

Indicators of Sustainable Production

A Case Study on Measuring Sustainability at Stonyfield Farm, Inc.¹

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Introduction

In 1998, the Lowell Center approached Stonyfield Farm, Inc. with an offer to assist in the development of a set of *sustainability indicators*. Already actively involved in work to make their business practices more sustainable, Stonyfield Farm saw the development of sustainability indicators as an important step in the process. The yogurt manufacturer responded willingly to the Lowell Center's offer, and together they embarked on a two-year collaboration to develop a set of indicators. This case study reviews how Stonyfield Farm and the Lowell Center crafted the set of indicators and the resulting benefits to the company.

Stonyfield Farm, Inc.

Stonyfield Farm was founded in Wilton, NH, in 1983 as a project to help revitalize the struggling New England dairy industry and support family farms. Chairman/Founder Samuel Kaymen and President/CEO Gary Hirshberg began with an organic farming school, a few Jersey cows and "a great tasting yogurt recipe". Their initial efforts succeeded and six years later (in 1989), Stonyfield Farm, Inc. moved to a new plant in Londonderry, NH. Since then the company has achieved an enviable average annual growth of roughly 35 percent. Its sales in FY2000 were \$56.8 million -- compared to \$3.5 million in FY1990.

Today Stonyfield Farm holds approximately 3.3 percent share of the U.S. yogurt market and distributes its products in all 50 states and Canada. It is the fourth largest branded yogurt in the U.S. About 35 percent of Stonyfield Farm's total production is certified organic, which makes the company the largest producer of organic yogurt in the nation. Its product lines include nonfat refrigerated yogurt, low-fat and full-fat organic yogurt and organic ice cream. Newer items include a kid's line - Planet Protector Low-Fat Yogurt, Yo-Baby and Yo-Squeeze.

Stonyfield Farm buys its milk from family farms that produce conventional milk without the use of genetically engineered bovine growth hormone (rbGH) and certified organic

¹ Prepared by Timothy J. Greiner, Greiner Environmental for the Lowell Center for Sustainable Production. Work on this project was funded by the Switzer Foundation and the Merck Family Fund. Staff to the project included Tim Greiner (Greiner Environmental) and Vesela Veleva (UMASS Lowell).

milk. In addition, through its “Profits for the Planet” program Stonyfield Farm *donates 10 percent of its profits* to environmental initiatives. In 1997 alone the company gave \$164,008. Furthermore, the company donates millions of free yogurts to non-profit events, such as Earth Day, The Walk for Hunger, and Share Our Strength.

Stonyfield Farm employs about 165 people, and shares its success with all employees through employee stock ownership, profit sharing and other bonus programs. Other benefits include health insurance, alternative health care and tuition reimbursement.

Stonyfield Farm is a recognized leader among so-called “socially responsible” businesses. As President Gary Hirshberg says, “Our real mission is that we be a model of ecological and employee-corporate responsibility, which also is highly profitable”. The company’s founding mission reflects this vision, emphasizing not only profitability and quality, but also employee well being, family farming, and environmental protection.

Stonyfield Farm Mission Statement

1. To provide a healthful, productive and enjoyable work place for all employees, with opportunities to gain new skills and advance personal career goals.
2. To educate consumers and producers about the value of protecting the environment and of supporting family farmers and sustainable farming methods.
3. To serve as a model that environmentally and socially responsible businesses can also be profitable.
4. To recognize our obligations to stockholders and lenders by providing an excellent return on their investment.
5. To produce the very highest quality all natural and Certified Organic products that taste incredible.

Although Stonyfield Farm’s mission statement was created in the company’s infancy, much of the firm’s first 10 years focused on survival. In its second decade, the company has been able to direct more effort toward fulfilling its founding mission. Having the company’s roots firmly grounded in a social and environmental mission doesn’t mean having all the answers- but it does mean the firm is continually looking for ways to improve its socially responsible business practices.

