THE ECONOMIC AND FISCAL CONTRIBUTION OF FARM AND OPEN LAND IN DARTMOUTH, MASSACHUSETTS

Summer 2009
ACKNOWLEDGMENTS

We would like to thank the Dartmouth Agricultural Commission and the Massachusetts Department of Agricultural Resources for sponsoring this study.

Rick Hermonot and Jon Jaffe, Farm Business consultants with First Pioneer Farm Credit completed the economic survey and analysis of agricultural land in the study. Carl Mailler, on behalf of American Farmland Trust, completed the Cost of Community Services study.

Thanks also are due to the following public officials and town employees for contributing their time and assistance: Paul Bergman, Administrator of Assessing; David Brownell, Agriculture Commission; Jane Choubah, Principal Clerk, Zoning Board of Appeals; Wendy Henderson, Director, Public Health; Michael Gagné, Executive Administrator; David Hickox, Superintendent, Department of Public Works; Claire Karvonen, Town Accountant; Michael O’Reilly, Conservation Commission; Mark Pacheco, Chief of Police; Donald Perry, Planning Director and all the other people who assisted in the process of conducting this research.

American Farmland Trust (AFT) is a private, nonprofit conservation organization founded in 1980 to protect our nation’s strategic agricultural resources. AFT works to stop the loss of productive farmland and to promote farming practices that lead to a healthy environment.

First Pioneer Farm Credit is a $3 billion financial cooperative serving America’s rural Northeast. In addition to providing loans and leases, we also offer a full range of agriculturally specific financial services to farming, horticulture, forestry and commercial fishing businesses. First Pioneer is owned by our borrowers and stays in close touch with their business needs. We also take a vital interest in the issues that affect the agricultural community.

First Pioneer is a proud member of the Farm Credit System, a nationwide network of banks and retail lending associations chartered to support the borrowing needs of U.S. agriculture and the nation’s rural economy. Headquartered in Enfield, Conn., First Pioneer Farm Credit serves members from 15 branch offices across New England, New York and New Jersey.

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Economic Impact of Agriculture Study for the Town of Dartmouth, Massachusetts

Prepared by First Pioneer Farm Credit

September 2009
Table of Contents

EXECUTIVE SUMMARY .................................................................................................................. 3
INTRODUCTION ............................................................................................................................ 4
   PROJECT OVERVIEW .................................................................................................................. 4
   METHODOLOGY ....................................................................................................................... 5
   DESCRIPTION OF THE COMMUNITY ..................................................................................... 5
SURVEY RESULTS .......................................................................................................................... 6
INVENTORY AND SCOPE OF AGRICULTURE ............................................................................. 8
WHAT SUPPORT COULD THE AG COMMISSION PROVIDE FARMERS? .............................. 9
ECONOMIC IMPACT ASSESSMENT ............................................................................................. 10
   ECONOMIC IMPACT SUMMARY ......................................................................................... 12
CONCLUSION ................................................................................................................................ 13
Executive Summary

At the request of the Dartmouth Agricultural Commission and the Massachusetts Department of Agricultural Resources (MDAR), a fiscal and economic study of agricultural and open lands was undertaken in Dartmouth, Massachusetts. American Farmland Trust (AFT) completed a Cost of Community Services (COCS) study to determine the fiscal contributions of residential, commercial, industrial, and farm and open land in the town. First Pioneer Farm Credit surveyed 100 local farmers to investigate the economic contributions of farms to the local economy. The project included three components:

1) The cost of providing necessary community services to various ownership entities/use types in the town, and the adequacy of offsetting financial contributions from those sectors to the town for those services.

2) The direct economic impact on the town from agricultural enterprises.

3) The potential economic gain or loss to Dartmouth from conversion of the identified existing agricultural/open land and enterprises to alternative uses.

