Governor's Task Force on the Sustainability of the Dairy Industry in Maine

Final Report and Recommendations

November 18, 2003

Table of Contents

Governor's Task Force on the Sustainability of the Dairy Industry in Maine

In April 2003, Governor John Baldacci signed an Executive Order creating the Task Force on the Sustainability of the Dairy Industry in Maine, hereafter referred to as the Task Force. The Executive Order was drafted in response to declining milk prices that jeopardized the economic and social well-being of farmers and their communities. In signing the Order, the Governor recognized the critical need to develop short and long term strategies to sustain Maine's dairy industry and its supporting infrastructure.

The Executive Order called upon the Task Force to undertake a collaborative process to develop policy recommendations intended to support and enhance the dairy industry. More specifically, the Order directed the Task Force to:

- Examine the circumstances that have contributed to the current problems confronting the dairy industry.
- Formulate a wide range of strategies to assist dairy farmers to remain competitive, diversify, or leave farming with minimum erosion of the state's agricultural base.
- Consider techniques most appropriate for farmers including cost reduction strategies, crop diversification, value-added enterprises, and market development.
- Consider techniques most appropriate to supporting farmers through technical assistance, financial assistance, milk price legislation, and state policies.
- Consider strategies to maintain the agricultural base of existing dairy farms as a working landscape.
- Consider ways to maintain an adequate agricultural infrastructure.
- Make recommendations on how best to support the existing and future needs of dairy farmers, and ways to reduce the vulnerability of the industry to economic forces from within and outside Maine.

The Task Force was comprised of individuals representing a broad array of agricultural and economic interests. The President of the Senate appointed one Senator from the Joint Standing Committee on Agriculture, the Speaker of the House appointed one Representative from the Joint Standing Committee on Taxation, and Republican leaders in the House and Senate each appointed one member without regard to committee. All other members were appointed by Governor Baldacci.

Task Force Members

Fred Hutchinson, Chair
Former President
University of Maine

Gary Anderson
University of Maine
Cooperative Extension

Thomas A. Brigham
Oakhurst Dairy

Sen. Bruce Bryant
Maine State Senate

Ralph Caldwell
Dairy Farmer

Dale Cole
Maine Dairy Industry Assoc.

Timothy J. Dalton
University of Maine

Dana Edwards
Graves Supermarkets

Travis Fogler
Dairy Farmer

Gary Hammond
Hammond Tractor

Russell Libby
Maine Organic Farmers & Gardeners Assoc.

Raymond Nowak
Farm Credit of Maine

Rep. Joseph Perry
Maine House of Representatives

Rep. John Piotti
Maine Farms Project

Evan Richert
Muskie School of Public Policy

Charles Spies
Finance Authority of Maine

Lauchlin Titus
Maine Vegetable and Small Fruit Growers Assoc.

David Wadsworth
Agway/FCI

Peter Waterman
Dairy Farmer

Sen. Carol Weston
Maine State Senate

The Task Force members had thirteen, day-long meetings during which they heard from experts discussing a variety of topics ranging from milk pricing and milk processing to the agricultural infrastructure and property tax issues. Complete meeting minutes are available through the Maine Department of Agriculture, Food, and Rural Resources

Introduction

The Maine dairy industry is of extraordinary value to the people of the state. It serves as a cornerstone of the state's agricultural economy and helps to maintain the infrastructure upon which all Maine farms depend. Its existence maintains the working, rural landscape that residents and tourists have come to expect. Collectively, Maine dairy farmers manage 150,000 acres of land, nearly a quarter of which is cropland. Much of this acreage is routinely used for recreational activities including hiking, biking, cross country skiing, snowmobiling, and hunting.

Today, the industry is facing unprecedented challenges. The number of dairy farms in the state has dropped dramatically and, without strategies to intervene, the trend is likely to continue. The state is rapidly losing its agricultural land base as outgoing dairy farms are replaced by housing developments. Maine dairy farmers are aging, and a significant number are approaching retirement. The price of milk paid to the farmer is at its lowest point in recent years and now equals prices paid in the late seventies. Maine producers face higher production costs than their counterparts in other regions of the country, including the West, where subsidies for water and electricity give dairy farmers a competitive advantage.

Despite all of this, there is a future for the state's dairy industry, one that will supply milk for the people of Maine and New England for decades to come. There are opportunities for dairy farmers to become more profitable under current market conditions, and options for adapting to new markets. There are strategies to stabilize the price Maine farmers receive for their product. There is a window of opportunity to make an investment in Maine dairy farms.

Industry Overview

The dairy industry is important to the Maine economy, providing roughly 100 million dollars of farm gate sales each year. This revenue moves into the local economy through purchases that support various aspects of the agricultural infrastructure such as equipment dealers, feed dealers, veterinarians, fertilizer dealers and the like. A large portion of the 100 million dollars enters the economy through payroll dollars used to purchase goods and services.

There are currently three primary milk processors in Maine: Oakhurst Dairy and HP Hood in Portland, and Garelick Farms in Bangor. Smaller processors such as Houlton Farms Dairy also operate within the state. Since Maine dairy farmers must pay the cost of trucking their raw product to the processor, these in-state markets are critical. The existence of Maine processors is important to Maine consumers as well, in that they ensure the state's small, independent retailers have access to fresh milk products at a reasonable cost. Roughly fifty of the state's dairy farmers produce milk for the organic market, and others process it on the farm for fluid consumption or as value-added products such as cheese and butter.

The Maine Department of Agriculture reports that, as of September 2003, there are 398 dairy farms in the state, down from 655 in 1989 and 1,100 just twenty years ago, It is estimated that ninety eight of these will exit the industry within five years due to operator retirement. The existing 398 farms vary in size, management style, production cost, market strategy, and profitability. They include part-time operations relying heavily on off-farm income, and larger, full-time operations often supporting multiple families.

Despite the drop in farm numbers, Maine's total milk production has remained fairly stable, rising from 568 million pounds in 1989 to a peak of 685 million pounds in 1999, and dropping back to 650 million pounds in 2002. Data for the first three quarters of 2003 indicates that production has further declined by nearly 24 million pounds. It is important to note that twenty percent of Maine dairy farms account for 67% of the state's total milk production, while the remaining eighty percent produce 33% of the total .

The loss of Maine dairy farms has, not surprisingly, eroded the state's agricultural land base. In 1997, Maine had 1.2 million acres of farmland, 534,000 of which were cropland, representing a decline of more than 50% since 1964 (U.S. Department of Agriculture). According to the State Planning Office, Maine converted nearly 35,000 rural acres per year to development during the period between 1992 and 1997. This rate is four times that of the previous decade. Development pressure continues to threaten farmland as more in-state and out-of-state residents seek a rural lifestyle, and more farmers sell their land to the highest bidder. While the greatest pressure is felt in southern Maine, no area is immune to development and the landscape of many farming communities is rapidly changing.

The Current Crisis

The Maine dairy industry has been operating under highly volatile milk prices since 2001. While one would expect prices to fluctuate to some extent, the volatility is greater now than it has ever been. In January 2001, the Northeast Federal Order blend price at Boston was slightly less than $14.00 per hundredweight (cwt). Thanks in part to the Northeast Dairy Compact, the price rose steadily to a peak of nearly $17.76/cwt in September of that year. When the Compact expired in October 2001, prices dropped precipitantly until reaching a low of $11.43/ cwt in March 2003.

There are several theories as to why milk prices have been so volatile in the last three years. As with any product, the controlling factors are supply and demand. Nationally, during most of 2002, increased production levels and decreased consumption led prices to fall drastically. Much of the increased production came from the leading dairy states of California, Wisconsin, New York, Pennsylvania, and Minnesota. The decrease in consumption has been attributed to fallout from the September 11, 2001 attacks and an increasing number of beverage choices available to consumers. Because the base price of dairy products is used to calculate the blend price paid to Maine producers, the state is greatly impacted by these national shifts. According to Bob Wellington, Economist for the Agri-Mark Dairy Cooperative, a 2-3% drop in consumption of dairy products nationwide can lead to as much as a 30% drop in milk prices paid to Maine farmers.

With milk prices well below the cost of production, over 100 Maine dairy farms have left the industry in the past three years. In some cases, these farms had been in the family for generations. For some, the accumulation of debt led them to sell their land to the highest bidder. In certain areas of the state where development pressures are the greatest, the loss of farms has transformed agricultural land into housing developments.

The reduction in farm numbers has already had an impact on the state's agricultural infrastructure. For example, in southern Maine, the loss of dairy operations has directly resulted in a shortage of bovine veterinarians. With fewer farms spread across a wider geographic area, veterinarians have dropped bovine medicine because it financially drains their practices. Maine's three feed mills are also feeling the impact of fewer dairy farms. All three are currently operating below capacity. If the number of dairy farms continues to decline, the future of the mills is in question, and their possible closure would make feed more difficult to purchase for other livestock and equine operations in Maine.

Factors Impacting Profitability

Production Costs

A key determinant of a farm's profitability is its cost of production. This cost varies widely depending upon a number of elements including farm size, management efficiency, and the availability of cropland to produce high quality feed. The cost of producing milk is determined by analyzing annual operating and overhead expenses as well as depreciation and interest expenses. Operating expenses include labor, purchased feed, livestock expenses, equipment maintenance, and working capital interest. Overhead expenses are those costs attributed to the overall farm operation such as property taxes, utility costs, and insurance. Annual depreciation and interest expenses are applied to land, buildings, machinery, and livestock.

In May of this year, the Maine Agricultural and Forest Experiment Station released *The Cost of Producing Milk in Maine: Results from the 2002 Dairy Cost of Production Survey* (Dalton & Bragg). The report (Appendix B) presents cost of production estimates for Maine dairy farmers based upon their responses to the 2002 Cost of Production Survey implemented by the University of Maine and the Maine Milk Commission. According to the report, the average long run cost of producing milk in Maine is $22.81 per one hundred pounds of milk. When depreciation and interest are omitted, average short run cost of production is $16.85/cwt. When revenue from livestock and crop sales are added to milk income, the long and short run breakeven prices are $21.77 and $15.81 respectively.

Short Run Cost of Production	milk revenue minus operating & overhead expenses	$16.85/cwt
Long Run Cost of Production	milk revenue minus operating expenses, overhead expenses, interest, and depreciation)	$22.81/cwt
Short Run Breakeven Price	milk, livestock, & crop revenue minus operating & overhead expenses	$15.81/cwt
Long Run Breakeven Price	milk, livestock, & crop revenue minus operating expenses, overhead expenses, interest, and depreciation	$21.77/cwt

Source: Dalton and Bragg, 2003

When looking at production cost relative to herd size, both short and long run costs generally decrease as herd size increases. The cost of production for Maine dairy farmers is higher than that of operators in the rest of the Northeast or the Northeast Crescent region (Northeast plus Michigan, Wisconsin, and portions of Pennsylvania, Maryland, Minnesota, and Ohio). Much of this additional production expense can be attributed to energy costs, property taxes, and repair expenses. Given today's milk prices, Maine dairy farmers' short run costs are outpacing their income by a significant margin.

