



# Farms for the Future

Massachusetts' Investments  
in Farmland Conservation





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## Massachusetts' Investments in Farmland Conservation

This report is intended to provide readers with a better understanding of Massachusetts agriculture and the land on which it relies. *Farms for the Future: Massachusetts' Investments in Farmland Conservation* includes a review of state programs that are saving farmland, protecting the environment and helping improve farm profitability, and recommends a number of actions to improve and complement those programs. The information is presented in five chapters:

- I. Commonwealth Farms: Many Products, Many Benefits
- II. Farming in the Commonwealth Today: Challenges and Opportunities
- III. Agricultural Preservation Restriction Program
- IV. Farm Viability and Conservation Programs
- V. Recommendations



American Farmland Trust (AFT) is a private, nonprofit organization founded in 1980 to stop the loss of productive farmland and to promote farming practices that lead to a healthy environment. Our New England Office is located in Northampton, Mass.

AFT has been active in farmland protection efforts in Massachusetts for more than 20 years and promotes farmland protection, farm viability and farm conservation through research, outreach, advocacy and policy development at the municipal, state and federal levels.

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### Acknowledgments

Special thanks to the following people for their helpful feedback, ideas and information:

Kathy Carroll of University of Massachusetts Cooperative Extension Service, Kelly Coleman of Community Involved in Sustaining Agriculture, Carl DeMatteo of Northeast Family Farms, Diemand family of Diemand Farm, Doug Gillespie and Nathan L'Etoile of Massachusetts Farm Bureau Federation, Rich Hubbard of Franklin Land Trust, Dave Jackson of Enterprise Farm, Deborah Johnson of Natural Resources Conservation Service, Jeff LaFleur of Cape Cod Cranberry Growers' Association, Bernie McHugh of Massachusetts Land Trust Coalition, North Amherst Community Farm, Andrew Orr of Westport, Jim Putnam and Bob Smith of First Pioneer Farm Credit, Steve Verrill of Verrill Farm, Ryan Voiland of Red Fire Farm, and the staff of the Massachusetts Executive Office of Energy and Environmental Affairs, and the Department of Agricultural Resources.

American Farmland Trust is grateful to its Massachusetts members, the Sarah K. deCoizart Article TENTH Perpetual Charitable Trust, the Claneil Foundation and other donors for the generous financial support that made this publication possible.

The following American Farmland Trust staff members were involved in the production of this report: Ben Bowell, Cris Coffin, Mike Eley and Doris Mittasch.

# CHAPTER ONE

## Commonwealth Farms: Many Products, Many Benefits

Massachusetts has a rich and diverse heritage of farming, and the Commonwealth's agriculture continues to be an integral part of the state's economy, culture and landscape. From cranberry bogs to apple orchards, dairy farms to greenhouses, vegetable fields to livestock operations, the state's diverse agricultural industry remains composed primarily of family farms, which are increasingly focused on value-added products and direct-to-consumer marketing to improve farm profitability.

Some of the public benefits of the state's 6,100 farms and 519,000 acres of land in farms are readily apparent—the scenic beauty of a pumpkin field in the fall or a pasture of grazing dairy cows in the summer, the availability of fresh-picked fruits and vegetables from June through November. Other benefits are not as obvious, such as farmland's contribution to water quality, flood storage and carbon sequestration; the access often offered to neighbors and community residents for hunting, walking or snowmobiling; or the role of farms in keeping town budgets balanced.

### Generating Revenue and Jobs

Farms are a vital component of the state's economy. The Commonwealth's farms generate \$384 million in annual sales of farm products, employ 13,545 workers and spend nearly \$216 million statewide on inputs such as feed, seed, livestock, fertilizer, electricity and fuel. Massachusetts farmers also pay \$23 million annually in local property taxes.<sup>1</sup> The economic impact of farming can be particularly large in some communities. For example, a 2006 study performed by First Pioneer Farm Credit found that the total economic impact of agriculture in Carver is over \$55 million per year.<sup>2</sup>

The Commonwealth's agrarian heritage is an integral part of the state's appeal to tourists. Picturesque pastures and orchards, rural villages anchored by working farms, and bountiful harvests of seasonal farm products clearly play a large role in attracting the estimated 31 million visitors who spend over \$12 billion each year.<sup>3</sup>

### Helping Balance Municipal Budgets

Like commercial properties, farmland helps to balance municipal budgets. Cost of Community Services (COCS) studies done in towns and counties across the country consistently show that farmland generates more in local property taxes than it requires in local municipal services. Conversely, residential development generally fails to generate sufficient tax revenues to offset the costs of providing services to its residents. Unlike human residents, cows don't play soccer and cranberries don't go to school, so farms