Findings from Survey Regarding the Economic Contribution of Agriculture

From a mailing to the landowners and farmers of the 100 agricultural operations in Dartmouth, First Pioneer Farm Credit analyzed the 50 surveys returned to determine the economic contribution of farmland. The survey found that:

- The 50 respondents reported gross sales from their farms totaling $16,499,084. Of this revenue, $1,470,800 was spent with local vendors and $3,615,964 was paid in wages to employees.

- The average age of the primary owner of the respondent agricultural businesses in Dartmouth is 54 years. Thirty-five percent of respondents indicated they have a successor, and 37 percent indicated they expected to remain in business for more than 20 years. In other words, about two-thirds of survey respondents do not have a successor to continue the farm and do not expect to remain in business for more than 20 years.

- Fifty-five percent of respondents plan to expand or diversify their farm business in the future.

Based on survey responses, First Pioneer Farm Credit calculated the total economic impact of agriculture on the Town of Dartmouth as nearly $30 million, calculated as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Revenue Generated</td>
<td>$16,499,084</td>
</tr>
<tr>
<td>Economic multiplier</td>
<td>x 1.6</td>
</tr>
<tr>
<td>Total</td>
<td>$26,398,534</td>
</tr>
<tr>
<td>Opportunity Cost (excess cost)</td>
<td>$2,515,575</td>
</tr>
<tr>
<td>Total Economic Impact</td>
<td>$28,914,109</td>
</tr>
</tbody>
</table>

It is valuable to note that the direct economic impact calculated represents only those farm owners responding to the survey (50 percent). They represent 45 percent of the Chapter and Mixed Use land in Dartmouth and include all of the larger commercial farm operations (based on...
sales). Thus, using only the respondent data to determine the economic impact is a reasonable proxy, although it likely provides a conservative result.

**Introduction**

**Project Overview**

First Pioneer Farm Credit and American Farmland Trust (AFT) undertook a study to understand the fiscal and economic benefits of agriculture in Dartmouth, Massachusetts. The project included three components:

- A Cost of Community Services (COCS) study to determine the cost of providing necessary community services to various ownership entities/use types in Dartmouth and the adequacy of offsetting financial contributions from those sectors to the town for those services;
- A survey of farmland owners and operators to determine the economic impact on the town from local agricultural enterprises; and
- An analysis of the potential economic gain or loss to the town from conversion of the identified existing the COCS study and landowner survey.

First Pioneer Farm Credit was employed by the Dartmouth Agricultural Commission to conduct a study on the economic impact of agriculture on the Town of Dartmouth, Massachusetts. Rick Hermonot and Jon Jaffe, Farm Business Consultants with First Pioneer Farm Credit, completed this study, the findings of which are summarized in this report.

The purpose of this study is to provide unbiased analysis of the inventory of agricultural activity in Dartmouth and draw conclusions about the economic impact to the community. This information is to be used to develop educational materials to aid in the understanding of agriculture in Dartmouth by its residents, potential residents, realtors, legislators, town managers, etc.

To conduct this study, we began by meeting with members of the Dartmouth Agricultural Commission to review the process that they engaged in that community. We gathered assessment information from the Dartmouth Town Hall and, finally, conducted a survey of the farmland owners and farm operators in Dartmouth. We received a strong response (with 45 percent of farmland acreage and the largest commercial sales represented) from the survey with assistance from the Agricultural Commission to conduct follow-up phone calls to encourage participation by farmers and landowners. The results of the survey are summarized in this report. To protect the confidentiality of the individual respondents, only summary results are included. Individual farm/landowner responses have been retained in our work file.

In conducting this study, we recognized three primary areas that the agricultural activity impacts the community:

1. Agriculture supports factors that impact quality of life in the community such as preservation of open space. However, this study was focused on economic impact and does not specifically address these factors.
2. Economic impact driven by the creation of jobs and the generation of revenues that are reinvested into the local economy.

3. Economic impact to the tax base in the town.

The latter two factors are addressed in detail in this report.

