# You can make it,
# you can sell it,
# but can you "make it" selling it?[1]
by
**Gary Frank**[2]

April 1, 2000

## Introduction

Making and selling dairy products is not for everyone.  Even so, the question more and more people are asking is "Is it for me?"  Before you try to answer that question, I suggest you find the answers to the following questions.

Who or what is your intended market? Are you going to sell directly to the consumer, to stores or shops?

If you plan to sell your products directly to consumers, how many customers do you think will visit your potential retail site each hour, day, or week?

Is your potential retail site convenient for those potential consumers to drive to, park at, and return to their homes?

Which farm-processed products are your intended customers interested in? Cheese (and what types of cheeses), fluid milk, yogurt, etc.

What prices are these customers willing to pay for these products?

At the above prices, what quantities of these products are your customers willing to buy, each hour, day, or week?

If you plan to sell your products through a farmer's market, have you talked to the operators about your plans?

If you plan to sell your products through an existing retail store, have you talked to the owner(s) about putting your products in their store?

The answers to these questions (and others) are needed to fill in the "Sales tab" of the Excel spreadsheet decision aid "FSTMILKP.xls" (FarmSTead MILK Processing) that is the focus of this paper.  This decision aid can be downloaded from the Center for Dairy Profitability's website at: www.wisc.edu/dairy-profit and it is under the heading "Decision Making Tools."

---

[1] Presented April 1, 2000 at the Farmstead Milk Processing conference in Frederick, MD.  The conference was a joint product of the University of Maryland/Maryland Cooperative Extension and the Maryland Department of Agriculture.
[2] Dr. Frank is an agricultural economist in the Center For Dairy Profitability at the University of Wisconsin – Madison.

There are many other questions that need to be answered in the planning process. This decision aid will help you to ask the necessary questions and provide you with an analysis of the answers you receive. The entire spreadsheet should be completed before you seek financing.

When you first download and open the program you will receive the following message.
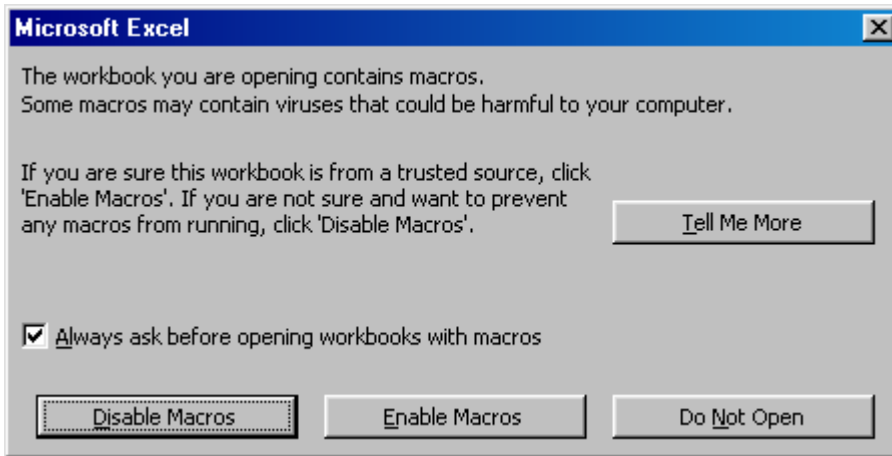


Click on the "Enable Macros" button. The Macros included with this program enable you to print the results, graphs and other objects with the click of your mouse.

**Sales**

**Figure 1**

| | Enter the number of retail sites that you will operate here. |
|---|---|

**Number of Retail Sites** [ ]
Average Days per Year Each Retail Site is Open [ ]

Average Hours per Day Each Retail Site is Open [ ]

Total Advertising Budget [ ]

## Products, Sales and Prices

| | Product 1 | Product 2 | Product 3 |
|---|---|---|---|
| Name | | | |
| Sale Unit | | | |
| Retail Sales per Hour | | | |
| Retail Price | | | |
| | | | |
| Wholesale Sales/ Week | | | |
| Wholesale Price | | | |

Returns - Spoilage [ ] %

| Total Distribution Costs | [ ] |
|---|---|

Enter the number of retail sites that you will operate here.

Also enter the days per year and hours per day you plan to have the retail sites open.

There is room for 3 products sold at retail and 3

products sold wholesale.  Enter the projected sales of each product.  Enter retail sales as the amount you plan to sell **each hour** the retail outlet is open.