Sustainable Production

Sustainable Production integrates concern for the long-term viability of the environment, the workforce, and the community with the financial aspects of the corporation. Sustainability is defined within the spirit of the term sustainable development promoted by a 1987 World Commission on Environment and Development report as development that meets “...the needs of the present, without compromising the ability of future generations to meet their own needs”².

² See Exhibit I for the Lowell Center Sustainable Production Principles

While defining what we mean by sustainable development and sustainable production is essential, it is important to emphasize that sustainability is a process as opposed to a state-of-being. No individual company can be completely sustainable today. But each company can contribute by better aligning their own enterprises (and that of their suppliers and customers).

Developing Sustainability Indicators

Stonyfield Farm's Director of Natural Resources, Nancy Hirshberg, and President/CEO Gary Hirshberg viewed the development of sustainability indicators as an important step in moving the company up the continuum of sustainability. They concluded that in light of the adage "You are what you measure", it was clear that if Stonyfield Farm wanted to embrace sustainability, it needed to identify ways to measure sustainable practices.

In 1998 when the project began, Stonyfield Farm had already implemented a well-developed system of financial and quality indicators that were regularly updated and disseminated to key stakeholders. They also had a less developed set of environmental indicators which were regularly updated, and disseminated to a significantly smaller group of stakeholders.

It was determined that for successful development and adoption of the sustainability indicators as a tool for improving sustainable business practices, it would be necessary to have buy-in from all employees, but most importantly, by management. Before management could develop, accept and adopt sustainability indicators, there was more work to be done in getting the management team to embrace sustainability as a business strategy and priority for Stonyfield Farm.

At the start of the collaboration, the fast growing company had an 18-member management team, one half of whom had been with the company for two years or less. The efforts to embrace corporate social responsibility and sustainable business practices were being driven largely by Gary and Nancy Hirshberg. When the Lowell Center first approached them, they had already identified the need to undertake an initiative with the management team, and all employees, to help them embrace sustainability, which they had labeled the "Legacy Project".

In developing the indicators one significant constraint became evident- the effort could not require a large time investment of the company's senior and middle managers. This time constraint recognized the Herculean efforts managers were devoting to the rapidly expanding company. Setting aside considerable time to focus on sustainability training and education would force managers to divert time needed to manage the company's rapid growth.

Sustainability or Mission Indicators?

With an interest in a broad array of sustainability indicators tempered by the practical time constraint of the company’s managers, Stonyfield Farm and the Lowell Center examined multiple potential indicator frameworks. These frameworks included The Natural Step, the “three legged stool” (i.e., indicators for each of the three components of sustainability – social, environmental, and economic), the Lowell Center Principles, and an indicator system outlined by the World Business Council for Sustainable Development (WBCSD). Each of these frameworks had advantages and disadvantages (see Table 1).

Table 1: Indicator Frameworks

Framework	Advantages	Disadvantages
The Natural Step	International, corporate training and education materials available, large number of corporations applying the framework	Concept unfamiliar to employees, heavily focused on the environment, little focus on social aspects of sustainability
Three Legged Stool	Covers the three aspects of sustainability (social, environmental, and economic)	Concept unfamiliar to employees, few good models of this approach documented.
Lowell Center Principles	Defines all aspects of sustainable production	Concept of sustainable production unfamiliar to employees, no examples of how this approach has been implemented.
WBCSD	Well delineated set of environmental indicators	Concept unfamiliar to employees, focus is predominately on the environment, not all WBCSD indicators are relevant to the food industry