**Methodology**

There were three steps to our methodology for calculating the economic impact of agriculture in Dartmouth:

1. Survey farmers and landowners to determine the nature and scope of farming activities.

2. Quantify the direct economic value of the agricultural enterprises based on the results of the survey and apply an appropriate “economic multiplier” to arrive at a direct economic impact from agriculture to the town of Dartmouth.

3. Use the results of the 2009 Cost of Community Services (COCS) study, conducted by American Farmland Trust for the town of Dartmouth, to calculate an opportunity cost that exists to the town if existing farmland were converted to residential use.

A survey was designed and mailed to all farmland owners and farmers in Dartmouth. The intent of the survey was to gather information on how farmland is being used in Dartmouth (what crop), by whom (owner or tenant) and to connect the scope of agricultural activity with its scope of economic impact in the community. A copy of the survey is attached as Appendix A. Economic questions included amount of gross revenue generated, number of employees hired, gross wages paid, dollars reinvested with local vendors, capital purchases, etc.

The direct economic impact derived from the farmer survey is summarized in this report. We then combined the data from the COCS study to quantify the annual opportunity cost impact to the town budget if the existing farmland were converted to residential use. The potential number of residential units that could result from the development of the remaining farm acreage was projected using a build-out study that was included in the town’s master plan.

Some assumptions needed to be made relative to the exact acreage of agricultural land in Dartmouth. The “Chapter” land includes Chapter 61-A farmland. However, per the assessor’s office, the “Mixed Use” land category is comprised substantially of properties that consist of Chapter 61-A land but are improved with a residence. To arrive at total agricultural acreage in Dartmouth, we combined the acreage of Chapter land and Mixed Use land.

**Description of the Community**

Dartmouth is a suburban coastal community in Southeastern, Massachusetts, in Bristol County. The town is bordered by Fall River and Freetown to the north, New Bedford to the east, Westport to the west, and the Atlantic Ocean to the south.
The following is a breakdown of land use classifications in the town of Dartmouth according to information collected in the Dartmouth assessor’s records:

<table>
<thead>
<tr>
<th>Land Use Classification</th>
<th>Acres</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>17,457</td>
<td>47%</td>
</tr>
<tr>
<td>Commercial</td>
<td>2,405</td>
<td>6%</td>
</tr>
<tr>
<td>Industrial</td>
<td>1,055</td>
<td>3%</td>
</tr>
<tr>
<td>Mixed Use</td>
<td>4,809</td>
<td>13%</td>
</tr>
<tr>
<td>Chapter Land (farm forest, open space)</td>
<td>2,328</td>
<td>6%</td>
</tr>
<tr>
<td>Tax Exempt</td>
<td>9,491</td>
<td>25%</td>
</tr>
<tr>
<td>Total Assessed Acreage</td>
<td>37,545</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Survey Results**

The survey was mailed to 100 farmland owners and farmers; there were 50 respondents. A table of the summary results follows:

<table>
<thead>
<tr>
<th>Number of Respondents</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>8%</td>
</tr>
<tr>
<td>Landowners</td>
<td>14%</td>
</tr>
<tr>
<td>Both</td>
<td>78%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Acreage</th>
<th>3,210 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tillable Land</td>
<td>832 acres</td>
</tr>
<tr>
<td>Woodland</td>
<td>1,705 acres</td>
</tr>
<tr>
<td>Farmstead</td>
<td>109 acres</td>
</tr>
<tr>
<td>Other</td>
<td>564 acres</td>
</tr>
</tbody>
</table>

| Owner Operated Farmland | 67% |
| Land Rented to Other Farmers | 29% |

| Landowners Harvesting Timber | 18% |
| Acres Harvested in Past 10 years | 380 acres |
| Average Timber Sales per Acre  | $33.16 |

| Farms with Easements | 25% |
| Acres in Production  | 2,135 acres |
| Forage Crops         | 50% |
| Cash Crops           | 28% |
| Pasture              | 22% |

| Gross Farm Revenue    | $16,499,084 |
| Average Per Farm      | $336,716    |
| Average Per Producing Acre | $7,728 |
### Funds Spent with Local Vendors
- **Total**: $1,437,800
- **Average Per Farm**: $29,343
- **Average Per Producing Acre**: $673