Milk Pricing

The price that Maine farmers receive for their milk is based upon a complicated formula over which they have virtually no control. All milk pricing begins with the national supply and demand of milk and dairy products, and prices are determined according to Federal Orders. Maine is one of only three states that is not in a Federal Order, but Maine's three largest milk processors fall under the price structure and regulations of the Northeast Order.

The determination of Federal Order milk prices begins with the price of cheese, butter, non-fat dry milk, and whey as determined by the USDA-National Agricultural Statistics Service (USDA-NASS). Using these cost figures, milk is then priced in the following four classes according to its use:

- Class IV: (butter and dry milk powder)
  Price = USDA-NASS butter price + non-fat dry milk price
- Class III: (cheese)
  Price = USDA-NASS cheese price + dry whey price.
- Class II: (soft manufactured products i.e. yogurt, ice cream)
  Price = Class IV price + $0.70/cwt
- Class I: (fluid milk)
  Price = the higher of Class III or Class IV price + applicable zone differential @Suffolk County, MA (currently $3.25/cwt)

Once the class prices are set, the Federal Order establishes the producer blend price by calculating a weighted average by class usage. This blend price forms the basis of the price per hundredweight paid to Maine dairy farmers. As was mentioned earlier, Maine has no control over the Federal Order or the way in which it sets the blend price. However, Maine farmers have historically been paid producer premiums that increase the total price per hundredweight they receive for their milk. The Maine Milk Commission, a five member consumer board, has the regulatory authority to determine and distribute these premiums.

Each month, the Maine Milk Commission meets to set minimum wholesale, retail, and producer milk prices. They also determine producer premiums to be paid to Maine dairy farmers above and beyond the Northeast Federal Order blend price The two primary mechanisms through which this occurs are the Class I premium and the Maine Milk Pool. The Class I premium is calculated by multiplying the percentage of Class I milk produced, processed, and sold in Maine times the premium amount set by the Commission. For example, if the Commission sets the premium at $0.80/cwt and 51.5% of milk is produced, processed, and sold in Maine, the Class I premium paid to Maine dairy farmers would be $0.412 per hundredweight ($0.80 x 51.4%).

The Maine Milk Pool was established in 1983 as a means of equalizing payments between producers shipping to different markets. Funds in the pool are generated through a premium, set by the Maine Milk Commission, levied on dairy processors in the state. The funds are then distributed to Maine dairy farmers as a premium added to the producer blend price.

Recent History of Price Supports

While the Class I premium and Maine Milk Pool revenue have brought the price paid to farmers in closer alignment with the cost of production, they alone have not been sufficient to keep Maine dairy farms profitable in the long term. In 1991, Maine established the Dairy Farm Stabilization Act (36 MRSA 4541-4546) which provided payments to dairy farmers by imposing a tax on all sales of packaged fluid milk in the state. The tax was paid directly to the Maine Milk Commission which in turn distributed the funds to dairy producers. The US Court of Appeals found the Act in violation of the Commerce Clause because it linked a tax directly with farmer payments. Consequently, the Act was repealed in 1995.

Maine enacted a Milk Handling Tax (36 MRSA 4771-4773) in 1995 as a replacement for the Dairy Farm Stabilization Act. The revenue generated from this tax was deposited into the state's General Fund, and the

legislature then appropriated funds to the Maine Milk Commission for distribution. The Northeast Dairy Compact was established at the federal level in 1996 in an effort to better regulate the prices that New England dairy farmers were paid for their milk. Because of the Compact, Maine's Milk Handling Tax was no longer necessary and was repealed in 1997.

Despite heavy lobbying by Northeast dairy producers, the Compact was not renewed by Congress and ceased to exist on October 1, 2001. It was replaced by the Milk Income Loss Contract (MILC) which was part of the 2002 Farm Bill. This program pays farmers a premium equal to 45% of the difference between the Class I price and $16.94. For example, if the Class I price is $13.00/cwt, the MILC payment is 45% of $3.94 or $1.77/cwt. The MILC program has an annual production cap of 2.4 million pounds per year per farm. Farms exceeding this cap will not receive payments until the following year. In 2002-2003, over 165 million pounds of milk produced in Maine fell above the cap and was ineligible for the premium. The MILC program is slated to discontinue in 2005.

Seeking Solutions

The loss of the Northeast Dairy Compact and pending discontinuation of the MILC program has shifted the primary responsibility for stabilizing the dairy industry to the state. The Maine Dairy Industry Association sponsored two bills in January 2003, drafted in response to this reality. The first, LD 338, would have created a Dairy Stabilization Program that paid farmers the difference between $17.00/cwt and the blend price. The second, LD 345, would have placed a handling tax on each gallon of milk sold in Maine. Although the bills had legislative support, they were tabled pending the report issued by the Governor's Task Force on the Sustainability of the Dairy Industry in Maine.

In response to the growing crisis within the dairy industry, Governor Baldacci put forth a plan in March 2003 to provide emergency relief to Maine dairy farmers (Appendix A). Under the guidelines of the legislation, all farmers producing milk in Maine, regardless of production total, received payments on a per hundredweight basis. The payment was $1.50/cwt in April; $1.30/cwt in May and June; and $1.10/cwt in July, August, and September.

The Governor and Maine Legislature approved a temporary dairy stabilization program beginning September 1, 2003 and ending December 31, 2003. The program is designed to provide relief to Maine dairy farmers when the price of Class I milk at Boston drops below $16.94/cwt. Under the bill, the Maine Milk Commission distributes to dairy producers on a per hundredweight basis, 55% of the difference between $16.94/cwt and the price of Class I milk. The program will provide only a short-term remedy for a long-term problem.

Recognizing the need for long-term solutions, Governor Baldacci signed an Executive Order creating the Task Force on the Sustainability of the Dairy Industry in Maine (Appendix A). He directed the Task Force to examine the circumstances contributing to the current dairy crisis and formulate a wide range of strategies to assist dairy farmers to remain competitive, diversify, or transition with minimum erosion of the state's agricultural base.

The Task Force met thirteen times from May to November, 2003. During these day-long sessions, members solicited input from a broad array of individuals with expertise in dairy production, milk pricing, milk processing, the state's agricultural infrastructure, legislative issues, and existing programs designed to support Maine farmers The Task Force then considered strategies to improve the stability of individual farms and those necessary to ensure the long term sustainability of the industry and its supporting infrastructure. With that in mind, the Task Force established the following five goals:

Goal One: **To maintain or increase the number of Maine dairy farms and the agricultural infrastructure that supports them.**

Goal Two: **To improve the cost competitiveness of the Maine dairy industry.**

Goal Three: **To maintain or increase the diversity of Maine's dairy industry.**

Goal Four: **To modify and develop state policies that support dairy farmers and recognize their contribution to the economy and landscape of Maine**

Goal Five: **To create price support mechanisms through which the State of Maine can insulate dairy farmers from the volatility of the milk market.**

No single goal holds the answer to the crisis facing the Maine dairy industry. Goals one through three propose strategies for farmers to increase effeciency, decrease production costs, and develop sound business plans. Goals four and five call upon the Governor and the people of Maine to support the dairy industry by implementing fiscal policies to stabilize the market and lessen the burden of state taxes. Taken in their entirety, the goals will provide stability to the dairy industry while efforts to improve the Federal Order pricing system continue on the regional and federal level.

Goal One: To maintain or increase the number of Maine dairy farms and the agricultural infrastructure that supports them.

The number of Maine dairy farms has decreased substantially in recent years as operators have retired or left the industry for other reasons. The ability of the industry to thrive well into the future depends upon decisions being made today. Making these decisions wisely requires thorough research and planning on an individual farm and industry-wide basis.

Recommendation 1: Recognize the economic importance of Maine's dairy industry.

The dairy industry is vital to the Maine economy, providing nearly 100 million dollars of farm gate sales each year. Its non-economic benefits, such as the open space it provides for tourists and recreational activities, are equally as important. The economic importance of the Maine dairy industry should be quantified and documented much like the study recently completed for the potato industry (*A Study of the Maine Potato Industry: Its Economic Impact 2003*). Secondary industries that rely on a strong dairy sector for their success should also be analyzed. In addition, the report should address the dairy industry's non-economic benefits to the state including open space, access for hunting and other recreational activities, and the scenic character important for tourism. The Maine Dairy Industry Association has taken the initial steps of such a study, and their efforts should be continued in collaboration with the Maine Department of Agriculture.

Recommendation 2: Assess the current status of Maine dairy farms.

Before the state can adequately develop programs to maintain and grow the dairy industry, it must thoroughly assess its current status. The Maine Department of Agriculture has incomplete data regarding farm size, operator age, management strategies, marketing, value-added products, diversification, retirement and/or farm transfer plans and the like. The USDA National Agricultural Statistics Survey (NASS) currently collects much of this data through its annual survey of the nation's dairy farms. By asking several additional questions of Maine dairy producers, the Maine Department of Agriculture could gain critical insight into the health of the overall industry. Information available through other sources such as the University of Maine Cooperative Extension, Farm Service Agency, Maine Farm Credit, and industry associations could also prove useful in this effort.

Recommendation 3: Encourage dairy producers to consider estate planning and generational transfer of farm assets.

Maine dairy farmers are aging, with the average operator now 53 years old. It is estimated that ninety eight of the state's existing dairy farms will exit the industry within five years due to operator retirement. The state has just a small window of opportunity to intervene and prevent these farms from disappearing. The University of Maine offers introductory programs designed to help farmers prepare the materials and information needed to effectively utilize the estate planning services of banks and other providers including Farm Credit of Maine. More needs to be done to make dairy farmers aware of available estate planning services and to encourage those service providers to tailor programs specifically to the needs of the agricultural industry.

Recommendation 4: Encourage participation in the Farm Link program as a means of matching prospective farm sellers with prospective buyers.

Many farmers who will soon retire have neither a family nor non-family member interested in or able to take over the operation. Similarly, there are individuals interested in dairy farming who have no mechanism through which to find or purchase a farm that suits their needs. Maine's Farm Link program can bring together these prospective sellers with prospective buyers. Through this program, dairy operators approaching retirement can receive guidance in planning for the transfer of their farm, and prospective buyers can receive assistance with developing a sound business plan and securing necessary funding.

Recommendation 5: Prepare future generations of Maine dairy farmers by encouraging young people to seek higher education and other training opportunities.

Dairy farming is much more than a way of life. It is a business that requires strong skills in production, marketing, management, and finance. In years past, Future Farmers of America (FFA) and 4-H clubs provided an opportunity for young people to learn about the dairy industry, acquire valuable skills, network with others, obtain assistance in accessing higher education and other training programs, and build equity to ready themselves to purchase a farm in the future. FFA clubs have all but disappeared in Maine, but there are still young adults seeking guidance in preparing for dairy careers. These individuals need help in connecting with existing educational programs both inside and outside the state. For example, the University of Maine offers degrees in animal science, ag economics, and sustainable agriculture to name a few. Similar degrees are available through public and private universities throughout the country. Non-degree programs sponsored by Cooperative Extension, the Maine Department of Agriculture, and industry groups are also a valuable resource. Maine's farm families and high schools should be made aware of these educational opportunities.

Goal Two: To improve the cost competitiveness of the Maine dairy industry.