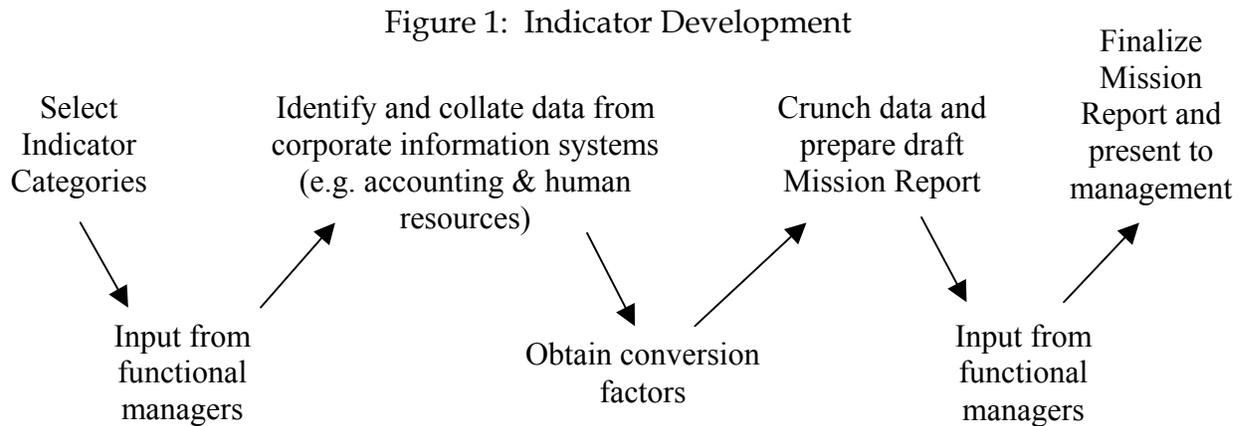
While each of these frameworks had positive attributes, they shared one significant disadvantage –the frameworks were unfamiliar to employees. Developing a set of indicators that would be relevant to employees would require employee education and training on the chosen framework. Such training would require a significant time commitment and would mean, were the program to be truly effective, introducing new terminologies and language throughout the company.

The Lowell Center and Stonyfield Farm turned their attention from these frameworks towards the company’s mission. It was noted that in many ways the Stonyfield Farm mission reflected the core aspects of sustainability- economic, environment and equity. Furthermore, the mission was developed by the company and therefore familiar to employees- unlike an exogenous framework. In essence, Stonyfield Farm’s mission was a vision of sustainability. Why not then develop a suite of “mission indicators” that would closely parallel other sustainability frameworks, but would be more relevant to the organization’s stakeholders and allow more practical application of the results? Mission

indicators would equate to sustainability indicators, yet be more relevant and easily comprehensible by employees. Improving Stonyfield Farm’s mission performance could be convincingly argued to equate to improved sustainability performance.

Developing Mission Indicators at Stonyfield Farm

With this plan in mind – to develop mission indicators for Stonyfield Farm’s five mission areas, the Lowell Center and Stonyfield Farm began the process of defining indicators, collecting data, testing the indicators, refining them (see Figure 1 below).



The first step in the process – selecting indicator categories – involved parsing the Stonyfield Farm mission into individual pieces to identify the Mission areas. Five mission areas emerged in this process: Family Farms and Sustainable Agriculture, Environment, Employee Well-being, Profitability/Return on Investment (ROI), and Quality.

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|--|---|---|
| 1. To provide a healthful, productive and enjoyable work place for all employees, with opportunities to gain new skills and advance personal career goals. | → | Employee Well-being |
| 2. To educate consumers and producers about the value of protecting the environment and of supporting family farmers and sustainable farming methods. | → | Family Farms and Sustainable Agriculture) |
| 3. To serve as a model that environmentally and socially responsible businesses can also be profitable. | → | Environment |
| 4. To recognize our obligations to stockholders and lenders by providing an excellent return on their investment. | → | Profitability |
| 5. To produce the very highest quality all natural and Certified Organic products that taste incredible. | → | Quality |

The management team discussed whether the “socially responsible” aspects of the mission needed to be a separate category or was sufficiently represented in the five mission areas. The team decided that social aspects were adequately incorporated into the five broad areas and that a separate “social responsibility” category was not necessary.