#### "Fingertip Facts" about Massachusetts Agriculture

Cash receipts	\$384 million
Farms	6,075
Farmland	518,570 acres
Average farm	85 acres
Farmland value	\$9,234/acre
Farms with hired labor	1,770
Workers	13,545
Wages paid	\$99 million
Farmers' markets	141
Roadside stands	414
Food manufacturers	2,600
Revenue	\$6 billion

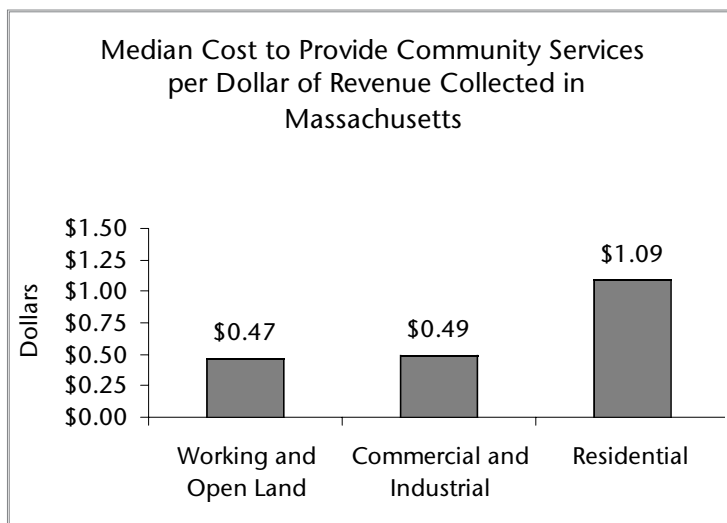
#### Cash Receipts

Greenhouse/nursery	36%
Fruit/vegetables	20%
Cranberries	12%
Milk	12%
Livestock/poultry	9%
Other crops	9%
Cattle	2%

Source: Massachusetts Department of Agricultural Resources (MDAR); data based on 2002 Census of Agriculture

require little in the way of town services or infrastructure. Even when assessed at its agricultural value, as it is under Chapter 61A in Massachusetts, farmland helps to finance needed town services.<sup>4</sup>

Data from the seven most recent COCS studies done in Massachusetts towns mirror the results from studies nationwide. Averaging the findings from studies done in Becket, Franklin, Leverett, Middleborough, Northfield, Southborough and Westford in the past 10 years, every \$1.00 of revenue generated by the residential sector is offset by \$1.09 spent in services to the sector. In contrast, for every \$1.00 of revenue generated by farmland and open space, only \$0.47 is spent in services.<sup>5</sup> Studies in three Massachusetts towns are underway and will be completed in 2009, expanding the statewide data set.



Source: Farmland Information Center, Fact Sheet, *Cost of Community Services*, 2007

### Protecting the Environment

While poorly managed farms can cause environmental problems, the net environmental impact of farms and farmland is overwhelmingly positive. A typical Massachusetts farm’s cropland, pasture, wetlands and woodlands often provide aquifer recharge areas, act as a natural filter for surface and subsurface water, and help minimize flooding. Farms offer feeding and breeding areas for local bird populations and provide stopovers for migrating birds, while providing habitat for many other land and aquatic species. Woodlands, pasture, hay fields and cropland not tilled annually also act as a carbon “sink,” sequestering carbon dioxide and helping to curtail global warming.

In its 2003 publication *Losing Ground: At What Cost?*, the Massachusetts Audubon Society

estimated the economic value of non-market ecosystem services—such as climate and nutrient regulation, habitat, soil retention and formation, pollination, recreation and aesthetics—that land in farms provides. These are services on which society depends, and, while generally considered “free,” they would be extremely costly to replace should the privately owned lands that provide them be converted to developed uses. The Audubon study concluded that the annual value of these services provided by cropland and pasture is \$1,381 per acre; for forestland, the value is \$984 per acre. The state’s 519,000 acres of land in farms thus provide an estimated \$632 million annually in non-market ecosystem services.<sup>6</sup>

### Providing Local Food

Local food is very much in demand in Massachusetts. Consumer interest has been fueled by increased concern over food safety, broader understanding of the nutritional benefits of fresh foods, and growing awareness by consumers of how “food miles” (the distance food travels from where it is grown to where it is purchased) contribute to their carbon footprint.