The ability of Maine dairy farms to remain cost competitive is determined in large part by their ability to adapt to industry changes and their willingness to implement innovative production or marketing strategies. Their counterparts across the country continue to increase their efficiency and competitiveness by improving feed quality, maximizing milk production, and increasing the number of cows managed per person. If Maine farmers are to compete, they must have access to current research as well as funding to invest in their farm operations.

Recommendation 6: Create the Dairy Management Improvement Fund as a long term loan for dairy producers seeking to improve their farm operation.

In evaluating the costs on a dairy farm, the three largest costs are labor, feed, and debt service. While labor and the ability to service debt are influenced by management practices, feed costs are influenced the most. Strategies to improve the amount and quality of feed produced on the farm can greatly reduce the need for purchased feed, thereby making the operation more cost competitive. The proposed Dairy Management improvement Fund (DMIF), modeled after the very successful Potato Marketing Improvement Fund, would focus on forage and feed related needs. Applicants would qualify based on the need for improvements to their forage production and storage capabilities, and the Finance Authority of Maine (FAME) would administer the application and loan process. The DMIF would provide 45% of the project's cost, a lender 45%, and the farmer the remaining 10%. The DMIF portion would come from a revolving fund initially established through a state bond issue.

Recommendation 7: ***Provide cost-sharing for pasture and forage improvement.***

Crop rotation that involves alternating row crop production and a sod forming forage crop is beneficial to Maine dairy farms and the environment. Improving the quality of forage crops can significantly reduce the cost of purchased feed. Unfortunately, the cost to implement pasture and forage improvement strategies is high and often not justifiable in the short term. Cost share programs once funded by the Natural Resources Conservation Service (NRCS) have been eliminated, and many farms are unable to make that investment on their own. Every effort should be made to see that these once successful NRCS programs are reinstituted.

Recommendation 8: ***Utilize the University of Maine Ag Center as a clearinghouse for dairy farm management information.***

The University of Maine Ag Center is a joint effort of the Maine Agricultural and Forest Experiment Station and the University of Maine Cooperative Extension. Center staff have expertise in dairy and livestock management, forage crop production, nutrient management, soils, weed control, pesticides, and ag economics. The Center responds to individual requests and commodity issues, and it is able to link farmers with resources in Maine and around the world. Dairy producers and the agribusinesses with whom they work should be made more aware of the Ag Center through an ongoing publicity efforts.

Recommendation 9: ***Publicize and continue to support programs designed to help Maine dairy farmers develop sound business plans.***

If Maine dairy farms are to become more cost competitive, they must decrease production costs and increase revenue. This is difficult to achieve without sound business and management plans based upon the latest production research as well as current and future market conditions. Maine dairy farmers presently have access to several sources of business planning assistance. As was mentioned above, the Center for Ag at the University of Maine can provide the current production and market research needed to create a business plan. The Farm Service Agency, Farm Credit of Maine, Cooperative Extension, the Maine Department of Agriculture's Ag Marketing Loan Fund, and Maine's Small Business Centers can provide assistance with business planning. Programs offered by Cornell University and the Dairy Herd Improvement Association enable farmers to monitor their cost of production and efficiency on a continual basis. The Farms for the Future program provides selected farms with substantive, team-based business planning assistance. Dairy farms account for approximately 20-25% of farms enrolled in the program, and those that complete the planning are then eligible for up to $25,000 in grant funds to implement a change in farm operation.

Goal Three: To maintain or increase the diversity of Maine's dairy industry.

In the past several years, Maine farmers have used a multitude of diversification strategies to add income and value to their conventional dairy operations. There are those who have altered their production or marketing strategies, those who are selling value-added products, and others who have stopped milking cows and transitioned into another form of agriculture. Their experience has shown that, on an individual farm basis, diversification can breathe new life into a dairy operation. Maine should continue to support diversification but recognize that it alone will not sustain the dairy industry in the long term.

Recommendation 10: Support the value-added processing efforts of Maine dairy farmers.

Value-added products have the potential to generate income for individual Maine dairy farmers. Unfortunately, the process of moving a value-added product from idea to production and distribution can be difficult. Maine can simplify the process by providing research and technical assistance to dairy producers seeking to develop value-added products. This can be done through the University of Maine, the Maine Department of Agriculture, and existing state programs for entrepreneurs and small business development. In addition, the state should identify the regulatory barriers faced by innovative dairy farmers and make policy changes to remove them.

Recommendation 11: Promote farm asset management as a diversification strategy.

Nearly all Maine dairy producers rely on fluid milk as their primary source of income. Opportunities exist, however, for farmers to diversify their income stream by capitalizing on the value of their existing assets. For example, Maine dairy farmers can generate income through the sale of embryos, calves and mature animals. Others may earn additional income by raising and selling feed or contracting their equipment or services to neighboring farms. The Maine Department of Agriculture and University of Maine Cooperative Extension should support these efforts and serve as a clearinghouse for farmers seeking to market their non-milk assets.

Goal Four: To modify and develop state policies that support dairy farmers and recognize their contribution to the economy and landscape of Maine.

Like all Maine businesses, dairy farms can be both positively and negatively impacted by state policies. As Maine moves forward in addressing the long term sustainability of the industry, it must alter those policies that undermine profitability. Land, buildings, and equipment are among a farmer's most valuable assets, yet existing Maine tax policies can make them a liability, particularly in the southern part of the state. Programs such as the Farm and Open Space Tax Law have been put into place to address the issue, but more must be done to make them a viable option for dairy farmers. Although altering state policies as recommended here will not guarantee profitability for Maine farmers, they will to some extent lessen the cost of production.

Recommendation 12: Create Maine Farm Zones as a vehicle for delivering state tax relief to qualifying farms.

Many Maine dairy farms can be classified as a distressed industry in much the same way that Pine Tree Zones identify economically distressed areas of the state. Qualifying farms should be classified as Maine Farm Zones. To qualify, a farm must be an active, full-time operation that has grossed at least $50,000 from farming in the previous year, derived at least 51% of gross household income from farming, and occupies at least 100 acres of owned, leased, or managed land. Maine Farm Zones would be eligible for 100% sales tax exemption for building materials, tangible personal property, and fuel used in vehicles with a farm registration. In addition, the farms would be eligible for a 100% state income tax credit and Employer Tax Increment Financing (ETIF) equal to 80% of employees' state income tax withholdings. Participating farmers would file plans with the Maine Department of Agriculture allowing public access for traditional recreation on certain portions of their land at approved times of day and year.

Recommendation 13: Amend the State Constitution to direct that farmland, as defined under the Farm and Open Space Tax law, be assessed and taxed at current use value.

Maine dairy farmers, particularly those in areas facing strong development pressure, have inordinately high tax bills since their property is assessed at potential rather than current use value. This significantly inflates the farmer's cost of production. Farmers can participate under the Farm and Open Space Tax Law to have their land assessed at current use value, but most do not because participation imposes long-term penalties for early withdrawal at a time when the future of their industry is very uncertain. Amending the State Constitution to direct that managed farmland, as defined under the Farm and Open Space Tax law, be automatically assessed at current use value without the specter of penalties would lessen the tax burden of Maine's dairy producers.

Recommendation 14: Exempt all tangible personal property, including vehicles that qualify for farm registration, and farm buildings from municipal property and excise taxes.

Further tax relief could be provided to Maine's dairy farmers by exempting tangible personal property, including farm-registered vehicles and farm buildings (excluding the farm's homestead) from municipal property and excise taxes. This would require the state to reimburse municipalities for at least 50% of lost property and excise tax revenues. Vermont has a successful farmland property tax exemption program that works in a similar fashion.

Recommendation 15: Earmark at least 10% of the Land for Maine's Future program for the preservation of farmland, and consider term easements or leased development rights as an additional tool to maintain the state's agricultural land base.

The Land for Maine's Future Program (LMFP) was enacted in 1987 to acquire land and interest in land (easements) to protect important conservation areas, water access, outdoor recreation, fish and wildlife habitat, and farmland. The sale by farmers of development rights to their farmland has become an established component of the LMFP. However, many dairy farmers are reluctant to participate in the program because they don't want to permanently lose development rights. Incremental tools such as term easements and leased development rights will enable farmers to draw equity from their land and will preserve the land for known periods of time at limited cost to the public.

Goal Five: To create price support mechanisms through which the State of Maine can insulate dairy farmers from the volatility of the milk market.

The Federal Order milk pricing structure is largely based on a commodity market, making the price paid to farmers extremely volatile. This reality leaves Maine dairy producers in a vulnerable position and makes it imperative to create a support mechanism to ensure their sustainability. The Task Force investigated several strategies to create a milk price floor to act as a "safety net" for dairy producers. Initially, they examined flat price strategies and found them to be inefficient in achieving price floors given the diversity, in terms of size and production systems, of the Maine dairy industry. As a result, the Task Force investigated using two mechanisms to achieve the "safety net" concept: 1) increasing the cap level on MILC payments to create a supplemental MILC program referred to as "Maine MILC" and 2) a tiered counter-cyclical pricing mechanism with graduated and declining target prices linked to output levels. This reflects the declining marginal cost of production with greater output.

Maine MILC and the tiered price support program will be initiated simultaneously. Maine MILC is designed to build upon the existing Federal program and to take advantage of Federal outlays. Should the Federal MILC program cease to exist, as slated in 2005, the tiered program will still cover much of the farm income lost under the Federal MILC and Maine MILC programs. If new Federal or regional dairy programs develop, the tiered program can build upon those policies. Both mechanisms include organic producers as well as those producing for the conventional Federal market.

Recommendation 16: Increase the cap level on Milk Income Loss Contract payments to create a supplemental program referred to as Maine MILC.

Approximately 60 farms in Maine, or about 15% of operations, received reduced MILC payments because their production levels exceed the program limitation cap. The MILC supplement program, referred to as Maine MILC, eliminates the ceiling limit imposed by the Federal MILC program. The Maine MILC program would issue payments to farmers based upon the difference between the federal cap limit and production levels in excess of the cap. Maine MILC payments per cwt will be based upon the federal payment schedule. Additional characteristics of this program might include:

1) All payments would be linked to the Federal MILC program; if the program ceased to exit, Maine MILC would cease;
2) Producers would file for payment. Payment is not automatically generated by the state;
3) Payment is contingent upon documentation of when producers elected payment under the federal program to prevent double payment.

This program directly targets the subset of Maine producers above the MILC program limits and works in conjunction with the tiered counter-cyclical price program to create the safety net for all producers. If the Federal MILC program ceases (and hence the Maine MILC program) the tiered program, as described below, will cover much of the income lost. The primary goal of the two separate programs is to capitalize upon federal government expenditures while the MILC program is in place. Should another federal or regional support program be developed, the tiered program can build upon it to reduce state expenditures.

Recommendation 17: Develop a tiered price support mechanism with declining price support levels to reflect declining marginal cost of production with greater output.

The tiered support program is developed in response to the diversity of dairy farming systems in the state. It attempts to engineer a counter-cyclical price support program across farm sizes that does not encourage or discourage production from any one farm size. Technical components of the tiered program are based upon published cost of production information for small, medium and large dairy farms in Maine (Dalton and Bragg, 2003).