### Capital Purchases by Dartmouth Farms
- **Total**: $1,480,022
- **Average Per Farm**: $30,205
- **Average Per Producing Acre**: $692

### Gross Wages Paid
- **Total**: $3,615,964
- **Average Per Farm**: $73,795
- **Average Per Producing Acre**: $1,694
- **Average Per Employee**: $9,247

### People Employed by Agriculture in Dartmouth
- **Total**: 400
- **Owners**: 46
- **Unpaid Family Help**: 53
- **Full-Time Employees**: 105
- **Part-Time Employees**: 84
- **Seasonal Employees**: 112

### How is Product Marketed?
- **Farm-stand or Retail on Farm**: 55%
- **Cooperatives**: 2%
- **Pick-Your-Own**: 4%
- **Direct to Restaurants**: 10%
- **Wholesale**: 35%
- **CSA (Community Supported Agriculture)**: 8%
- **Farmers Markets**: 6%
- **Direct to Stores**: 12%
- **Other**: 16%

### Average Age of Owner
- **Total**: 54

### Farms with Next Generation Successor
- **Total**: 35%

### How Long Do You Plan to Farm?
- **Under 5 years**: 10%
- **5 to 10 years**: 14%
- **10 to 20 years**: 33%
- **Over 20 years**: 37%

### Farms Planning to Expand/Diversify
- **Total**: 55%
- **Diversify**: 35%
- **Expand**: 39%
Inventory and Scope of Agriculture

Much of the agricultural production in Dartmouth employs very intense land use (nursery and greenhouse production). The remainder of agricultural production is highly diversified, including dairy, beef, sheep, poultry, other livestock, hay and silage corn, vegetables and cranberries.

Twenty five percent of the farms responding or a total of 877 acres were reported to be protected with temporary or permanent agricultural preservation restrictions. Survey respondents reported the following use of agricultural land in Dartmouth:

<table>
<thead>
<tr>
<th>Acres</th>
<th>Percent of Ag Land</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tillable Land</td>
<td>832</td>
</tr>
<tr>
<td>Woodland</td>
<td>1,705</td>
</tr>
<tr>
<td>Farmstead</td>
<td>109</td>
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<tr>
<td>Pasture</td>
<td>564</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3,210</td>
</tr>
</tbody>
</table>

We also asked questions relative to the status of the farm owners in Dartmouth. This provides insight into the future of agriculture in town. The following are some observations relative to this information:

- Average age of primary owner – The average farmer in Dartmouth is 54 years old. This is common to agriculture in the region and highlights the importance of succession planning to ensure a healthy future for agriculture in the community. Transfer costs can be very high (gift and estate taxes plus professional fees associated with the process). Often transfer taxes can force the liquidation of the farm real estate, especially if a proactive plan is not in place. Management succession planning is also critical to ensure that the next generation manager/owner is well prepared as a leader for the business.

- Succession – Thirty five percent of the farms have identified a next generation successor for their farm. This is good news. While we do not have comparable information for farms in Massachusetts overall, our observation from working with farm families is that this statistic
would be lower on a state or regional basis. A critical component of selecting a successor is to develop management mentoring and assets transfer planning that addresses potential estate tax consequences.

- How long do the farms plan to stay in business? – Thirty-seven percent of the respondents stated that they plan to be in business for more than 20 years. This group also had the highest percentage of successors in place (61 percent).