A survey conducted in 2006 by the Community Involved in Sustaining Agriculture (CISA), one of several “buy local” organizations around the Commonwealth, illustrates just how many residents in the Pioneer Valley are eating locally. A full 95 percent of consumers in Hampshire and Franklin counties reported buying locally grown food, 64 percent of them weekly.<sup>7</sup>

**Produce in the U.S. travels, on average, 1,500 miles from farm to consumer.<sup>8</sup>**

Interest has expanded to public institutions as well. According to the Massachusetts Farm to School Project, as of June 2008, 167 public school districts, representing 42 percent of the Commonwealth’s students, serve locally grown foods in their meal programs. Additionally, 33 colleges and private schools, and at least three hospitals in the state purchase local foods for their cafeterias.

Massachusetts farms are meeting this expanding demand in a variety of ways. Farm stands are increasingly prevalent. So, too, are Community Supported Agriculture (CSA) farms, where families can purchase a yearly “share” in a farm and receive a certain amount of food every week. According to the University of Massachusetts, there are currently more than 72 CSA farms in the state. Additionally, the number of farmers' markets has increased by 40 percent in the last seven years; there are now over 164 of them.<sup>9</sup>

In 2000, three University of Massachusetts professors assessed the Commonwealth's self-sufficiency in several food categories. While Massachusetts farms were the source of only 1 percent of meat and poultry purchases in the state and less than 15 percent of dairy products and eggs, they accounted for 33 percent of the vegetables and 65 percent of the fruit purchases. In comparison to a study done in 1975, overall self-sufficiency in food products from Massachusetts farms had increased, from approximately 19 percent in 1975 to 32 percent in 1997.<sup>10</sup>

### **Improving Local Quality of Life**

Perhaps the most valued attribute of Massachusetts farms is the hardest to quantify—their contribution to local “quality of life.” When faced with the potential loss of a local farm, community residents often rally in support. In Duxbury, for example, residents voted to spend \$1.5 million raised through the Community Preservation Act to purchase the town's last remaining dairy farm; an

additional \$2 million or so was raised through private donations to complete the project.<sup>11</sup>

For some people, farms and farming represent an important link to an agrarian past and Yankee tenacity and ingenuity. For others, farms provide heart-warming scenic beauty that makes the daily commute a pleasant experience or offer the tranquility of a snowshoe through a winter pasture or a run past a summer meadow of freshly cut hay.

In recent years, many Massachusetts communities have taken steps to acknowledge the value residents place on local farms by enacting right-to-farm bylaws and establishing town agricultural commissions. As of October 2008, 116 towns across the state had formed, through town meeting vote, agricultural commissions to represent the voice of agriculture in local government. Eighty-one towns had adopted right-to-farm bylaws indicating their support for local farms and the rights of farmers to conduct normal agricultural practices.<sup>12</sup>

Recognition of the value of local farms is apparent in other ways as well. Communities across the Commonwealth are committing significant local resources toward local farmland protection projects. And many consumers are willing to pay more for local food products to support local farm businesses. A statewide poll conducted in May 2007 found that 69 percent of individuals surveyed were willing to pay at least 5 cents more for milk at the grocery store if the increase were to be used to directly support dairy farms in Massachusetts.<sup>13</sup>

# CHAPTER TWO

## Farming in the Commonwealth Today: Challenges and Opportunities

### Farmland Availability and Loss

In 2002, according to the U.S. Census of Agriculture, Massachusetts had 519,000 acres of land in farms, representing 10 percent of the state's total land area. As is typical in New England, a significant percentage of this land—about 40 percent, or 211,000 acres—is forested. The remainder is a mix of cropland (207,000 acres), pastureland (31,000 acres) and other land, including wetlands (69,000 acres). The average farm size is 85 acres, including wetlands and woodlands. The amount of prime farmland—land with the best combination of physical and chemical characteristics for producing crops—represents just over 50 percent of the state's total farmland acreage. As of 1997, the state's prime farmland included 119,000 acres of cropland, 26,500 acres of pasture and 132,000 acres of forested land.<sup>14</sup>