Example:  you plan to sell cheese at the farmer's market every Wednesday and Saturday; April through November.  You plan to be at the market from 7 am to 5 pm (10 hours) each day and you think you can sell 30 pounds per hour.  You also plan to wholesale 500 pounds of cheese a week to local stores and shops.  Then your entry on the "Sales tab"  might look like Figure 2.

## Figure 2

| | Product 1 | Product 2 | Product 3 |
|---|---|---|---|
| **Number of Retail Sites** | 1 | | |
| *Average Days per Year Each Retail Site is Open* | 70 | | |
| *Average Hours per Day Each Retail Site is Open* | 10 | | |
| Total Advertising Budget | $200 | | |

### Products, Sales and Prices

| | Product 1 | Product 2 | Product 3 |
|---|---|---|---|
| Name | Cheese | | |
| Sale Unit | pounds | | |
| Retail Sales per Hour | 30 | | |
| Retail Price | $6.00 | | |
| | | | |
| Wholesale Sales/ Week | 500 | | |
| Wholesale Price | $3.50 | | |
| Returns - Spoilage | 3% % | | |
| Total Distribution Costs | $2,000 | | |

Notice there are some other entries here.  They are advertising, distribution and returns.

These are placed here so you make the connection between sales and these costs.

The remainder of the "Sales tab" is Labor and Management Costs.  There is a place for the manger(s) salary and the salary of the office staff.  You can also enter two wage rates.  One for the employees used in processing and another for the individuals used in retail sales.

### Production Process

The second tab is "Production Process."  Here you will need to enter the hours required to setup and cleanup the pasteurizing operation (if any), the processing operation, and the packaging operation.  You will also need production coefficients.

Some of the production coefficients you will need to know are:

1.  mail box price of your milk
2.  pounds of milk required to produce a unit of each product

3. pounds of by-product produced per unit of each product produced
4. sale price of a pound of the by-product
5. cost of starter and other supplies per unit of product produced
6. units of product produced (processed) per hour
7. number of worker required when processing
8. cost of packaging per unit of product produced
9. units of product packaged per hour
10. number of worker required when packaging
11. and some other costs (see Figure 3).

**Figure 3**

## Production Rates:

| Item: | Name Unit | Product 1 Cheese pounds | Product 2 Milk gallons | Product 3 Yogurt 8 oz |
|---|---|---|---|---|
| Pounds of milk processed per hour in the PSH operation | | | | |
| Days per year of processing | | | | |
| Days per year of packaging | | | | |
| Average raw milk price (mailbox) / pound | | | | |
| Pounds of raw milk per unit of product | | | | |
| *Pounds of By-Product / unit of product* | | | | |
| *Name of By-Product* | | | | |
| *Price of By-Product per pound* | | | | |
| Packaging cost per unit of product | | | | |
| Starter and other supplies / unit of product | | | | |
| Units of product processed per hour | | | | |
| Workers required when processing | | | | |
| Units of product packaged per hour | | | | |
| Workers required when packaging | | | | |

| | | | | |
|---|---|---|---|---|
| Repair cost / unit | | | | |
| or | | 3.00% of Investment | | |
| | | whichever is greater | | |

| | | | | |
|---|---|---|---|---|
| Fuel Cost per unit | | | | |
| plus | | per month | | |
| | | to light, heat or cool facilities | | |

## Miscellaneous Costs:

| | | |
|---|---|---|
| Sanitary Clothing Costs | | per processing worker day |
| Insurance - Property | | of investment. |
| Insurance - Liability | | of product sales |
| Phone, Fax and Internet | | per month |
| Miscellaneous | | of product sales |

4

## Capital Investment

There is room for 10 capital items on the "Capital Investment" tab of this program.  Each item can have a different price, salvage value and useful life.  Also, you can enter more than one unit of an item.  Example:  you buy two cheese vats worth $25,000 each.

The ownership costs of the entered investments are calculated using the Capital Recovery Charge (CRC) method and shown on the **profitability** column of "Results" tab.

## Financing

The terms of the loan you will require are entered on the "Capital Investment" tab.  The required entries are the length of the loan in years, the interest rate and the required (or proposed) down payment.  The results of these calculations are used to calculate the ability of your proposed business to **cash flow**.  Sometimes there is a substantial difference between how profitable a business is and its ability to cash flow.