The tiered counter-cyclical price support program establishes three production ranges, measured by annual fluid milk volume, and assigns target prices to each of the ranges (Table 1). The target prices for each of the volume ranges are linked to the short-run breakeven price plus depreciation and interest on farm machinery for the small, medium and large farms. If effective market price, defined as the statistical uniform blend price in the

Boston market plus the prevailing local premium, drops below the target price, then a producer receives a counter-cyclical payment based upon their production level multiplied by the difference between the target price and the effective price.

Table 1. Price targets, volumes and farm classifications under the tiered program.

	SmallTier	MediumTier	LargeTier
Annual Volume of milk shipped(cwt)	1-16,790	16,791-26,050	26,051+
Target Price($/cwt)	16.92	16.81	13.75
Approximate number of Maine farms[1]	280	61	55
Approximate herd size (milking cows)[2]	1-93	94-145	145+

[1]Based on the MDAFRR's list as of September 2003.
[2]Based upon a rolling herd average of 18,000 lbs/cow

The tiered mechanism adjusts the price back to the target, and hence reduces downside risk for producers. Instead of each producer falling into one tier, the tiered program works on a progressive, graduated principle. All producers, irrespective of their size, are paid the difference between the effective market price and the target price on the first 16,790 cwt produced during the defined calendar year of the program. Once a farm exceeds this threshold, it moves into the medium tier and is paid the difference between the market price and the price target for the medium size on all subsequent production until it reaches the threshold between the medium and the large tier. If a farm exceeds 26,050 cwt per year, it moves into the large tier and are paid based upon the difference between the market price and the target price for the large tier. Once the calendar year of the program is completed, all farms begin again under the small tier.

Using the Maine MILC program and the tiered price support programs is the least costly program to ensure that producers of different size will receive a milk price that is equal to or above the target price for their particular operation. Using both of these programs, a farm that falls into a particular volume category will not fall below its safety-net target price. Since the objective of this program is to create a "safety net," and there will be some months when price support is not necessay, the average price a producer receives will be above the safety-net price.

This is illustrated in Table 2 using the price history from January 2001 to August 2003 for fluid milk sold into the Boston market for producers with different herd sizes. The results described in Table 2 represent the average and minimum blend price that a producer would have received had this program been in place over the same period. It assumes that the Governor's Dairy Relief Program was not in place and that the local prevailing premium was received as historically given. No other premiums enter into this calculation. The first column presents the farm categories and the volume of milk shipped per farm per year The third column is the approximate herd size based upon a rolling herd average of 180 cwt/cow.

Table 2. Average price and minimum price received by different size farms ($/cwt)

Farm Category	Annual Volume of Milk Shipped (cwt/year)	Approximate Herd Size	Average Price	Minimum Price
Small (n=267)	4,500	1-25	17.08	16.92
	9,000	26-50	17.08	16.92
	13,500	51-75	17.08	16.92
Medium (n=79)	18,000	76-100	17.27	16.92
	22,500	101-125	17.68	16.91
	27,000	126-150	17.18	16.89
Large (n=52)	31,500	151-175	16.88	16.41
	36,000	176-200	16.58	16.13
	40,500	201-225	16.47	15.96
	49,500	226-275	16.28	15.60
	58,500	276-325	16.03	15.35
	76,500	326-425	15.91	15.10
	100,000	426-560	15.71	14.84
	130,000	560-725	15.62	14.77
	130,000+	725+	15.41	14.34

Table 2 presents the results when simulated over the 32 months of fluid milk prices. As long as the relative price level remains similar to what was seen in the past, farms would receive average prices in excess of their breakeven price. The counter-cyclical safety-net concept insures that farms producing in a specific tiered volume category would never see a monthly price below the target price in Table 1.

Program Costs

Program costs were estimated based upon the price history described above and the Maine Department of Agriculture, Food and Rural Resource's list of dairy producers in the state. Total program costs are divided into the cost of the Maine MILC program and the tiered program.

The cost of these programs are derived for 2001, 2002 and 2003. Costs for 2003 are inclusive of price until August. 2001 represents a year when market prices were relatively high until the end of the year. 2002 represents a low price year and 2003 may shape up to be an "average" year with low prices in the first half and high(er) in the second half of the year. As such, these years might be considered a "low" program cost year, a "high" cost year and an "average" cost year. The two full years plus the partial year of 2003 are averaged into an expected annual cost assuming that milk prices will remain strong until December 2003. Program costs are presented in Table 3.

Table 3. Estimated program costs based upon historical prices ($/year)

	Tiered Program	Maine-MILC	Total
2001	4,605,981	125,400	4,731,380
2002	10,438,703	2,354,909	12,793,612
2003 (Until August)	8,011,649	2,131,795	10,143,444
Average	7,685,444	1,537,368	9,222,812

*The Federal MILC program only issued payments for one month during 2001.

On average, the cost of the program can be converted to a payment per acre to maintain the 150,000 acre land base used by Maine dairy farmers for crop and pasture production. Dividing the average cost of the program by the land base produces a payment equivalent of $61/acre.

Additional characteristics of the tiered program might include:

1) Program necessitates regular cost of production studies to update cost of production estimates to current conditions;
2) Requires studies on very large firms and organic producers that were not possible in the most recent study due to limited response from these groups;
3) Calculation of the amount of milk produced in a tier begins only when the effective price drops below the target price.

Appendix A

Governor's Dairy Relief Plan
Executive Order Establishing the Task Force

DAIRY RELIEF PLAN

Governor John E. Baldacci

DIRECT PAYMENTS

$725,000 will be sent to dairy farmers as specified in L.D. 593, An Act To Provide Temporary Emergency Relief to Maine Dairy Farmers, signed into law by Governor Baldacci on March 20.

$1.4 million would be distributed in May and June, $700,000 per month based on the previous month's production, as specified in a legislative package introduced by the Governor.

$1.8 million would be distributed in July, August and September, $600,000 per month based on the previous month's production, as specified in a legislative package introduced by the Governor.

These payments will be made to **all farmers producing milk in Maine**, regardless of the amount of production. The larger payments in April, May and June will assist farmers with planting season costs.

- April payment will be $1.50 per hundredweight
- May and June payments about $1.30 per cwt
- July, August & September about $1.10 per cwt

MILK COMMISSION ACTION

The Maine Milk Commission has increased producer margins in each of the past three months. Maine dairy farmers now receive nearly **50 cents per cwt** more than their counterparts in Federal Milk Order No. 1, which covers the Northeast.

MID TERM PLAN

Provide up to **$1.3 million** in AMLF funds for FAME to use to guarantee a bank's deferral of up to 12 months of principal and interest payments for eligible dairy farmers. The $1.3 million will affect $10.4 million of loan principal by deferring payments otherwise required to be made on those loans. The proposal is contained in a Governor's Bill, L.D. 1378, introduced by Representative Piotti.

TASK FORCE

Commission a Governor's **task force** on the **sustainability of the dairy industry** in Maine. The task force will be charged with developing plans for the long-term stability and competitiveness of dairy farming in Maine, including, but not limited, to market development, value-added production, and tax reform.

LONG TERM PLAN

Relieve the impact of electrical bills by working with the public and private sectors to determine whether dairy farmers can save money by **conserving power** through the installation of energy efficient equipment. The Maine Department of Agriculture provided Competitive Energy Services with a list of dairy farmers who are willing to participate in a pilot project.

Help dairy farmers test and **develop new markets** through a grant from the U.S. Department of Agriculture. The Maine Department would commit **$100,000** to leverage federal resources to assist dairy farmers who seek to diversify by helping research new markets, develop business plans and access funding to help them with value-added production.

Provided a **$5,000** grant from the Agriculture Department to the Maine **Organic Milk** Producers Association to create a strategic plan. This is the fastest growing market for Maine milk. About 50 farmers are certified and 35 of them recently met to develop the strategic plan, a three-month process.

Provided a **$6,600** grant from the Agriculture Department to the Maine Cheese Guild to promote awareness of and **increase demand for Maine cheese** and other value-added dairy products.

Used **$75,000** from a federal block grant to expand the **Maine Cattle Health Assurance Program**. MeCHAP is a voluntary program involving on-farm risk assessments to promote animal health and enhance profitability through sound herd management and environmental stewardship.

REGIONAL AND NATIONAL PROGRAMS

Work with New England Commissioners and the region's congressional delegations to restructure and implement an **interstate dairy compact**.

Work with the region's commissioners and congressional delegations for enactment of the **Milk Import Tariff Equity Act**, which would close a loophole in the current trade law and restrict the flow of imported dairy proteins into the Untied States. The unrestricted flow of foreign milk protein products has led to lower farm-level prices.

Work with producers in the state, the region and the nation on a plan put forth by National Milk Producers Federation for an industry led **supply management** policy.

DAIRY RELIEF PLAN

Governor John E. Baldacci

SUMMARY

Farmers will receive **direct payments** totaling more than **$3.9 million** through September 2003. All farmers producing milk in Maine will benefit. Payments will be larger in April, May and June to provide assistance during planting season when a farmer's costs are higher.

The Maine **Milk Commission** has increased producer margins monthly this year. Through the end of April, the Commission's actions will have provided Maine farmers **$592,000** more than their colleagues elsewhere in New England.

The Finance Authority of Maine will guarantee a bank's **deferral principal and interest** payments for eligible dairy farmers. The **$1.3 million** program would affect $10.4 million of loan principal.

The Maine Department of Agriculture has committed more than **$185,000** to programs designed to **enhance stewardship and improve profitability** of dairy farms.

OFFICE OF
THE GOVERNOR

NO. 11 FY02/03

DATE May 6, 2003

AN ORDER CREATING THE TASK FORCE ON THE SUSTAINABILITY OF THE DAIRY INDUSTRY IN MAINE

WHEREAS, a healthy, vibrant dairy industry in the State of Maine is important for the economic and social wellbeing of many rural communities and Maine consumers; and

WHEREAS, prices for milk have recently been too low to allow dairy farmers to earn enough to cover their long-term costs of production, thereby jeopardizing the economic and social wellbeing of both the farmers and their communities; and

WHEREAS, the economic and public policy forces driving the national milk markets are creating conditions that threaten the sustainability of the Maine dairy industry; and

WHEREAS, the State has an interest in assisting viable dairy farmers to remain competitive, to help other dairy farmers diversify into more feasible farming enterprises, and to keep farmland of exiting farmers part of a working agricultural landscape; and

WHEREAS, local agriculture, where farms produce for local consumers, has substantial growth potential that can be developed and fostered by wise public policies arrived at by collaborative processes and crafted by informed and interested parties in the dairy industry; and

WHEREAS, the circumstances confronting the Maine dairy industry, and the economic and social communities closely tied to it, require a collaborative process to develop policy recommendations intended to support and enhance the long-term sustainability of the dairy industry in Maine;

NOW, THEREFORE, I, John E. Baldacci, Governor of the State of Maine, do hereby establish the Governor's Task Force on the Sustainability of the Dairy Industry (hereinafter "Task Force").

Purpose

The purpose of the Task Force is multifaceted and includes the following responsibilities:

1. Examination of the circumstances that have contributed to the current problems confronting the dairy industry.

2. Formulation of a wide range of strategies to assist dairy farmers to: (a) remain competitive producers of commodity milk, (b) diversify into appropriate farming enterprises, including those with a dairy component, or (c) leave farming with minimum erosion of the agricultural base.