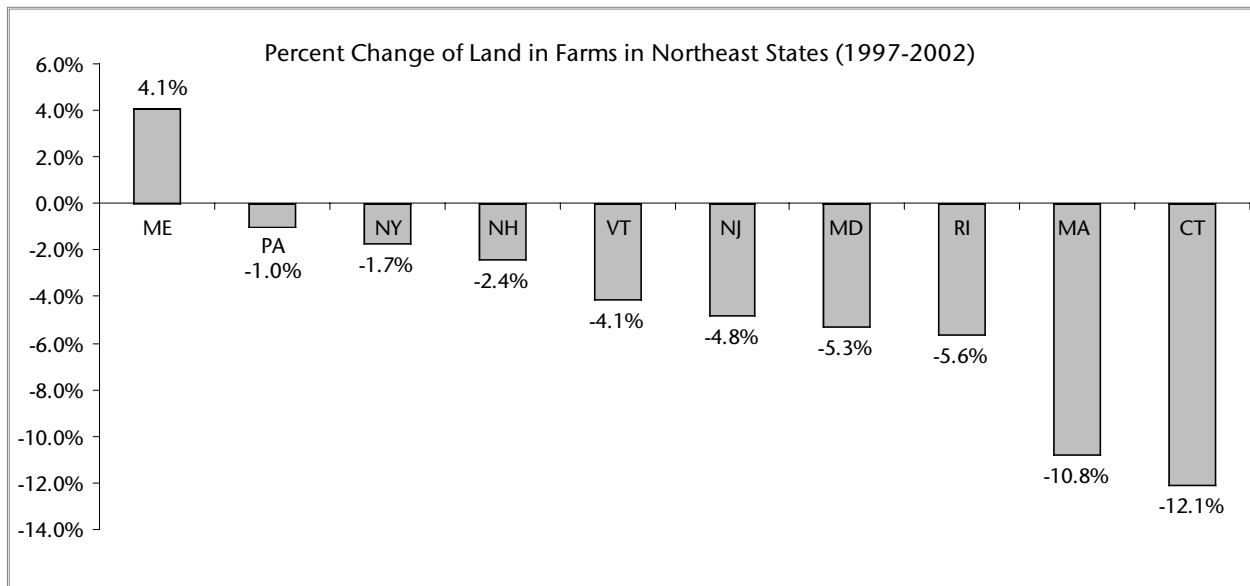
The amount and rate of farmland loss in the Commonwealth over the past 25 years can be pieced together through three different data sources: MassGIS, U.S. Department of Agriculture (USDA) National Resources Inventory (NRI) and USDA Census of Agriculture.

The most recent data available through these sources are from 2003.

- According to MassGIS, between 1971 and 1999 Massachusetts lost approximately 79,000 acres of cropland, pasture and woody perennials, such as cranberry bogs, nursery land and Christmas tree farms. This represents an average annual loss of about 2,900 acres.
- The NRI indicates that on average 5,440 acres of cropland and pasture in Massachusetts were converted to developed use every year from 1992 to 1997. Data from the 2003 Annual NRI suggest that this rate slowed between 1997 and 2003 to less than 2,000 acres per year. However, the 2003 data also indicate that during this same period,

**While Massachusetts has 519,000 acres of land in farms, only 119,000 acres of that land is cropland with prime agricultural soils—the best land for food production.**

conversion of forested land exceeded 15,000 acres per year. Since more than half of the state's prime farmland is forested, this large rate of forest conversion impacts agriculture in a number of ways: managed woodlots provide many Massachusetts farms with income from timber and firewood sales, and their loss can affect farm profitability. Forest land is also an important buffer between farms and non-farming neighbors.



Source: USDA National Agricultural Statistics Service, *Census of Agriculture, 2002*

- The 2002 Census of Agriculture data report that, from 1997 to 2002, the total acreage of land in farms in Massachusetts declined annually on average by nearly 12,000 acres. The Census does not indicate whether or not this land has been developed. Like the 2003 Annual NRI data, more recent estimates from the National Agricultural Statistics Service suggest that the rate of land leaving agricultural production may be abating.<sup>15</sup> New 2007 Census data are expected in February 2009.
- There are significant regional variations in farmland loss. The 2002 Census reports that Plymouth County saw the largest drop in land in farms from 1997 to 2002, with a 27 percent decline in farm acreage. Bristol, Hampden, Hampshire and Worcester counties each experienced more than a 10 percent drop in farm acreage.

### Farmland Affordability

The Commonwealth's shrinking base of working lands has enormous repercussions for a natural resource-based industry whose profitability depends on a stable source of productive land. Competing demands on farmland for housing and commercial development have dramatically increased farm real estate values over the past decade from \$6,200 per acre in 1997 to \$12,200 per acre in 2008.<sup>16</sup> While the escalating value of farmland represents a valuable asset on the farm balance sheet and a vital nest egg for retiring farmers, it is also making it increasingly difficult to establish or expand a farm operation.