## Results

The results are presented in both tabular and graphic forms.  The tabular form (Figure 4) shows the expense in each category of cost, the total income, both the
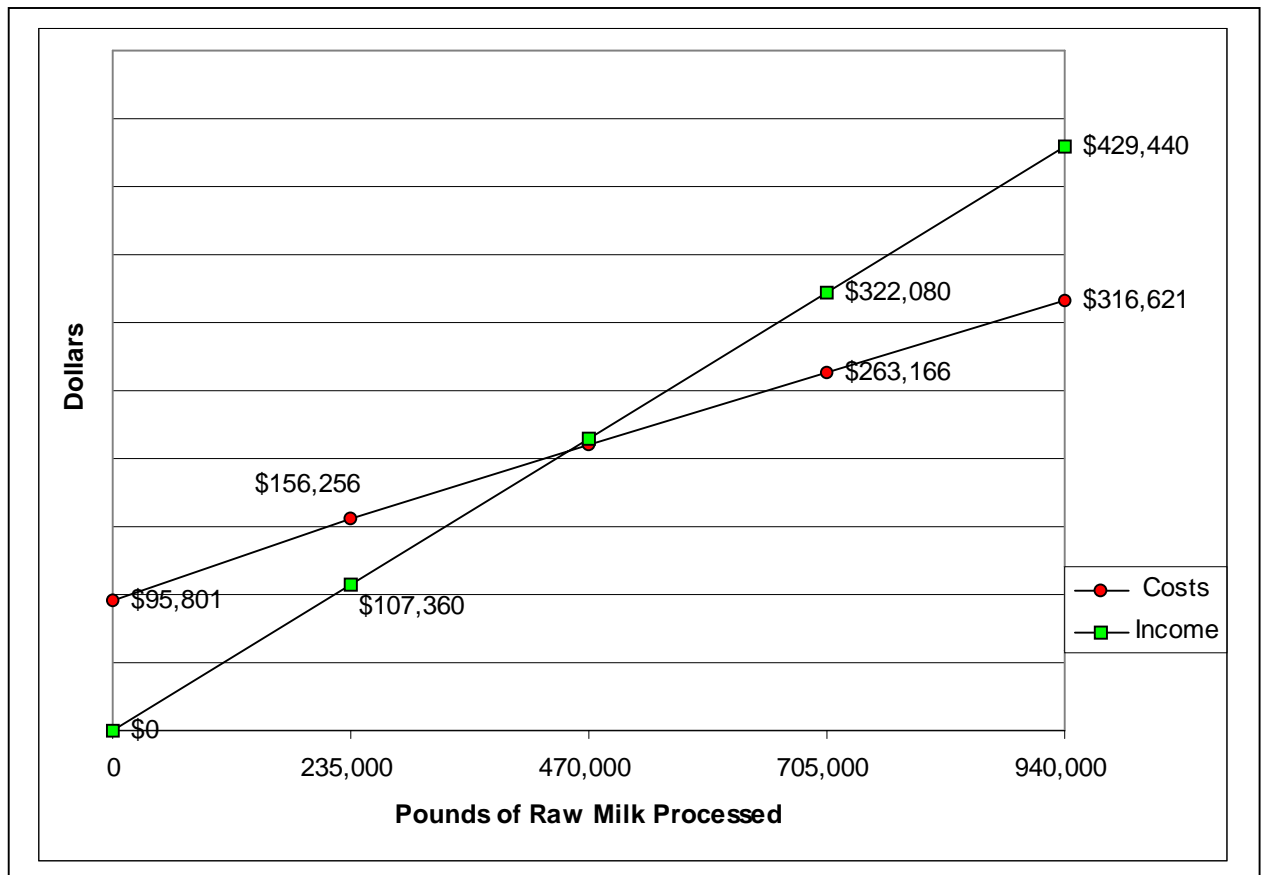
### Figure 4

| Pounds of Raw Milk Processed | Ownership & Operating Costs | | |
|---|---|---|---|
| | Item | Profit | Cash Flow |
| **470,000** | Management | $50,000 | $50,000 |
| | Labor | $45,712 | $45,712 |
| | Raw product costs | $68,150 | $68,150 |
| | Fuel | $3,550 | $3,550 |
| | Repairs | $4,500 | $4,500 |
| | Supplies | $10,688 | $10,688 |
| | Packaging | $2,350 | $2,350 |
| | Advertising and Distribution Costs | $2,000 | $2,000 |
| | Interest | $10,191 | Loan |
| | Depreciation | $8,063 | $26,044  Payment |
| | Phone, Insurance, Miscellaneous | $4,508 | $4,508 |
| | **Total** | $209,711 | $217,501 |
| | Product Sales Income | $210,490 | |
| | By-Product Sales Income | $4,230 | **Total Income**     **$214,720** |
| | Return above All Costs (Profits from ownership) | **$5,009** | <--------$$$ |
| | ROROA | 10.13% | |
| | Net Cash | | -$2,781 |

profitability and cash flow results, plus the Rate of Return on Assets (ROROA).  Figure 4 is for the example used earlier in the paper.  It should not be used as

typical result. In fact, **there are no typical results**. Every business opportunity is different and each one has to be analyzed on its own.  That is the reason the spreadsheet decision aid was developed.