3. Consideration of techniques most appropriate for farmers to accomplish the necessary transitions, including but not limited to, cost reduction strategies, crop diversification, value added enterprises, and market development activities.

4. Consideration of State programs appropriate to support farming transitions, including but not limited to, technical assistance for both production and marketing; financial assistance including both grants and loans, milk price regulations at the State and regional level; and evaluation of existing State policies affecting dairy farming.

5. Consideration of strategies to maintain the agricultural land base of exiting dairy farmers as a working landscape, especially considering the needs of entering farmers and generational transfer of agricultural lands.

6. Consideration of ways to maintain an adequate agriculture infrastructure, particularly as it affects the dairy industry.

7. Considering the above, make recommendations on how best to support the needs of existing and future dairy farmers and how to reduce the vulnerability of the dairy industry to economic forces from within and outside Maine, including those forces that are beyond the State's ability to control, through long-term stability programs.

To carry out the purpose of the Task Force, the members shall use the best information from all sources and expert input regarding the options available for addressing the needs of the dairy industry. Prior to submitting recommendations to the Governor, the Task Force shall hold at least one public forum to allow interested parties to comment on the draft recommendations of the Task Force.

Membership

The Task Force shall be composed of no more than twenty (20) members who shall serve and represent the best interests of the State as a whole. Three (3) of the members shall be appointed from the Legislature. The President of the Senate will appoint one Senator

from the Joint Standing Committee on Agriculture, Conservation and Forestry. The Speaker of the House will appoint one Representative from the Joint Standing Committee on Taxation. The President of the Senate and the Speaker of the House will jointly appoint a member of the Republican Party, from either body, upon the joint recommendation of the Republican floor leaders in the Senate and House. These members will serve at the pleasure of their respective appointers. All other members shall be appointed and serve at the pleasure of the Governor. The Task Force shall disband upon the discharge of its duties or on November 15, 2003, whichever occurs sooner.

The Governor and the Commissioner of the Department of Agriculture, Food and Rural Resources shall designate the chair of the Task Force. The other members shall come from the following categories:

- Dairy farmer (large herd)
- Dairy farmer (small herd)
- Dairy farmer (organic herd)
- Dairy farmer (designated by Maine Dairy Industry Association)
- Representative from the Finance Authority of Maine
- Representative from Farm Credit
- Representatives (2) of the Agricultural Council of Maine (not dairy farmers)
- Representative from the University of Maine Extension Service
- Representative from a business involved in supporting the dairy industry
- Person knowledgeable in farmland issues
- Person with experience helping farmers respond to changing circumstances
- Agricultural economist
- Milk processor
- Milk retailer
- Feed dealer or supplier
- Legislators (3)

The Department of Agriculture, Food and Rural Resources may compensate public members for reasonable travel expenses. Legislative members may be eligible for legislative per diem.

Timeline for Recommendations

The Task Force shall submit its recommendations to the Governor no later than November 15, 2003, after which submission the Task Force will dissolve.

Meetings

The Task Force shall meet as often as necessary to complete the assigned duties. All meetings shall be open to the public and held in locations determined by the Task Force.

Staffing/Funding

The Department of Agriculture, Food and Rural Resources shall provide staff support to the Task Force, drawing upon existing resources. The Department may utilize its existing authority to accept contributions and donations of money, services and supplies to support the work of the commission.

Effective Date

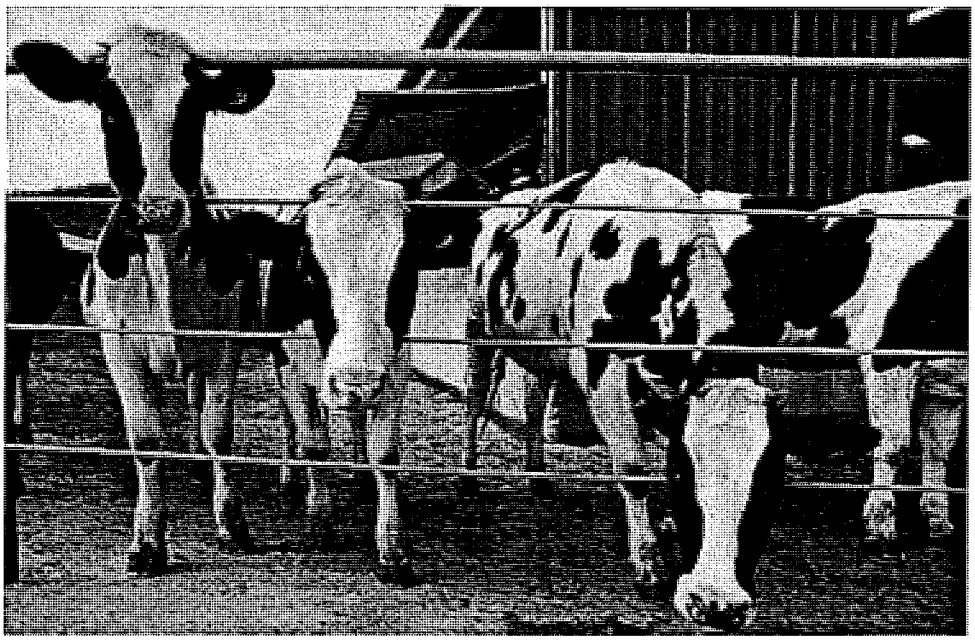
The effective date of this Executive Order is May 6, 2003.

John E. Baldacci, Governor

Appendix B

The Cost of Producing Milk in Maine: Results from the 2002 Dairy Cost of Production Survey

ISSN 1070-1524



The Cost of Producing Milk in Maine: Results from the 2002 Dairy Cost of Production Survey

Timothy J. Dalton

Lisa A. Bragg

Technical Bulletin 189 May 2003

MAINE AGRICULTURAL AND FOREST EXPERIMENT STATION
The University of Maine

The Cost of Producing Milk in Maine: Results from the 2002 Dairy Cost of Production Survey

Timothy J. Dalton
Assistant Professor

Lisa A. Bragg
Undergraduate Student

Department of Resource Economics and Policy
5782 Winslow Hall
The University of Maine
Orono, ME 04469-5782
phone: 207-581-3237
fax: 207-581-4278
timothy_dalton@umit.maine.edu

Section I of the Cost of Production Study has been omitted in an effort to reduce the size of this report

The complete report can be obtained by contacting the Maine Department of Agriculture, Food and Rural Resources

in this group are the most optimistic that they will be operating the same farm more than ten years from now and that the management of the farm will be transferred to another person.

SECTION II: FARM REPRESENTATION AND BUDGETING APPROACH

The cost of producing milk in Maine is estimated using procedures similar to those followed in estimating the cost of processing milk in Maine (Dalton et al. 2001; Dalton et al. 2002). The procedure is also consistent with the guidelines for budgeting approved by American Agricultural Economics Association and the USDA Economic Research Service (AAEA Task Force on Commodity Costs and Returns 2000).

Farm Representation

Three cost-of-production budgets are estimated: one for each of the three clusters. These budgets are then combined into one single representative budget by weighting the small, medium, and large budgets by the proportion of Maine producers found in each cluster. These proportions were estimated from a list of producers provided by the Maine Milk Commission current to November 1, 2002. According to this list, there were 412 dairy producers in the state on that date. Within the entire population are two groups for which representative budgets were not estimated: the very large farms with greater than 300 dairy cows and the organic producers. The numbers of returned surveys were insufficient to generate operation-specific budgets.

The average herd size for the organic producers is 46 cows. All but two of these farms are smaller than 80 cows. On the other extreme, 4.1% of Maine producers have herds that are considered "large" by USDA standards (greater than 300 cows). Eighty-four percent of the organic producers were attributed to the small cluster and 16% to the medium cluster. All of the very large farms were attributed to the large cluster. As a result, the composite representative budget is composed of 68.8% of the small farm budget, 23.7% of the medium farm budget, and 7.5% of the large budget.

Budget Components

The cost-of-production budgets are decomposed into three major categories: annual operating expenses, annual overhead expenses, and annual depreciation and interest expenses. The first two categories can be combined to approximate the variable cost of production while the last represents the fixed cost of production. Each category is discussed below.

Annual Operating Expenses

Annual operating expenses are those production costs that vary with production. It includes labor, purchased feed, livestock expenses, crop and pasture expenses, maintenance and equipment expenses, milk check deductions, and interest on working capital. Estimation procedures for each of these components follows.

Labor expenses

Labor cost is broken into three categories: family labor, hired labor, and management expense. The total quantity of family and hired labor is estimated from survey responses. An average hourly wage for hired labor was also estimated at $8.67/hr from survey response[1]. To this wage is added Social Security, unemployment compensation tax, and workers compensation insurance charges. The total cost of labor includes wages and benefits.

Family labor is treated in two ways. In order to explicitly capture the opportunity cost of family labor, the hired wage rate is used for family labor as well. This approximates the potential family earnings if a dairy producer was employed in an alternative agricultural wage-earning activity. Benefits are added to this charge as well. The return to family labor is also calculated at the bottom of each budget. This procedure does not attribute a wage rate to family labor, but calculates an implicit wage. This is done by determining short-run and long-run profits without family labor costs, and then dividing this amount by total family labor.

Management expense occurs on the large farm only. This value acts to control for size differences and the value of time that must be allocated to manage labor, scheduling, and non-livestock production activities. Forty thousand dollars were attributed only to the large farm because of its size. This fee only adds $0.07/cwt to labor costs in the composite budget.

Purchased feed expenses

The purchased feed category includes two components: dairy forage and dairy concentrate. Nearly all farmers who responded to the survey produced 100% of their forage requirements. As a result, there is no cost in this budget line. All costs of production for forage are included in crop and pasture expense, labor, and machinery and equipment depreciation. Dairy concentrate includes all composite feeds, and this budget line was derived from survey responses.

---

[1]This is the average wage rate for the medium and large farms and not the "state" wage reported in Table 8, which also includes the very large farms and the organic producers.

Livestock expenses

Livestock expenses include those costs that can be directly attributed to the dairy herd, including breeding (artificial insemination), veterinary and medicine, bedding, DHIA record keeping, and livestock insurance. Artificial insemination plus veterinary and medicine charges are estimated from the surveys. Bedding costs are engineered based upon the herd size. It is constructed by multiplying the herd size by a fixed bedding coefficient by the cost of sawdust and wood shavings. DHIA expenses are estimated at an average cost of $0.07/cwt. Small farms did not use DHIA record keeping on average while the medium and large did. An average insurance rate of 1.2% is applied to the value of the herd.

Crop and pasture expenses

Crop and pasture expenses include all variable costs of producing feed and forage. It includes seeds, crop protection chemicals, fertilizer, lime, and "other" costs. Each of these budget lines are derived from survey responses.

Maintenance and equipment expenses

The fifth category includes those charges associated with the operation of mechanical equipment on the farm. It includes fuel and oil charges for the day-to-day operation and repair expenses for equipment. These costs are derived from survey responses.

Deduction expenses

The sixth category includes charges associated with the marketing and transportation of milk. Milk marketing charges are composed of federal milk promotion taxes of $0.150/cwt, Maine Dairy Industry Association fees of $0.010/cwt, Maine Milk Commission levies of $0.025/cwt, and cooperative fees of $0.100/cwt. As not all dairy producers are members of cooperatives, this fee is weighted by the percentage of farms marketing their milk through a cooperative. Approximately one-third of Maine producers market through a cooperative. Hauling and trucking charges are calculated from survey responses.