**The average per-acre farm real estate value in Massachusetts is \$12,200, the highest in the country.<sup>17</sup>**

Farmers across Massachusetts rely on rented land. According to the 2002 Census of Agriculture, 109,000 acres of land in farms in the state are rented or leased by farmers from non-farming landowners.<sup>18</sup> While the Census does not indicate what type of land this is, assuming it is largely cropland and pasture land, rental land would account for over 40 percent of the Commonwealth's total land in crops or pasture. Land owned by non-farming landowners can be

especially vulnerable to conversion to non-agricultural uses, especially if passed on to heirs who have little connection to either the land or to the farmer working it.

### Farm Expenses and Income

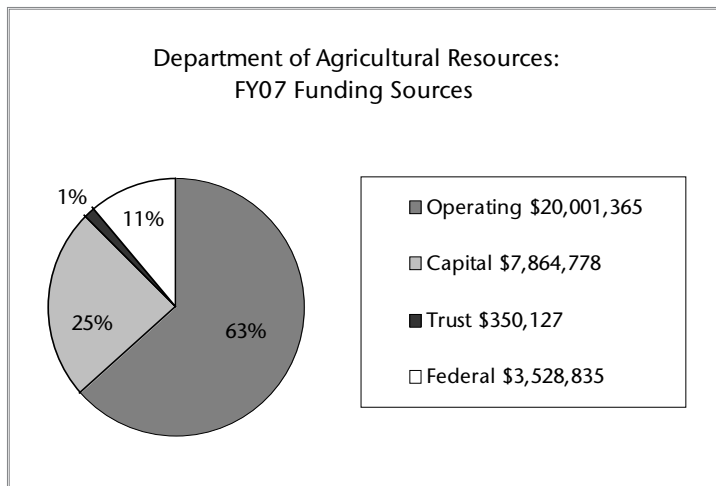
Massachusetts farmers pay over \$360 million annually in production expenses. Farm expenses in the Commonwealth have risen sharply in the past decade. From 1997 to 2002, average production expenses increased by a staggering 27.5 percent. Partially as a result of rising expenses, the same five-year period saw a steep drop in net farm income, from an average per farm of \$24,000 to an average of \$11,000. More recent estimates suggest an upward turn in net farm income—from \$94 million in 2002 to \$131 million in 2005—but a continued escalation of farm input costs such as feed and energy.<sup>19</sup>

**The average per-acre property tax paid by Massachusetts farmers is the fourth highest in the nation.<sup>20</sup>**

Several factors contribute to the high costs of farm production expenses in the Commonwealth. Because of agriculture's dependence on fuel, high energy costs have a significant impact on farming. Massachusetts ranks eighth in the U.S. for overall energy prices, which are 30 percent higher than the national average.<sup>21</sup> Rising land values have also contributed to higher expenses. Land rent has increased—from 1997 to 2002 the per farm average increased by 20 percent while the number of renters paying \$10,000 or more annually increased by 38 percent. Property taxes, too, have had an impact.

High production expenses have encouraged Massachusetts farm businesses to develop retail market opportunities and value-added products to maintain profitability. As a result, the state's farms lead the way in the growing direct-to-consumer movement. In fact, Massachusetts ranks first in the nation for the value of direct market sales per farm, at \$24,900—over 2.5 times that of the U.S. average. Worcester County ranks fourth among all counties in the U.S. for the value of direct sales of agricultural products to consumers, at nearly \$5 million.<sup>22</sup>





Source: Massachusetts Department of Agricultural Resources, 2008

### Market and Product Development

Several state initiatives are helping to encourage new market and product development and to revitalize the Commonwealth's food system.

These initiatives include:

- A new state “agricultural preference law” requires state institutions to give preference to Massachusetts-grown farm products and authorizes local school districts to do likewise, helping to build new market outlets for local farms.
- A “virtual” Agricultural Innovation Center (AIC) provides grants to trade associations and nonprofit organizations for several purposes, including expanding export opportunities for state food and farm products, direct-to-consumer sales, and developing and promoting new uses of farm products and by-products. The AIC has granted more than \$3.4 million since fiscal year 2007.
- A new energy ombudsman position in the Massachusetts Department of Agricultural Resources (MDAR) is tasked with helping to create new energy-related farm market and product opportunities.
- A landmark energy bill enacted in 2008 allows farmers to sell excess electricity generated from solar and wind power into the grid. The measure also mandates yearly increases in the Commonwealth's renewable energy portfolio, which will spur investments in technologies that make use