The graph (Figure 5) shows the total income and total expenses (from the profitability column) at the current production level, no production, one-half the current production, 50 percent more than the current production and at twice the current production.   It assumes no increase in fixed costs.

**Figure 5**



## Sensitivity and Break Even

The graph above shows some sensitivity and break-even information.  However constructing sensitivity and break-even tables can provide a lot of information quickly.  Figure 6 shows the sensitivity and break-even results as labor rates or efficiencies change and as the price of raw milk changes.  In addition, the program calculates sensitivity and break-even results on 3 other items; the cost of all inputs in addition to labor and raw milk, the amount of investment required and the prices received for the products sold.

In this example when the labor cost **increases** 20 percent, the Net Cash decreases from -$2,781 (the amount in the original analysis) to -$21,924, the pounds of raw milk that must be processed in order to break-even (on your cash flow) increases to 565,577 pounds from the current 482,125. If the cost of labor **decreases** 10 percent this business Proforma will have a positive cash flow of $6,790.

**Figure 6**

## Sensitivity and Break-Even Analysis

### As Labor Rates or Efficiencies Change

Raw Milk Processed

|  |  | Net Cash | Breakeven #'s | Profit | ROROA |
|---|---|---|---|---|---|
| Costs Increase | 20% | -$21,924 | 565,577 | -$14,134 | -2.63% |
| Costs Increase | 10% | -$12,352 | 523,851 | -$4,562 | 3.75% |
| No Change |  | -$2,781 | 482,125 | $5,009 | 10.13% |
| Costs Decrease | 10% | $6,790 | 440,399 | $14,580 | 16.51% |
| Costs Decrease | 20% | $16,361 | 398,673 | $24,151 | 22.89% |

### As Cost of the Raw Milk Changes

|  |  | Net Cash | Breakeven #'s | Profit | ROROA |
|---|---|---|---|---|---|
| Costs Increase | 20% | -$16,411 | 541,545 | -$8,621 | 1.05% |
| Costs Increase | 10% | -$9,596 | 511,835 | -$1,806 | 5.59% |
|  |  | -$2,781 | 482,125 | $5,009 | 10.13% |
| Costs Decrease | 10% | $4,034 | 452,415 | $11,824 | 14.68% |
| Costs Decrease | 20% | $10,849 | 422,705 | $18,639 | 19.22% |

The original profit of this proposed business venture was $5,009. That increases to $24,151 if labor costs decrease 20 percent. Also the Rate of Return on Assets (ROROA) will increase to 22.89 percent, if labor cost decrease 20 percent.

The mail box price you are receiving for your raw milk has almost the same effect on your cash flow and profits as does the cost of labor. A 20 percent increase in your mail box price will reduce your profits from this business venture to -$8,621.

### Conclusions

Every proposed business venture is unique.

You, as the CEO of this proposed business, are required to gather as much information as you can about your specific plan. Once you have gathered the information you need to analyze it. The program (FSTMILKP.xls) demonstrated here is one way to do that. There are undoubtedly others. The success or failure of your business venture will not be determined by the method you use to

analyze it.  It will be determined by how thoroughly you research the business opportunity and how intensively you analyze it.  And some luck.

In business there are no guarantees.

## Other Thoughts

Below is a list of some additional information and suggestions that you may or may not have talked about at other sessions.

1. Contact a food technologist who will guide you in the processing and the production of milk products.

2. Have a good knowledge of the regulations; contact the Health Department or the Department of Agriculture regarding the installation of the processing equipment.

3. Contact a construction engineer who will plan the structure including electricity, water and sewage.

4. Work with a financial advisor, who will help you prepare a business plan, including sensitivity and break-even analysis.

**Some food safety and other concerns:**

Plan for pasteurized-milk cheese production

Completely separate milk production and processing facilities - an
Air lock between the milk house and processing plant is recommended

Prep room for changing clothing and footwear

Positive pressure in processing facility, to keep out airborne contaminants

Air intake for processing facility upwind (usually west) of the production facility

Separate raw and finished product areas of the processing facility

Separate raw and pasteurized utensils and cleanup equipment

If producing cheese or other whey producing product, do not feed the whey close to the cheese plant or risk a dead vat due to starter failure

Plan for wastewater disposal