- Do farms plan to expand or diversify in the future? – Fifty-five percent of the respondents indicated that they plan to diversify. Sixty-one percent of the long-term farms (more than 20 years) plan to expand or diversify in the future. This highlights the fact that the long-term farms need to be proactive in adapting to economic trends to remain viable. If the community is open to such transition (i.e., to value added/retail/diversification, etc.), it will offer a better environment for a healthy future for agriculture. For example, highly restrictive zoning that limits opportunity for farm businesses to develop retail stores at their farms could reduce the long-term viability of agriculture in the town.

Concerns of farmers in Dartmouth were consistent with what we hear from farm owners throughout the region. The following are their concerns that may impact their long-term viability ranked by priority:

1. Regulations – Restrictions imposed by regulations ranging from zoning to wetland and environmental regulations were listed as the number one concern to farmers relative to their operations’ long-term viability.

2. Farm Labor – There is concern over the availability of affordable labor needed to support the farm enterprise. Regionally, this has had an adverse affect on the availability of affordable labor, as farmers must compete with “in-town” businesses that are aggressively seeking help. Often the outside work found on farms (heat, cold, wet, dirty) is a second choice to potential employees who would prefer the relative comforts of working inside a WalMart store, for example.

3. Marketing – Another concern for farmers in Dartmouth is the ability to market farm production directly to the consumer, increasingly important to farm viability in the region as cost of resources continues to go up. This is often seen as a “double-edged sword.” Residential encroachment results in higher land values, more regulatory pressure, and potential complaints from neighbors. At the same time, it offers enhanced opportunity for direct marketing, value added and retail sales that enhance long-term viability.

4. Trespassing/Vandalism – This concern is over the liability that is created when trespassers cause damage to property and/or potentially get hurt on the property. Part of the “double-edged sword” referenced earlier, residential encroachment and increased population density increases the potential for vandalism and trespassing problems.

What Support Could the Ag Commission Provide Farmers?

The concerns of farmers in Dartmouth were consistent with the concerns expressed by farm owners throughout the region. The results of this survey can be very instrumental in forming a strategy for farmer support by the Agricultural Commission. Opportunities for the Ag Commission to support agriculture in Dartmouth include but are not limited to:
1. **Farm Succession Training** – This is a topic that is subject to procrastination by farmers until it is too late. The more often the topic is presented, the more farm owners will develop a proactive strategy. This includes estate tax planning as well as management succession planning training by bringing in outside speakers to hold training seminars at nominal cost to the participants. Some of this is being done by the Southeastern Massachusetts Agricultural Partnership (SEMAP) at semaponline.org.

2. **Farm-Link Networks** – Many owners do not have a next generation member in the family who wants to take over the farm but are open to developing a succession plan with unrelated individuals. Support is needed to match these individuals and bring the professional resources to the table that will help facilitate agreements for farm transfer. SEMAP has a farm link program that can be found at http://www.umassd.edu/semap/.

3. **Responsible Regulations** – Working with town health department, zoning board, wetland board, etc., to promote responsible regulations that are rooted in common sense and do not result in unreasonable restrictions on farm viability. Often, when towns experience rapid residential growth, new residents move onto town boards and promote agendas that are inconsistent with a healthy agriculture. Being proactive with these groups and individuals to promote awareness and responsible regulations is vital.

4. **Promotion of Value Added and Agricultural-Retail Development Opportunities** – This can be accomplished through training for farmers and the promotion of farmers markets, etc., and ensuring that zoning regulations remain flexible enough to allow these activities.

5. **Farm Labor** – Offering training for farmers on the use of migrant or immigrant labor and promoting the acceptance of the migrant work force and their cultural differences within the community. Often immigrant workers are poorly received in a community because they are seen as taking away jobs from local workers. Educating residents as well as farm owners about the reality of this source of labor can be beneficial.