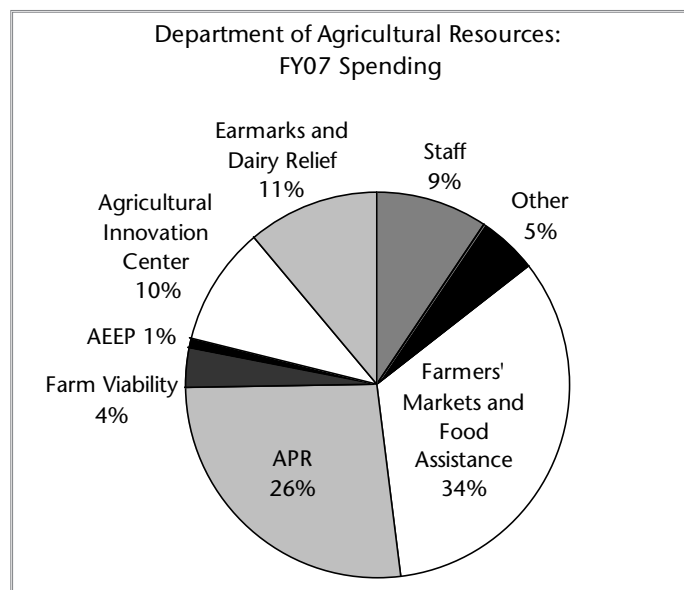
of wood, new agricultural products, and crop waste and by-products.

- A newly authorized “linked” loan program will offer farmers four-year, low-interest loans of up to \$500,000 for a variety of marketing, production, infrastructure or environmental needs.

These initiatives are an important complement to three capital investment programs within the MDAR—the Agricultural Preservation Restriction (APR) program, the Farm Viability Enhancement Program (FVEP) and the Agricultural Environmental Enhancement Program (AEEP). These

three bond-funded programs, which accounted for 31 percent of the MDAR budget in fiscal year 2007, represent the department's core investments in farmland conservation. Funding for these programs is typically authorized in a multi-year Environmental Bond bill. In 2008, the state legislature enacted a new Environmental Bond that increased the bond authorization for each of these three programs over the next five years. The new bond authorization levels, discussed in greater details in the chapters that follow, include:

- \$67.75 million for the APR program, up from \$45.5 million in the 2002 Environmental Bond;
- \$30 million for the FVEP and other farm viability initiatives, up from \$15 million; and
- \$3 million for the AEEP up from \$2 million.



