

Other Analysis Tools

Many other tools are used for financial analysis purposes including budgets, income statements, financial ratios and simple rate-of-return. However, each of those are an assessment of financial status at a moment in time. Net present value assesses an investment over the course of its lifetime and allows you to assess the influence of timing and level of cash flows.

NPV Analysis Spreadsheet Tool

Accompanying this publication is an NPV investment analysis spreadsheet tool designed to assist you in analyzing the profitability of a small-scale dairy foods processing business expansion.

Mistakes to Avoid

Expanding a value-added dairy foods business can be both an exciting and anxious time. No one plans to expand a business with the expectation of failure. Therefore, an awareness of issues that can negatively impact the success of an expansion can be helpful for guarding against failure. These issues include:

- **Failing to plan.** As when starting out, it's important to have a plan that you can look to for guidance during business growth. This plan should include the "why" that is driving you to expand.
- **Not understanding the market.** When your existing business serves mainly your local community it can be easy to stay in touch with your customers' needs. This can become more difficult as your customer base expands. You may not have the same amount of face-to-face customer interaction moving forward. Before expanding, make sure to do the market research necessary to avoid a costly mistake.
- **Growing too fast.** When businesses grow too quickly, cash flow problems may occur. Cash is needed to buy greater quantities of inputs, pay employees and other needs. Until products are sold and cash from sales comes into the business, cash on hand to pay expenses may not be available. Therefore, a detailed plan for ensuring adequate cash flow is required. This may include an operating loan from your lender, for example.
- **Trying to do everything yourself.** Whether it is sales, marketing, HR, accounting, delivery or any other task, as a small business owner you are likely accustomed to doing much of this work yourself. When growing your business, trying to do everything yourself can lead to poor results and owner burnout. Additionally, by trying to do everything yourself, you fail to put into place the necessary systems and processes needed to sustain the business in your absence.

Summary

Dairy foods processing business owners should thoroughly consider a range of issues (marketing, product distribution, regulatory compliance, labor/organizational structure and finance) prior to embarking on a business expansion. Sales forecasting and net present value investment analysis are two useful tools in analyzing the feasibility of expansion. Finally, awareness of mistakes made by other businesses when attempting to grow a business can help avoid making the same mistakes.

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