6. **Promotion of Good Neighbor Relations** – Educational meetings with farmers and residents that address neighbor complaints or vandalism issues and promote good neighbor relations from both the farmer and homeowner perspective are important. Promoting Ag in the Classroom programs in the local schools is also a strong opportunity to build awareness. Farm owners that are willing to welcome public and school group tours of their farms can go a long way to cultivating good neighbor policy. The Agricultural Commission may want to consider organizing annual farm tours on rotating host farms in the community to showcase the agriculture in town.

7. **Farmland Protection Programs** – Support and promote continued local, state, and federal farmland protection programs to help provide funding for the purchase of development rights in Dartmouth that will permanently preserve farmland.

**Economic Impact Assessment**

The completion of an economic impact assessment of agriculture to the town of Dartmouth considered both the:

1. Direct gross revenues that are generated on the farms in Dartmouth; and
2. The opportunity cost associated with losing agriculture to residential development.
The following is a discussion of these two factors.

Direct Gross Revenues
Direct gross revenues are those generated on the farms in Dartmouth. Some of these revenues are paid out to local workers and to area vendors. Results of the survey indicated that of the $16,499,084 of estimated gross revenues generated on Dartmouth’s farms, 40 percent is put directly into the local economy in the form of wages ($3,615,964), funds spent with local vendors ($1,437,800), and capital purchases ($1,480,022).

The local economy benefits further from the dollars paid to workers and local vendors, since some of those funds are turned over multiple times locally. The portion of each turnover that remains in the local economy creates a multiplier effect or “ripple effect” of Dartmouth’s agricultural revenues that are initially injected into the local economy.

When looking at a multiplier effect on a state or regional basis, more substantial multipliers can be expected. Other economic impact studies done for agriculture have used economic multipliers of 1.6 to 2.2. As a multiplier effect is focused on a smaller area, such as just the town of Dartmouth, much more potential “dollar leakage” occurs, reducing the appropriate multiplier effect.

Because of the focus of the economic impact analysis to the immediate area around Dartmouth, the low end of this multiplier range was used to measure a more regional impact. This low-end multiplier (1.6) is further supported by the fact that 40 percent of the gross revenue generated by the farms in Dartmouth was reported to be reinvested with local vendors and employees. This sets an implied multiplier of at least 1.4. When we consider that 40 percent of funds are reinvested in the local community (e.g., labor) much of those funds are spent in the local economy as well. The implied multiplier increases to over 1.6 when this is taken into consideration. Therefore a multiplier of 1.6 is considered realistically conservative.

A multiplier of 1.6 means that for every dollar created in the local economy, another 60 cents is re-invested into that local economy by employees re-spending their paycheck locally and local vendors re-spending their receipts locally.

Based on the farm data reported in the survey, the following is a summary of the direct annual economic impact of the total agricultural activities in Dartmouth:

<table>
<thead>
<tr>
<th>Gross Revenue Generated</th>
<th>$16,499,084</th>
</tr>
</thead>
<tbody>
<tr>
<td>Times multiplier</td>
<td>X 1.6</td>
</tr>
<tr>
<td>Equals Total</td>
<td>$26,398,534</td>
</tr>
</tbody>
</table>

Opportunity Costs
The second economic impact component is the opportunity cost associated with losing agriculture to residential development. Most of the agricultural land in Dartmouth is zoned for residential use. A build-out capacity analysis was completed as a part of the Dartmouth Master Plan in 2007. Using projections from this analysis, we looked at the cost to the community if the agricultural land were lost to residential development.
Agricultural land helps to keep down Dartmouth’s tax rates. According to the COCS study, the following relationship exists between the tax revenue generated and the cost of services provided in Dartmouth:

<table>
<thead>
<tr>
<th></th>
<th>Cost of Services for each $1.00 in revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm &amp; Open Space</td>
<td>$0.26</td>
</tr>
<tr>
<td>Industrial Uses</td>
<td>$0.29</td>
</tr>
<tr>
<td>Commercial Uses</td>
<td>$0.45</td>
</tr>
<tr>
<td>Residential Uses</td>
<td>$1.14</td>
</tr>
</tbody>
</table>