Working capital interest expenses

The final charge in the operating cost section is an interest charge on working capital used to account for the opportunity cost of input purchase. An 8% short-term interest rate is applied to half of the total annual operating expense. This rate is based upon Farm Credit Service rates for operating credit, and it is converted to a real interest of 4.7% to control for annual inflation.

Annual Overhead Expenses

Annual overhead expenses are costs that are attributed to the farm operation as a whole. They include property taxes, farm insurance, dues and professional fees, utilities, and miscellaneous charges.

Property taxes are estimated using the weighted average property tax rates for all dairy producers. This was calculated by matching the municipal mill rates with the location of each producer. Using this procedure, the weighted average property tax rate was 1.795%. This rate was multiplied against the estimated total asset value of the farm. Farm insurance rates are also calculated at a fixed rate of 1.2% of the total value of the farm (Diversified Agrinsurance 2002).

The final three components of the annual overhead expense section are derived from survey responses. They include dues to professional organizations and fees paid to accountants, consultants, legal, and other sources. Utility expenses include electricity, fuel oil, propane, water, and any other utility charge. The final category is general miscellaneous expense derived from survey response.

Annual Depreciation and Interest Expenses

Annual depreciation and interest charges are calculated using an economic-engineering approach and applied to land, buildings, machinery, and the livestock herd. All land is valued at the average value reported in the survey of $550/acre. This value is consistent with values reported for pasture and cropland in the Maine State Department of Revenue Property Tax Bulletin No. 18. That report was produced to provide information on the Farm and Open Space Tax law debate. While there is considerable variation in land prices due to quality and location, these factors cannot be taken into consideration in an average budgeting approach.

Farm buildings and equipment compliments were derived from survey responses. Based upon farmer responses, typical farm building and equipment portfolios were generated. Replacement costs were estimated for each of these components. Buildings costs were estimated using the RSMeans Building Construction Cost Data 2002 guidelines adjusted to the Lewiston/Auburn area. Equipment costs were derived from the budgeting guidelines and equipment dealers (AAEA 2000).

Based upon these cost estimates, depreciation and interest charges are derived using the capital recovery approach detailed in Dalton et al. 2002. These two components capture the use value of capital and the opportunity cost of investing farm or bank capital into these operations. Interest charges were calculated based upon a 9% loan rate typical for intermediate-term assets provided to a farm with an

"average" credit history. This nominal rate was converted to a real rate by controlling for an average inflation rate of 3.1% calculated over the past 20 years. This resulted in a real interest rate of 5.7%. By explicitly specifying this interest rate, the opportunity cost of investment in dairy production is captured. All budget calculations thus contain what can be considered either as interest recovery on bank equity or the farmer's return to equity.

Depreciation and interest are also calculated over livestock. All animals are valued at the farm estimates from the survey. Dairy cows (the breeding herd) are depreciated over a cull rate of 25% while a death loss of 10% is assumed for the remaining animals in the herd.

SECTION III: DAIRY COST-OF-PRODUCTION BUDGETS AND IMPLICATIONS

Budget results based upon the descriptive statistics and information provided in Section I, and the budgeting approach described in Section II, are presented in this section. These results are based upon a representative herd size of 68 cows. They should be compared with two recent studies that have estimated the cost of producing milk for the Northeast.

In 1999, the cost of producing fluid milk for the New England milk market was estimated for the Northeast Dairy Compact Commission (Lass 1999). This survey collected information from 271 operations located in Maine, New Hampshire, Vermont, Massachusetts, New York, Connecticut, and Rhode Island. Eleven percent of the responses were from Maine. Under an assumed wage rate of $7.18/hr for farm labor and an 8.05% interest rate on capital, the study estimated a cost of production of $21.06/cwt.

A second recent study was conducted by the USDA Economic Research Service for the Northern Crescent region. The Northern Crescent region includes all of the Northeast, portions of Pennsylvania, Maryland, Minnesota, and Ohio plus all of Michigan and Wisconsin. This study estimated the cost of producing milk at $20.58 based on a herd size of 68 milk cows. This herd size is identical to the representative model for Maine, and it was also estimated based on cost-of-production information for 2001 (USDA ERS 2002).

Based upon the farm types and procedures described in the preceding sections of this report, the total weighted average cost of producing milk in Maine is estimated at $22.81/cwt (Table 10). This is $1.75/cwt greater than the value reported in the New England Dairy Compact study and $2.23/cwt higher than the results calculated by the USDA for the Northern Crescent region[2]. Total annual operating costs

are $13.75/cwt and total overhead cost is $3.10/cwt. Combined, these two costs represent the short-run cost of production of $16.85/cwt. Ownership expense is $5.96/cwt and captures the full economic cost of capital usage plus an explicit real return to investment (producer or bank equity) of 5.7%. Budgets for the small, medium, and large farms are found in the Appendix.

In comparison with the USDA estimates for the Northern Crescent, labor costs and purchased feed costs are very similar between the two budgets. With regards to livestock production, veterinary and medicine costs, overall profession service costs, including DHIA record keeping, are lower for Maine producers, but bedding costs are similar to the Northern Crescent budgets.

Several factors are distinctly higher for Maine producers than for the Northern Crescent estimates. Fuel, lubrication, and utility costs are estimated at $1.01/cwt for Maine producers, but only $0.54/cwt for the Northern Crescent. Repair costs are also $0.42 higher for Maine producers, which is reflective of the advanced age of the capital assets used by most of the producers in the small and medium clusters. In addition to these two categories, taxes and insurance are significantly higher for Maine producers than for the Northern Crescent. Taxes and insurance for the Northern Crescent are only $0.22/cwt while property taxes alone are $0.92/cwt for Maine producers. Combined, these three factors account for $1.59/cwt of additional operating and overhead cost for Maine producers.

Implications for Maine Producers and Budget Simulations

The budgets highlight several significant factors in the cost of production. Based upon the statistical uniform price for the first nine months of this year, and adjusting the remaining months of 2003 to similar levels, the average annual price of milk for 2002 is estimated at $12.57/cwt. When livestock and crop revenue is integrated into total farm revenue, the farm will require a producer milk price of $21.77/cwt in the long-run or $15.81/cwt in the short-run to breakeven. The short-run measure does not include depreciation and interest charges and provides a benchmark of the minimum price required to breakeven in the near term. The long-run breakeven price is $9.20/cwt higher than current prices and $3.24/cwt higher than the short-run price.

When family labor is not explicitly accounted for with the $8.67/hr wage assumption, the long-run return to family labor, net of all other costs of production including the return to investment, indicates

[2]Applying the $7.18 wage rate and 8.05% interest rate used in the Lass (1999) study to the budgets estimated in this project would increase the cost of producing milk in Maine to $23.44/cwt or $2.38/cwt higher than the Northeast average in the Compact study.

Table 10. Cost-of-production budget for representative Maine farm.

	Total	Per Cow	Per cwt
Number of Cows	68		
Annual Milk Shipment (cwt)	11,754		
Annual Milk Shipment (lbs/cow)	16,185		
Annual Revenue			
Milk Receipts	$147,701	$2,034	$12.57
Crop and Hay Revenue	$3,241	$56	$0.36
Livestock Revenue	$7,806	$111	$0.69
"Other" Revenue	$ -	$ -	$ -
Total Revenue	**$158,748**	**$2,201**	**$13.61**
Annual Operating Expenses			
Labor Expenses			
Family	$47,026	$803	$5.13
Hired	$7,970	$73	$0.39
Management Fee	$3,000	$15	$0.07
Subtotal	*$57,996*	*$891*	*$5.60*
Purchased Feed Expenses			
Dairy Forage	$ -	$ -	$ -
Dairy Concentrate	$46,945	$620	$3.80
Subtotal	*$46,945*	*$620*	*$3.80*
Livestock Expenses			
Breeding Fees	$2,329	$32	$0.20
Veterinary and Medicine	$4,519	$63	$0.39
Bedding	$2,420	$35	$0.22
DHIA Expenses	$504	$4	$0.02
Livestock Insurance	$1,541	$22	$0.13
Subtotal	*$11,314*	*$156*	*$0.96*
Crop and Pasture Expenses			
Seeds	$2,017	$27	$0.17
Chemicals	$747	$13	$0.08
Fertilizer	$3,026	$41	$0.25
Lime	$1,067	$15	$0.09
Other	$1,671	$17	$0.10
Subtotal	*$8,527*	*$113*	*$0.69*
Maintenance and Equipment Expenses			
Fuel and Oil	$6,108	$82	$0.50
Machinery Repairs	$11,611	$166	$1.03
Subtotal	*$17,719*	*$249*	*$1.54*

Table 10. Continued.

	Total	Per Cow	Per cwt
Deduction Expenses			
Milk Marketing	$2,566	$35	$0.22
Hauling and Trucking	$6,813	$100	$0.63
Subtotal	*$9,379*	*$136*	*$0.84*
Interest (4.7% on half of total operating expense)	$3,569	$51	$0.32
Total Operating Expenses	**$155,449**	**$2,215**	**$13.75**
Annual Overhead Expenses			
Property Tax	$9,317	$145	$0.92
Farm Insurance	$7,348	$112	$0.70
Dues and Professional Fees	$1,127	$16	$0.10
Utilities	$6,289	$97	$0.61
Miscellaneous	$9,636	$127	$0.78
Total Overhead Expenses	**$33,717**	**$497**	**$3.10**
Annual Depreciation and Interest Expenses			
Land	$11,231	$186	$1.18
Buildings	$23,835	$355	$2.22
Machinery and Equipment	$11,474	$145	$0.88
Subtotal	*$46,539*	*$686*	*$4.28*
Livestock Herd Expenses			
Cows (Milking and Dry)	$15,212	$212	$1.31
Heifers	$3,226	$43	$0.26
Calves	$1,081	$16	$0.10
Dairy Bulls	$64	$1	$0.01
Subtotal	*$19,582*	*$272*	*$1.68*
Total Ownership Expenses	**$66,121**	**$958**	**$5.96**
Total Annual Cost	**$255,287**	**$3,670**	**$22.81**
Long-run net return	**$(96,539)**	**$(1,469)**	**$(9.20)**
Short-run return over variable cost	**$(30,418)**	**$(511)**	**$(3.24)**
Performance Measures			
Breakeven Price($/cwt)			
Long-run to Cover All Costs		$3,503	$21.77
Short-run to Cover Operating and Overhead		$2,545	$15.81
Return to Family Labor		Total	Hourly
Long-run Return to Family Labor		$(49,513)	$(9.05)
Short-run Return to Family Labor		$16,608	$3.49

that dairy families are not receiving any wage for their labor but are losing $9.05/hr. This hourly loss may be viewed as the amount of money that dairy producers are *paying* to produce milk when all other factors of production are accounted for. In the short-run, that is omitting depreciation and interest from the budget estimates, the return to family labor is only $3.49/hr.