From the onset, it was clear that Stonyfield Farm already had well-established indicators for three parts of the firm’s mission – profitability, quality, and (to a lesser extent) the environment. And while the company was managing the other two mission areas (employee well-being and family farms), there were few indicators and these existing indicators were not widely distributed throughout the company. This does not mean Stonyfield in any way lagged general industry practice. In fact, the company’s regular reporting of profitability, quality and environmental data to employees at semiannual all-staff meetings exceeded the practices used by most firms. As has been previously stated, Nancy Hirshberg recognized the need to develop measures of performance (indicators) for all of the aspects of the mission as a tool to aid informed decision-making, improve mission performance and sustainable business practices.

Once complete, the “mission indicators” were to be published in an annual Mission Report. The report, whose target audience was both managers and employees, contains indicators for each of the firm’s five mission areas (see Exhibit II). The process for developing indicators, as well as the actual indicators and sample data for each mission area, are described below.

Employee Well-being Indicators

To develop employee well-being indicators, Stonyfield Farm and the Lowell Center carefully reviewed the company mission statement, dividing the employee section of the mission into three sections: A Healthful Workplace, An Enjoyable Workplace, and Opportunities to Gain New Skills and Advance Personal Career Goals.

“To provide a healthful, productive and enjoyable work place for all employees, with opportunities to gain new skills and advance personal career goals.”

At meetings with 15 of the firm’s middle managers, participants brainstormed indicators to measure performance in each of these three areas. The brainstorm list was trimmed to 15 employee well-being indicators (see Table 2). The first year Stonyfield Farm prepared the report, the company compiled data for 10 of the 15 indicators. Programs were established to collect data for the other five for future reporting.

Several of the indicators use benchmarking data to compare Stonyfield Farm performance with that of other firms of similar size and job market. Stonyfield Farm uses the benchmarking data to compare its performance on compensation, turnover, vacation, holidays, etc. The benchmarking data comes from a privately run human resource firm that annually surveys more than 200 New England firms.

Stonyfield Farm’s employee well-being indicators showed several encouraging trends and presented a few challenges to the firm. For example, the company’s safety record is exemplary, and both compensation and vacation exceeded the benchmark averages. The chief challenge that drew the attention of managers was reducing turnover -- particularly among non-exempt (hourly) staff.

Table 2: Employee Well-being

Healthful Workplace Indicators
1. Lost Work Day Illness Injury Rate
2. Ergonomic Safety
3. Physical climate measurement
Enjoyable Workplace Indicators
4. Compensation
5. Holidays
6. Vacation
7. Turnover
8. Length of Service
9. Stock Ownership
10. Employee Recognition
11. People event hours
Opportunities to gain New Skills and Advance Personal Career Goals Indicators
12. Internal Advancement
13. Education/Training
14. Tuition Reimbursement
15. Employee Climate Survey Results

Family Farm and Sustainable Agriculture Indicators

Of the five mission areas, “family farms” was in some ways the most difficult. The vision of what “supporting family farms” looks like had not been well articulated or understood by employees. There were no indicators in place for measuring any aspect of supporting family farms. While Stonyfield Farm was founded on a small rural farm in 1983, most of its current employees had little connection to farming and New England’s rural agricultural heritage. Nevertheless, preserving family farms was identified as an important company value.

“To educate consumers and producers about the value of protecting the environment and of supporting family farmers and sustainable farming methods.”

A founding premise of Stonyfield Farm holds that the small family farm in comparison to the large, concentrated animal farming operation (CAFO) is generally a better farming system... Large numbers of animals in a confined area concentrate the animal waste products posing an environmental and health risk. On smaller farms, animals generally receive more personal attention and live longer lives under less stress... Family farmers live on the land that they steward. Thus, we believe, they are generally inclined to care about what goes into the soil, water and air where they live and raise their children. Family farms provide open spaces, which preserve rural character and provide fields and forests for wildlife. They also provide jobs and support rural economic vitality, as well as opportunities for business ownership and independence.