The COCS study concluded that all Dartmouth residential properties cost the town $8,497,157 more than they generated in tax revenue. The 2000 census reports 11,283 residential units in Dartmouth plus 485 additional units since 2000 or a current estimate of 11,768 residential units:

$8497,157 shortage/11,768 units = $722 shortage per residential unit

The 2007 Dartmouth Master Plan indicates a build-out capacity of an additional 4,359 residential units in Dartmouth. Agricultural land accounts for 36 percent of the undeveloped land in Dartmouth:

4,359 potential residential units X 36 percent on agricultural land =

1,569 potential units on agricultural land

1,569 potential units X $722 existing fiscal shortage per unit =

$1,132,991 additional cost to the town if full build-out of agricultural land were realized

This means that conversion of the agricultural land to residential development could represent an opportunity cost to the community of $1,132,991 in additional cost to the town in excess of tax revenue generated.

In addition, according to the COCS study, if the agricultural acreage were converted to residential use, an existing positive net tax revenue of $1,382,584 from the agricultural and open space land would be lost.

Therefore, the total opportunity cost of a full build-out of the agricultural and open space land is calculated to be $2,515,575:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity Cost (lost surplus)</td>
<td>$ 1,382,584</td>
</tr>
<tr>
<td>Opportunity Cost (excess cost)</td>
<td>$ 1,132,991</td>
</tr>
<tr>
<td>Total Opportunity Cost</td>
<td>$ 2,515,575</td>
</tr>
</tbody>
</table>

**Economic Impact Summary**

To summarize, the direct and indirect economic impact of agriculture on the town of Dartmouth is:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Economic Impact -</td>
<td>$26,398,534</td>
</tr>
<tr>
<td>Indirect Fiscal Impact (Opportunity Cost) -</td>
<td>$ 2,515,575</td>
</tr>
<tr>
<td>Total Economic &amp; Fiscal Impact -</td>
<td>$28,914,109</td>
</tr>
</tbody>
</table>
Conclusion

The economic impact analysis used a survey of farmers and landowners in Dartmouth to estimate the direct gross revenues generated on the farms in Dartmouth. Some of these revenues are paid out to local workers and to area vendors. Results of the survey indicated that of the $16,499,084 of estimated gross revenues generated on Dartmouth’s farms, 40 percent of that revenue is put directly into the local economy.

In addition to the direct funds injected into the local economy, some of those funds are turned over multiple times locally. The portion of each turnover that remains in the local economy creates a multiplier effect or “ripple effect” of Dartmouth’s agricultural revenues that are initially injected into the local economy. A multiplier of 1.6 was determined to apply to the Dartmouth analysis. The multiplier effect increased the direct economic impact of agriculture to $26,398,534.

The final consideration was to determine the fiscal impact on the town if the agricultural land in Dartmouth were fully developed. Using build-out estimates completed by the town and the COCS study for residential and agricultural property completed as a part of this report, we calculated the fiscal impact (opportunity cost) to be $2,515,575.

This resulted in our final conclusion that the annual economic and fiscal impact of agriculture on the town of Dartmouth is almost $29 million per year.

Both the COCS study and economic analysis suggest that developing strategies to retain this land base for future agriculture is a good long-term investment for Dartmouth.
Appendix

Town of Dartmouth Farm Survey
Name: ___________________________ Phone: ___________________

Farm Name: ___________________________

Address: ___________________________

Section 1 – General information

1) Are you a farmer_____, landowner____, or both____?

2) How many acres do you own?

<table>
<thead>
<tr>
<th></th>
<th>In Dartmouth:</th>
<th>In other towns:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Acres:</td>
<td>__________</td>
<td>__________</td>
</tr>
<tr>
<td>Tillable Acres:</td>
<td>__________</td>
<td>__________</td>
</tr>
<tr>
<td>Wooded Acres:</td>
<td>__________</td>
<td>__________</td>
</tr>
<tr>
<td>Pasture:</td>
<td>__________</td>
<td>__________</td>
</tr>
<tr>
<td>Farmstead:</td>
<td>__________</td>
<td>__________</td>
</tr>
</tbody>
</table>

3) If you do not actively farm, do you rent your tillable acreage to another farmer?