The return to investment is often implicitly derived rather than explicitly accounted for as in these budgets. When this assumption is changed, and no interest is charged to the farm investment, the long-run cost of production drops to $19.36/cwt and the short-run remains unchanged. Approximately $3.45 of the cost of producing milk is tied to the interest cost of farm investment leaving $2.51 to depreciation. Even without an explicit return to capital, the breakeven price is significantly higher than current price levels.

Energy Costs

Energy costs were identified as being significantly higher for Maine producers than for Northern Crescent producers. Electricity prices for Maine are similar to those found in New Hampshire and Vermont, but higher than those found in Massachusetts. Two rates are compared in Table 11 from data compiled by the Energy Information Agency: residential and small commercial rates for 2000 (EIA 2002).

Average residential rates for electricity are higher in New Hampshire than in Maine. In addition, commercial rates were also lower in Vermont and Massachusetts. On average, the greatest price differences existed between Maine and Massachusetts where residential rates were 23% lower ($0.0239/kwhr) and commercial rates were 12% lower ($0.0155/kwhr). Overall this illustrates that not only Maine, but northern New England, has higher electricity price than Massachusetts.

Energy cost estimates used in the budgets were derived from 2001 data, which were lower than current energy prices. Data is available from the Energy Information Administration only to July 2002. Information from several monitors of daily gasoline prices indicate

Table 11. Average electricity prices in 2000 for four New England states ($/kwh).

	Residential	Commercial
Maine	0.1292	0.1077
Vermont	0.1230	0.1061
New Hampshire	0.1314	0.1087
Massachusetts	0.1053	0.0922

Source: EIA (2002)

that current price levels for gasoline are sharply higher, approximately 28%, than one year ago (MaineGasPrices 2002). Based upon this evidence, a conservative 25% increase in the cost of energy was simulated in the cost-of-production budgets. This increase added $0.15/cwt to the cost of producing milk.

CONCLUSIONS

A cost-of-production estimate for a representative Maine dairy farm was presented in this study. This estimate is based upon responses from the 2002 Cost of Production survey implemented by The University of Maine and the Maine Milk Commission. These surveys were used to develop typical farm units to represent the dairy farming population as a whole. From these characteristic farms, economic-engineering budgeting approaches were applied to value all factors used in dairy production following best-practice-budgeting approaches. Budgets for the small, medium and large farms are presented in Appendix Tables 1–3.

Overall, when all factors of production are accounted for, including variable operating expenses, overhead, depreciation and interest, the long-run cost of producing milk is estimated at $22.81 for Maine dairy producers. When depreciation and interest are omitted, the short-run cost of production is $16.85.

Several factors contribute to the higher cost of production for Maine dairy farmers over Northern Crescent dairy farmers. Comparison of the two budgets indicates that three factors—energy costs, property taxes, and repair expenses—account for $1.59/cwt of additional operating and overhead cost to Maine producers. Dairy producers are price-takers with the first two factors; that is they operate under set rules and regulations that are beyond their control. Producers do have control over repair expenses, but in order to reduce this cost, investment in new equipment is required. Under current price conditions in the dairy sector, capital formation for these purchases will be difficult making cost savings in this component difficult to realize.

At current milk prices, the returns to farm labor are negative, indicating that dairy producers will be forced to reduce inventories or liquidate farm assets to remain in operation. Based upon the results of these budgets, this situation will only become exacerbated, as petroleum prices are approximately 25% higher now than when the survey data was collected.

Future analysis will examine alternative strategies to reduce costs for Maine dairy farmers. This includes determining appropriate

strategies for small, medium, and large farms. While the medium and large farms indicated that they are considering herd expansion as a strategy to benefit from economies of scale, small farmers indicated that they are not interested in expanding. An alternative strategy may lie in modernization of milking systems to reduce labor demand and increase labor efficiency.

WORKS CITED

AAEA Task Force on Commodity Costs and Returns. 2000. Commodity Costs and Returns Estimation Handbook. Ames IA: AAEA.

Dalton, T.J., G.K. Criner, and J. Halloran. 2002. Fluid milk processing costs: Current state and comparisons. J. Dairy Sci. 85: 984–991.

Dalton, T.J., G.K. Criner, and J. Halloran. 2001. 2000 fluid milk processing costs in Maine. MAFES Tech. Bull. 181.

Diversified Agrinsurance. 2002. <http://www.dfsfin.com/directory/default.asp>. Accessed 8/06/2002.

Dow, G. F. 1932. Costs and returns in producing milk, raising heifers, and keeping herd bulls in Maine. MAES Bulletin 361.

EIA. 2002. Energy Information Administration various data on energy prices. Available: http://www.eia.doe.gov/emeu/states/main_me.html). Accessed 10/31/2002.

Lass, D.A. 1996 Cost of production in the New England milk market. Unpublished manuscript prepared for the Northeast Dairy Compact Commission. Available: http://www.dairycompact.org/costprod.htm. Accessed 11/15/2001.

MaineGasPrices. 2002. Available: http://www.mainegasprices.com/. Accessed 11/06/2002.

OSU. 2002. Dairy Excel's 15 Measures of Dairy Farm Competitiveness: Measure 1: Rate of Production. Available: http://ohioline.osu.edu/b864/b864_4.html. Accessed 10/14/2002.

USDA ERS. 2002. Dairy cost and return estimates for 2000–2001. Available: http://www.ers.usda.gov/Data/CostsAndReturns/. Accessed 4/13/2002.

USDA NASS. 2002. US and state level data for dairy: Annual milk production, milk cows, and milk per cow. Available: http://www.nass.usda.gov:81/ipedb/. Accessed 12/11/2002.

Watson, A.E., and E. Rauchenstein. 1940. The organization and management of 95 dairy and cash crop farms in Androscoggin and Oxford counties, Maine. MAES Bulletin 398.

APPENDIX: PRODUCTION BUDGETS FOR ALL THREE FARM TYPES

Appendix Table 1. Cost of production budget for small farm.

	Total	Per Cow	Per cwt
Number of Cows	44		
Annual Milk Shipment (cwt)	6,611.6		
Annual Milk Shipment (lbs/cow)	15,026		
Annual Revenue			
Milk Receipts	$83,083	$ 1,888.24	$12.57
Crop and Hay Revenue	$2,651	$60.25	$0.40
Livestock Revenue	$4,316	$98.09	$0.65
"Other" Revenue	$ -	$ -	$ -
Total Revenue	**$90,050**	**$2,047**	**$13.62**
Annual Operating Expenses			
Labor Expenses			
Family	$40,142	$912	$6.07
Hired	$ -	$ -	$ -
Management Fee	$ -	$ -	$ -
Subtotal	*$40,142*	*$912*	*$6.07*
Purchased Feed Expenses			
Dairy Forage	$ -	$ -	$ -
Dairy Concentrate	$24,000	$545	$3.63
Subtotal	*$24,000*	*$545*	*$3.63*
Livestock Expenses			
Breeding Fees	$1,400	$32	$0.21
Veterinary and Medicine	$2,583	$59	$0.39
Bedding	$1,500	$34	$0.23
DHIA Expenses	$ -	$ -	$ -
Livestock Insurance	$893	$20	$0.14
Subtotal	*$6,376*	*$145*	*$0.96*
Crop and Pasture Expenses			
Seeds	$960	$22	$0.15
Chemicals	$660	$15	$0.10
Fertilizer	$1,500	$34	$0.23
Lime	$600	$14	$0.09
Other	$400	$9	$0.06
Subtotal	*$4,120*	*$94*	*$0.62*
Maintenance and Equipment Expenses			
Fuel and Oil	$3,200	$73	$0.48
Machinery Repairs	$6,843	$156	$1.04
Subtotal	*$10,043*	*$228*	*$1.52*

Appendix Table 1. Continued.

	Total	Per Cow	Per cwt
Deduction Expenses			
Milk Marketing	$1,444	$33	$0.22
Hauling and Trucking	$4,430	$101	$0.67
Subtotal	$5,873	$133	$0.89
Interest (4.7% on half of Total Operating Expense)	$2,128	$48	$0.32
Total Operating Expenses	**$92,682**	**$2,106**	**$14.02**
Annual Overhead Expenses			
Property Tax	$6,667	$152	$1.01
Farm Insurance	$5,011	$114	$0.76
Dues and Professional Fees	$ 664	$15	$0.10
Utilities	$4,386	$100	$0.66
Miscellaneous	$4,500	$102	$0.68
Total Overhead Expenses	**$21,229**	**$482**	**$3.21**
Annual Depreciation and Interest Expenses			
Land	$9,092	$207	$1.38
Buildings	$15,440	$351	$2.34
Machinery and Equipment	$4,928	$112	$0.75
Subtotal	*$29,460*	*$670*	*$4.46*
Livestock Herd Expenses			
Cows (Milking and Dry)	$8,687	$197	$1.31
Heifers	$1,603	$36	$0.24
Calves	$ 651	$15	$0.10
Dairy Bulls	$ 46	$1	$0.01
Subtotal	*$10,988*	*$250*	*$1.66*
Total Ownership Expenses	**$40,448**	**$919**	**$6.12**
Total Annual Cost	**$154,359**	**$3,508**	**$23.35**
Long-run Net Return	**$(64,310)**	**$(1,462)**	**$(9.73)**
Short-run Return over Variable Cost	**$(23,861)**	**$(542)**	**$(3.61)**
Performance Measures			
Breakeven Revenue per Cow and Price($/cwt)		$/cow	$/cwt
Long-run to Cover all Costs		$3,350	$22.29
Short-run to Cover Operating and Overhead		$2,431	$16.18
Return to Family Labor		Total	Hourly
Long-run Return to Family Labor		$(24,167)	$(5.81)
Short-run Return to Family Labor		$16,281	$ 3.91

*Based upon an average blended price of $12.57/cwt

Appendix Table 2. Cost-of-production budget for medium farm.

	Total	Per Cow	Per cwt
Number of Cows	95		
Annual Milk Shipment (cwt)	17,136.3		
Annual Milk Shipment (lbs/cow)	18,038		
Annual Revenue			
Milk Receipts	$215,339	$ 2,266.73	$12.57
Crop and Hay Revenue	$ 5,980	$62.95	$0.35
Livestock Revenue	$ 14,750	$155.26	$0.86
"Other" Revenue	$ -	$ -	$ -
Total Revenue	**$236,069**	**$2,485**	**$13.78**
Annual Operating Expenses			
Labor Expenses			
Family	$60,055	$632	$3.50
Hired	$25,013	$263	$1.46
Management Fee	$ -	$ -	$ -
Subtotal	*$85,068*	*$895*	*$4.96*
Purchased Feed Expenses			
Dairy Forage	$ -	$ -	$ -
Dairy Concentrate	$70,686	$744	$4.12
Subtotal	*$70,686*	*$744*	*$4.12*
Livestock Expenses			
Breeding Fees	$2,750	$29	$0.16
Veterinary and Medicine	$6,723	$71	$0.39
Bedding	$3,538	$37	$0.21
DHIA Expenses	$1,200	$13	$0.07
Livestock Insurance	$2,378	$25	$0.14
Subtotal	*$16,588*	*$175*	*$0.97*
Crop and Pasture Expenses			
Seeds	$4,050	$43	$0.24
Chemicals	$650	$7	$0.04
Fertilizer	$5,500	$58	$0.32
Lime	$2,000	$21	$0.12
Other	$3,200	$34	$0.19
Subtotal	*$15,400*	*$162*	*$0.90*
Maintenance and Equipment Expenses			
Fuel and Oil	$9,586	$101	$0.56
Machinery Repairs	$19,000	$200	$1.11
Subtotal	*$28,586*	*$301*	*$1.67*

Appendix Table 2. Continued.