–Stonyfield Farm 2000 Mission Report

As the 2000 Mission Report notes, today there are 300,000 fewer U.S. farms than in 1979 and farmers are receiving 13 percent less for every consumer dollar than they did 20 years ago. Furthermore, the ownership and control over agricultural assets is increasingly concentrated in fewer and fewer hands leaving farmers, manufacturers and consumers with limited options.

As with the employee well being indicators, Stonyfield Farm and the Lowell Center drafted a set of family farm and sustainable agriculture indicators and received feedback from key middle and upper managers on the various indicators. As the team began thinking about possible indicators, the discussion turned to whether the indicators should focus on the education aspect of the mission statement or specifically on the company’s impact on family farms and sustainable agriculture. Gary Hirshberg emphasized that while education was very important, the company should focus its performance measures on its own impacts, and not on the impact of its education programs.

Five family farm and sustainable agriculture indicators were chosen. Two of the indicators focused on the firm’s organic products – organic dairy farms are practically speaking family owned and operated, are small in size (less than 80 cows), and exemplify the types of small family farms Stonyfield Farm seeks to support.

Stonyfield Farm collated data for four of these indicators (see Table 3 on the following page). Each of the four indicators improved over the last fiscal year – principally due to increased organic sales.

Table 3: Family Farm Indicators

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| <ol style="list-style-type: none"> 1. Percent of Organic Sales 2. Organic Acres Supported 3. Number of Small Family Dairy Farms Supported 4. Percentage of Milk from Small Farms 5. Price Paid to Farmer (milk only)³ |
|---|

Environmental Indicators

Developing a suite of environmental indicators was the most challenging and resource intensive mission area. While Stonyfield had extensive data on facility utilities and waste generation, Nancy Hirshberg felt it was important to look outside the facility boundaries and develop supply chain indicators that would examine the impacts of procuring raw materials and delivery of the firm’s products to market. Like the other mission areas, Stonyfield Farm and the Lowell Center first brainstormed a list of possible indicators, reviewed these indicators with middle and upper management and collected the various data for the Mission Report.

“To serve as a model that environmentally and socially responsible businesses can also be profitable.”

Table 4: Environmental Indicators

Environmental indicators were grouped into four main categories – Resource Use, Pesticides and Toxics, Global Warming, and Acidification with various sub-indicators under each of these categories. For four indicators (packaging, pesticides, and green house gases), Stonyfield Farm developed facility and supply chain indicators.

- | |
|--|
| <ol style="list-style-type: none"> 1. Resource Use <ul style="list-style-type: none"> • Solid Waste • Wastewater and Water Use • Packaging 2. Pesticides and Toxics <ul style="list-style-type: none"> • Hazardous Chemicals • Pesticides 3. Energy Use & Global Warming <ul style="list-style-type: none"> • Facility Greenhouse Gas Emissions • Supply Chain Greenhouse Gas Emissions 4. Acidification |
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Stonyfield Farm’s environmental indicators were the most resource intensive indicators for several reasons. First, much of the ingredient data is stored

³ Stonyfield had not compiled data on this indicator at the time this case study was written

on the firm’s accounting system (4th Shift®) that required transferring the data to a spreadsheet. Once this conversion was completed, Stonyfield and LCSP had to develop a host of conversion factors for each indicator. For example, to calculate packaging indicators, the number of cups, lids, and cardboard packages had to be converted to a weight measure (pounds). These weight measures were then used to calculate supply chain greenhouse gas emission estimates using various green house gas conversion factors.

While Stonyfield Farm had been tracking environmental data for the past seven years, the indicators developed for the Mission Report were the most comprehensive set ever compiled by the company. The report showed the company’s significant improvement in reducing solid waste, hazardous chemicals (used in wastewater treatment), wastewater biological oxygen demand, and energy use. It also revealed the significant environmental burden in Stonyfield Farm’s supply chain. Managers reviewing the environmental indicators identified several challenges – including the impacts of the firm’s packaging and the greenhouse gas methane emitted from dairy cow flatulence.