Source: Massachusetts Department of Agricultural Resources, 2008

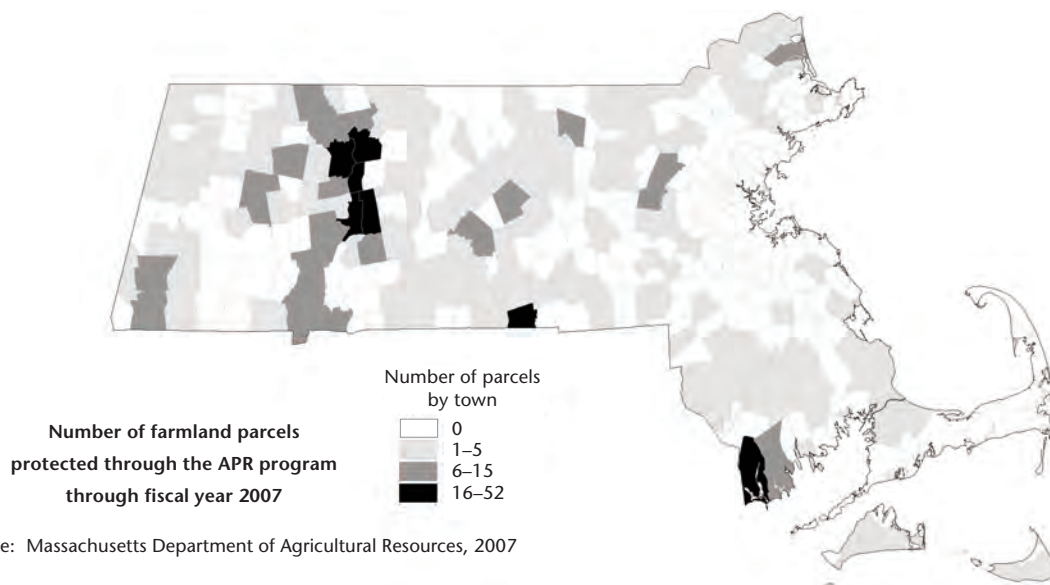


## CHAPTER THREE

### Agriculture Preservation Restriction Program

The Agricultural Preservation Restriction (APR) Program, authorized under Massachusetts General Laws Chapter 20 Sections 23-26 and administered by the MDAR, is the Commonwealth's primary farmland protection program. The APR program is voluntary, with a rolling application process. A landowner interested in protecting his or her farmland submits a program application, which is scored on the basis of a number of parcel and community criteria; the land is appraised; and the application is then either approved or disapproved. If approved, the Commonwealth pays the landowner up to the difference between the "fair market value" and the "agricultural value" of the farmland in exchange for a permanent deed restriction that precludes any use of the land that would have a negative impact on its agricultural viability.

Since its first purchase in 1980, the APR program has permanently protected 61,855 acres of the state's most productive farmland at a cost to the Commonwealth of \$172.5 million.<sup>23</sup>



Source: Massachusetts Department of Agricultural Resources, 2007

#### Program Spending

As the chart on page 10 indicates, APR program spending has stayed relatively constant over the past 10 years, with a few notable exceptions. These include a \$2.4 million jump in state spending on the program in fiscal year 2008, the first year of capital spending decisions by the Patrick administration. The fiscal year 2008 funding was augmented by an additional \$2.6 million from the federal Farm and Ranch Lands Protection Program (FRPP), for a total investment in the program of \$12.6 million. Since the program's inception, annual spending has averaged \$6.9 million for land acquisition and associated costs.<sup>24</sup>

The Environmental Bond bill enacted in the summer of 2008 provides a significant increase in bond authority for the program over the next five years. Compared to the \$48 million authorized

through the 2002 bond bill and a 2007 "patch" bond, the 2008 Environmental Bond provides \$67.75 million for the program—an annual average of \$13.55 million.

#### Program Demand

Demand for the APR program has consistently outpaced available funding. Thanks to the fiscal year 2008 increase in program spending, the program "queue" is smaller than it has been in years and program applications are on the rise. As of October 2008, the program had 14 approved or "final voted" projects representing 913 acres; these projects had a total estimated restriction value of \$8.1 million. An additional 58 projects represent 4,934 acres that have been nominated for appraisals.<sup>25</sup>

## APR Program: Benefiting Farmers and Consumers by...

### ...Growing New Farmers

For young farmers, finding available farmland at affordable prices is perhaps the greatest challenge to getting started. The APR program is crucial to these new farm enterprises, providing a pathway to ownership that would not otherwise be possible. Demand for land protected through the APR program is high among starting farmers because its price, determined by its “agricultural” value, is significantly more affordable than unprotected land. If APR land is not available, young farmers can also work with retiring farmers or non-farming landowners, usually helped by a land trust, to purchase unprotected farmland with a simultaneous sale of an APR to the Commonwealth. This significantly reduces the cost of the farmland to the farm buyer. Through either approach, the APR program is playing a critical role in facilitating the transfer of farmland from one generation of farmers to the next.

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*Ryan Voiland* was looking for land after graduating from Cornell in 2000 with a degree in fruit and vegetable horticulture. Thanks to the APR program, along with the USDA’s Farm Service Agency and First Pioneer Farm Credit, Ryan was able to purchase a 50-acre former dairy farm in Granby at an affordable price. Red Fire Farm—named after Ryan’s favorite red leaf variety of lettuce as well as after the fire of 1922 that destroyed the original house and barn—is now a 450-member CSA and well known for its award-winning tomatoes. The farm’s Annual Tomato Festival in August attracts over a thousand visitors to celebrate the more than 50 varieties grown on the farm.

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During his last three years of high school, *Andrew Orr* learned how to raise and sell flowers, herbs and vegetables on a local Westport farm. When the farm’s owner needed to sell the 13-acre farm to finance his retirement, the Trustees of Reservations, the Westport Land Conservation Trust and the residents of Westport offered assistance. The Trustees and the Trust facilitated the purchase of the property from the farmer and the sale of an APR to the state, and then sold the protected farm to Andrew for \$32,000, fulfilling the 18-year-old’s dream of owning a farm. The retiring farmer’s dream came true as well—being able to retire while seeing his farm protected and in the hands of an able young farmer he had trained.