	Total	Per Cow	Per cwt
Deduction Expenses			
Milk Marketing	$3,741	$39	$0.22
Hauling and Trucking	$9,254	$97	$0.54
Subtotal	*$12,995*	*$137*	*$0.76*
Interest (4.7% on 1/2 of Total Operating Expense)	$5,389	$57	$0.31
Total Operating Expenses	$234,712	$2,471	$13.70
Annual Overhead Expenses			
Property Tax	$13,330	$140	$0.78
Farm Insurance	$10,782	$113	$0.63
Dues and Professional Fees	$1,500	$16	$0.09
Utilities	$ 9,056	$95	$0.53
Miscellaneous	$18,471	$194	$1.08
Total Overhead Expenses	**$53,139**	**$559**	**$3.10**
Annual Depreciation and Interest Expenses			
Land	$14,531	$153	$0.85
Buildings	$36,460	$384	$2.13
Machinery and Equipment	$20,860	$220	$1.22
Subtotal	*$71,851*	*$756*	*$4.19*
Livestock Herd Expenses			
Cows (Milking and Dry)	$22,841	$240	$1.33
Heifers	$5,532	$58	$0.32
Calves	$2,005	$21	$0.12
Dairy Bulls	$93	$1	$0.01
Subtotal	*$30,470*	*$321*	*$1.78*
Total Ownership Expenses	**$102,322**	**$1,077**	**$5.97**
Total Annual Cost	**$390,173**	**$4,107**	**$22.77**
Long-run Net Return	**$(154,103)**	**$(1,622)**	**$(8.99)**
Short-run Return over Variable Cost	**$(51,781.43)**	**$(545.07)**	**$(3.02)**
Performance Measures			
Breakeven Revenue per Cow and Price($/cwt)		$/cow	$/cwt
Long-run to Cover all Costs		$3,889	$21.56
Short-run to Cover Operating and Overhead		$2,812	$15.59
Return to Family labor		Total	Hourly
Long-run Return to Family Labor		$(94,048)	$(15.07)
Short-run Return to Family Labor		$ 8,273	$ 1.33

*Based upon an average blended price of $12.57/cwt

Appendix Table 3. Cost-of-production budget for large farm.

	Total	Per Cow	Per cwt
Number of Cows	200		
Annual Milk Shipment (cwt)	41,916.0		
Annual Milk Shipment (lbs/cow)	20,958		
Annual Revenue			
Milk Receipts	$526,727	$2,633.63	$12.57
Crop and Hay Revenue	$ -	$ -	$ -
Livestock Revenue	$17,875	$89.38	$0.43
"Other" Revenue	$ -	$ -	$ -
Total Revenue	**$544,602**	**$2,723**	**$12.99**
Annual Operating Expenses			
Labor Expenses			
Family	$69,006	$345	$1.65
Hired	$27,224	$136	$0.65
Management Fee	$40,000	$200	$0.95
Subtotal	*$136,230*	*$681*	*$3.25*
Purchased Feed Expenses			
Dairy Forage	$ -	$ -	$ -
Dairy Concentrate	$182,400	$912	$4.35
Subtotal	*$182,400*	*$912*	*$4.35*
Livestock Expenses			
Breeding Fees	$9,527	$48	$0.23
Veterinary and Medicine	$15,319	$77	$0.37
Bedding	$7,325	$37	$0.17
DHIA Expenses	$2,934	$15	$0.07
Livestock Insurance	$4,841	$24	$0.12
Subtotal	*$39,947*	*$200*	*$0.95*
Crop and Pasture Expenses			
Seeds	$5,284	$26	$0.13
Chemicals	$1,850	$9	$0.04
Fertilizer	$9,200	$46	$0.22
Lime	$2,400	$12	$0.06
Other	$8,500	$43	$0.20
Subtotal	*$27,234*	*$136*	*$0.65*
Maintenance and Equipment Expenses			
Fuel and Oil	$21,800	$109	$0.52
Machinery Repairs	$32,000	$160	$0.76
Subtotal	*$53,800*	*$269*	*$1.28*

Appendix Table 3. Continued.

	Total	Per Cow	Per cwt
Deduction Expenses			
Milk Marketing	$9,152	$46	$0.22
Hauling and Trucking	$20,958	$105	$0.50
Subtotal	*$30,110*	*$151*	*$0.72*
Interest (4.7% on 1/2 of total operating expense)	$11,038	$55	$0.26
Total Operating Expenses	**$480,758**	**$2,404**	**$11.47**
Annual Overhead Expenses			
Property Tax	$20,941	$105	$0.50
Farm Insurance	$17,938	$90	$0.43
Dues and Professional Fees	$4,200	$21	$0.10
Utilities	$15,000	$75	$0.36
Miscellaneous	$28,825	$144	$0.69
Total Overhead Expenses	**$86,903**	**$435**	**$2.07**
Annual Depreciation and Interest Expenses			
Land	$20,425	$102	$0.49
Buildings	$60,941	$305	$1.45
Machinery and Equipment	$41,852	$209	$1.00
Subtotal	*$123,217*	*$616*	*$2.94*
Livestock Herd Expenses			
Cows (Milking and Dry)	$50,953	$255	$1.22
Heifers	$10,823	$54	$0.26
Calves	$2,100	$10	$0.05
Dairy Bulls	$139	$1	$0.00
Subtotal	*$64,015*	*$320*	*$1.53*
Total Ownership Expenses	**$187,232**	**$936**	**$4.47**
Total Annual Cost	**$754,894**	**$3,774**	**$18.01**
Long-run Net Return	**$(210,292)**	**$(1,051)**	**$(5.02)**
Short-run Return over Variable Cost	**$(23,060)**	**$(115)**	**$(0.55)**
Performance Measures			
Breakeven Revenue per Cow and Price($/cwt)		$/cow	$/cwt
Long-run to Cover all Costs		$3,685.09	$17.58
Short-run to Cover Operating and Overhead		$2,748.93	$13.12
Return to Family Labor		Total	Hourly
Long-run Return to Family Labor		$(141,286)	$(19.69)
Short-run Return to Family Labor		$45,947	$ 6.40

*Based upon an average blended price of $12.57/cwt

Appendix C

Task Force Meeting Schedule and List of Presenters

Task Force Meeting Schedule and List of Presenters

May 12, 2003

a. Review of the 2002 Northeast Dairy Farm Summary
Dick Robertson, Farm Credit of Maine

b. Overview of the Maine Milk Commission
Stan Millay, Executive Director

May 26, 2003

a. Milk Prices Paid to Dairy Farmers Under the Northeast Federal Order
Bob Wellington, Economist, Agri-Mark Dairy Cooperative

b The Farm Service Agency in Maine
David Lavway, State Director, Maine Farm Service Agency

June 11, 2003

a. The Cost of Producing Milk in Maine: A Report Based Upon the 2002 Dairy Cost of Production Survey
Timothy Dalton, Assistant Professor, University of Maine

b. Maine's Agricultural Infrastructure
Gary Hammond, Hammond Tractor
Peter Chapman, Paris Farmers' Union
David Wadsworth, Agway, FCI

June 25, 2003

a. Milk Processing in Maine and New England
Thomas A. Brigham, Oakhurst Dairy
John Blake, H.P. Hood
John Economy, Garelick Farms

b. Retail Sale of Dairy Products in Maine
Marty Greeley, Hannaford Bros.
Will Wedge, Hannaford Bros.

July 9, 2003

a. Farmland Conservation Easements
Kevin Boyle, University of Maine Department of Resource Economics and Policy

b. Maine Farmland Protection Program
Stephanie Gilbert, Manager, Maine Farmland Protection Program

c. Farm and Open Space Tax Law
Dave Ledew, Property Tax Division, Maine Revenue Services

July 23, 2003

a. Determination of Federal Order I Milk Prices
Erik Rasmussen, Market Administrator

b. Forecast of Milk Prices
Bob Wellington, Economist, Agri-Mark Dairy Cooperative

c. Federal Legislation Impacting the Maine Dairy Industry
Bob Gray, Lobbyist Representing Six Dairy Compacts in the Northeast

d. CWT Program
Leon Graves, Dairy Marketing Services

August 6, 2003

a. History of Legislative Support for Maine Dairy Farms and Overview of Legal Issues Impacting Milk Pricing
   Dick Spencer, Esq., Drummond, Woodsum & MacMahon

b. Diversification Strategies Within the Dairy Industry
   Lauchlin Titus, Certified Professional Agronomist

September 3, 2003

a. Discussion regarding proposed goals and recommendations

b. Creation of four Task Force subcommittees
   - Diversification and transition
   - Management, business planning and technical assistance
   - Taxation and other state policies
   - Milk price supports

September 17, 2003

a. Subcommittee meetings

b. Discussion of subcommittee recommendations

October 22, 2003

a. Continued subcommittee meetings

b. Review of draft final report

c. Discussion regarding proposed goals and recommendations

October 29, 2003

a. Review of second draft and continued discussion of goals and recommendations

b. Public forum in Augusta, Maine to allow for public comment

November 5, 2003

a. Review of final draft

Appendix D

Key Reference Materials Utilized by the Task Force

Key Reference Materials Utilized by the Task Force

1. Brigham, Thomas A, Vice-President of Finance, Oakhurst Dairy, " An Overview of the Dairy Processing Industry in Maine and New England", June 2003.

2. Chite, Ralph M., Congressional Research Service: Resources Science, and Industry Division, "Dairy Policy Issues", June 2003.

3. Collins, Keith, Chief Economist, U.S. Department of Agriculture, statement made before the U.S. House Committee on Agriculture Subcommittee on Department Operations, Oversight, Nutrition, and Forestry, May 2003.

4. Cotterill, Ronald, Director, University of Connecticut Food Marketing and Policy Center, "Fluid Milk Market Channel Pricing", August 2003.

5. Dalton, Timothy J and Lisa A. Bragg, "The Cost of Producing Milk in Maine: A Report Based Upon the 2002 Dairy Cost of Production Survey", Maine Agricultural and Forestry Experiment Station Technical Bulletin #189, May 2003.

6. Drummond, Woodsum, & MacMahon, "History of Legislative Support for Maine Dairy Farms", 2003.

7. Maine Milk Commission, "Milk Pricing in Maine", May 2003.

8. Northeast Farm Credit, "2002 Northeast Dairy Farm Summary", 2002.

9. Titus, Lauchlin, Certified Professional Agronomist, "Recent and On-going Diversification of Conventional Maine Dairy Producers to Other Agricultural Enterprises", August, 2003.

10. Vermont Council on Rural Development, "Vermont Council on Agriculture Viability Final Report", January, 2003.

11. Wellington, Bob, Economist, Agri-Mark Dairy Cooperative, "Milk Prices Paid to Dairy Farmers Under the Northeast Federal Order", July 2003.

These materials can be accessed through:

Office of the Commissioner
Maine Department of Agriculture and Rural Resources
State House Station #28
Augusta, ME 04333
207-287-3419