Profitability/Return on Investment Indicators

Stonyfield Farm has had a comprehensive set of financial indicators in place for numerous years. They are tracked frequently (e.g. monthly or weekly). The indicators are well accepted throughout the management ranks and are presented to all employees twice each year at company “all staff” meetings.

“To recognize our obligations to stockholders and lenders by providing an excellent return on their investment.”

Because these financial indicators were well defined and accepted, the Lowell Center spent virtually no time other than compiling the eight profitability indicators into the 2000 Mission Report (see Table 5).

Table 5

1. Net Sales	5. Net Income
2. Gross Margin	6. Overhead
3. Stock Price	7. Market Share
4. EBIT ⁴	8. EBITDA ⁵

⁴ Earnings Before Interest and Taxes

⁵ Earnings Before Interest, Taxes, Depreciation and Amortization

Quality Indicators

Quality is a hallmark of Stonyfield Farm yogurt. Stonyfield Farm performs over 900 quality checks every day to ensure that products meet their strict quality requirements.

“To produce the very highest quality all natural and Certified Organic products that taste incredible.”

Indicators of quality were already established, highly refined and broadly communicated. The task was to identify a small number of the many quality indicators that were representative of overall product quality.

Through the process of manager input, four quality indicators were determined—Consumer Complaints, Chill Cell Compliance, Shelf Life Studies, and Good Manufacturing Practices/Sanitation⁶. With more than ten years of historical data to rely on, the company had a set of reliable, repeatable and accurate quality measures.

There were no surprises with the quality measures in the 2000 Mission Report. Quality data is analyzed, scrutinized, and routinely shared with managers and staff throughout the company.

Conclusions/Analysis

Selecting Stonyfield Farm’s indicators and creating a comprehensive Mission Report involved a series of tradeoffs. The team’s decision to focus on the company mission rather than sustainability was a critical one that made selling the overall effort within the company easier. It had immediate relevance to people. The team also had to balance the overall number of indicators that would appear in the Mission Report. Too few indicators might leave critical areas unmeasured, while too many indicators might overwhelm managers with data. Throughout the process the team asked itself, “What are our biggest impacts?” and “What is most important to measure?” While the costs of collecting information and the benefits of such information were not collected, the tradeoffs were noted in these discussions as well.

The Draft FY2000 Mission Report was delivered to Stonyfield Farm managers in Summer 2000. It was the first time managers had seen metrics for each of the five mission areas together – and they responded favorably. For the first time, managers had a comprehensive set of data by which to gauge the company’s overall commitment to its mission.

⁶ Consumer complaints are a measure of feedback from consumers regarding their perception of the product quality. Chill cell compliance, a measure of product stability, measures the rate of cooling/chilling of the finished products to 45 F in a given time according to the package size. Shelf life studies reflect “Total Quality” of finished products during and at the end of the 50-day shelf life. GMP/Sanitation compliance is a measure of the “microbiological cleanliness” of the product and manufacturing equipment at different stages of production.

The report, and the process Stonyfield Farm and the Lowell Center used to prepare it, has spurred action within the company. A middle management team has been tagged with developing a list of initiatives to improve mission performance. This team chose first to focus on reducing turnover – a difficult one given the hyper New Hampshire economy and lack of available production workers. While there are numerous opportunities to improve other aspects of the firm’s mission performance, the middle management team decided that to focus on a single issue and execute it well, as opposed to focusing on multiple projects, dispersing resources, and executing each imperfectly. Reducing turnover would also have a positive affect on many of the other indicators such as product quality and profitability.