   _____ Yes      Name/address of tenant: __________________________
   _____ No
Rental Rate (per acre): ________________________________
4) Have you harvested timber in the past ten years from woodlots owned in Dartmouth?
   _____Yes   _____No

   If yes: From how many acres? _______ acres
   What was total timber value (past 10 yrs)? $___________

5) Have you sold the development rights on any of your land?
   _____Yes   _____No

   If Yes: Number of acres: ____________
           _____Permanent Easement or _____Temporary (for ______ years)

Section 2 – Please complete if you are actively farming

6) Please rank the following in the order of priority in which they pose a problem or concern to you relative to the operation of your farm:

   _____Hiring help
   _____Trespassing/vandalism
   _____Pilfering/theft
   _____Availability of fertilizers/pesticides
   _____Availability of machinery/parts
   _____Availability of veterinary services
   _____Complaints from neighbors concerning farming operations
   _____Regulations affecting farm operations
   _____Marketing your farm production
   _____Availability of technical assistance
   _____Other issues (explain)__________________________
7) Please summarize how you used your farm acreage in 2007:

<table>
<thead>
<tr>
<th></th>
<th>In Dartmouth:</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres owned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acres rented</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total acres farmed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Land Rental Rates** (if you rent land, please indicate rental rates/range per acre)

<table>
<thead>
<tr>
<th>Category</th>
<th>Rate per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop Land</td>
<td></td>
</tr>
<tr>
<td>Orchard</td>
<td></td>
</tr>
<tr>
<td>Nursery Stock</td>
<td></td>
</tr>
<tr>
<td>Cranberry Bog</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

8) What were the gross sales from your farm in 2007? (nearest thousand dollars)

$_____________

9) How much of your total expenditures in 2007 were paid to local vendors (within a 25-mile radius of your farm)? (nearest thousand dollars)

$_____________
10) Please indicate the number of workers on your farm in 2007:

Owners
Unpaid family help
Full-time employees (including paid family members)
Part-time employees
Seasonal employees
TOTAL number of workers -

10) What was your gross payroll expense in 2007?

$____________

11) How do you market your farm products? (check all that apply)

_____Farmstand
_____Cooperative
_____Pick-Your-Own
_____Direct Sales to Restaurants
_____Direct Sales to Stores
_____Wholesale
_____Not Applicable

_____Farmers’ Markets
_____Individual Sales at Farm
_____Community Supported Ag
_____Other (please explain)

11) What were your total capital purchases for 2007?
(purchase of depreciable farm assets such as buildings, equipment, motor vehicles, etc.)

$____________________

12) What is the age of the primary operator of your farm?

__________ years old

13) Do you have a “next generation” interested in operating the farm?

_____Yes  _____No
14) How long do you and/or your family plan to continue farming? 
(please check one) 

_____ Less than 5 years 
_____ 5 to 10 years 
_____ 10 to 20 years 
_____ More than 20 years

15) Do you have plans to expand or diversify your farm? 

_____ Yes  _____ No

Please explain:  

Section 3 – Please complete if your farm includes a livestock enterprise:

16) Check the type(s) of livestock enterprises that you have at your farm:

<table>
<thead>
<tr>
<th># Head Owned</th>
<th># Head Boarded</th>
<th># Stalls</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ Horses</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>_____ Dairy Cattle</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>_____ Beef Cattle</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>_____ Sheep</td>
<td>_____</td>
<td></td>
</tr>
<tr>
<td>_____ Other - Describe</td>
<td>________________________________</td>
<td></td>
</tr>
</tbody>
</table>