In meetings prior to the release of the first draft of the 2000 Mission Report, managers at Stonyfield Farm asked Ms. Hirshberg to go beyond the Report and organize a series of “educational seminars” on topics such as environmental protection and the basics of sustainable development, the human resources practices of leading corporations, the current state of family farming and sustainable agriculture. The seminars were designed to give managers further grounding in these areas as well as examples of innovative practices employed elsewhere. Many at Stonyfield Farm cite the effort to measure the company’s mission and various education seminars as furthering their own commitment to the company. This commitment can be seen in the firm’s new marketing slogan introduced in Summer 2000: “Stonyfield Farm: Yogurt on a mission”.

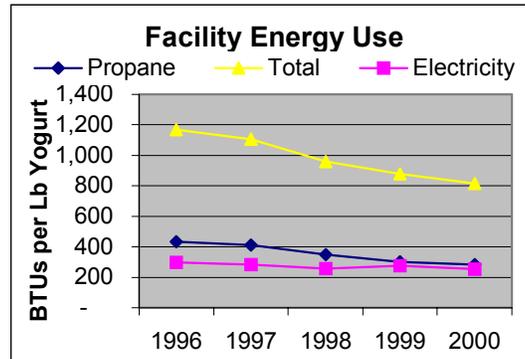
Exhibit I: LCSP Principles

Lowell Center for Sustainable Production Principles of Sustainable Production

1. Products and services are designed and created to be:
 - a) safe and ecologically sound throughout their life cycle;
 - b) produced, packaged, and delivered with an optimal amount of material and energy; and
 - c) durable, repairable, readily recyclable, compostable, or easily biodegradable, as appropriate.
2. Processes are designed and operated such that:
 - a) energy and materials are used within sustainable limits with a preference for renewable forms;
 - b) chemical substances, physical agents, technologies and conditions that present hazards to human health or the environment are reduced or eliminated;
 - c) work spaces are designed to minimize or eliminate chemical, biological, ergonomic, and physical hazards; and
 - d) ecologically incompatible wastes and byproducts are reduced or eliminated.
3. Workers are valued and
 - a) they are encouraged and helped to develop their talents and capacities;
 - b) their work is organized to enhance their efficiency and creativity and to encourage participation in decision-making; and
 - c) their security and well-being are priorities.
- 4) Communities related to any stage of the product lifecycle (from production of raw materials, through product manufacture, use, and disposal) are respected and enhanced economically, socially, culturally, and physically.
- 5) Economic performance is enhanced through:
 - a) satisfying customers with quality products and services that meet social needs
 - b) encouraging stakeholder involvement in decision-making
 - c) promoting innovation,all while employing increasingly sustainable forms of production.

Exhibit II: Sample Stonyfield Farm Mission Indicators

Environment - Facility Energy Use



Profitability - National Market Share FY 00

Company	Dollar Share	Dollar % Change Prior Year
Dannon	29.2	-4.5%
Yoplait	28.9	26.1%
Private Label	14.5	4.3%
Breyers	8.5	5.3%
Colombo	4.5	1.3%
Stonyfield Farm	2.9	28.3%
Mountain High	1.4	1.6%
La Yogurt	1.3	5.6%

Quality - Sanitation Compliance

GMP/Sanitation Compliance	FY 99	FY 00	Goal
Line Studies	94.30%	95.40%	>99%
Finished Product	97.78%	99.28%	100%

Employee Well-Being - Safety

Year	Stonyfield LWDII Rate	Sector Average LSDII Rate for Fluid Milk
1996	7.7	8.0
1997	5.2	7.9
1998	4.0	7.4
1999	.7	Not available

Note: LWDII Rate is the Lost Work Day rate, a standard measure of employee lost days due to accidents and other safety-related incidents.

Family Farming

<i>Indicator</i>	FY1999	FY2000	Percent Increase
1. Organic Acres Supported	980	1,263	29%
2. Number of Small Dairy Farms Supported	54	61	12%
3. Percentage of Milk from Small Dairy Farms	68%	75%	10%