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The son of a professor, *Dave Jackson* chose to pursue organic vegetables rather than a college education. After living off the land for several years outside of Brattleboro, Vermont, Dave moved to Whately, where he made his start on land that had been protected through the APR program. Twenty years later, Enterprise Farm has expanded significantly, due, says Dave, to the APR program making it possible for farmers like him to purchase land at an affordable price. In 2007, Enterprise Farm hosted a popular winter farmers’ market and for the winter 2008-2009 season is spearheading a regional innovation in CSA farms, offering winter shares of regionally produced organic and conventional fruits, herbs and vegetables.

### ...Keeping Farms Profitable

In 1922, *Steve Verrill's* parents started a successful dairy operation. Today there are no cows on the Verrill Family Farm in Concord, but visitors will find fields of strawberries, asparagus, tomatoes and corn. A farm store was recently devastated by fire; the store's popular array of fruits and vegetables, as well as soups, salads and baked goods was so cherished by its customers that a number of local fundraisers have been held to help with the cost of rebuilding.

The transformation of the farm began in 1982, when several parcels of land the Verrills were renting were about to be sold. With developers offering high prices, Steve could not afford to buy the land outright. Instead, the Verrills persuaded the landowners to enroll their land in the APR program, providing them with the money they needed, and to sell the protected land to the family. The Verrills also enrolled a significant portion of their own land in the program at the same time.

Farming protected land changed Steve's perspective. With no option to sell the land for development, the family was now committed to making the farm operation profitable. As a result, eight years later the Verrills sold the dairy herd and constructed a retail farm stand. The operation quickly expanded and, until the fire, included produce, specialty foods, gifts and a large kitchen and bakery, employing 50 people full time. The Verrills, who are planning to rebuild the farm store, are proud that the farm has become a center of the community, hosting events throughout the year. Steve attributes the farm's success largely to the APR program and how it encouraged investments in the farm's future.

### ...Protecting Local Food Production Capacity

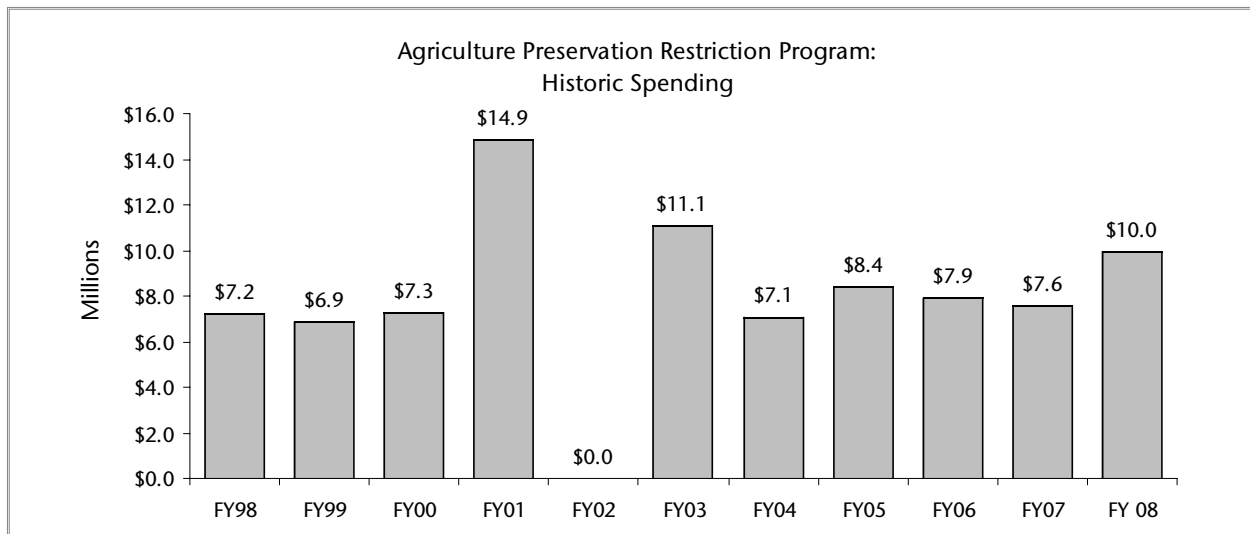
Edwin Dziekanowski raised Scottish Highland cattle on his 39-acre North Amherst farm until he fell ill in 2004 and had to be hospitalized. To cover his care and medical costs, Edwin was forced to sell the farm, even though it was his family's wish that the farm remain in agriculture. Developers were offering up to \$2 million for the property.

In late 2004, a local non-profit group—newly organized to preserve the farm and keep it in agricultural use—struck a deal with the Dziekanowski family to purchase the farm for \$1.2 million. The *North Amherst Community Farm (NACF)* would give the family a \$600,000 downpayment, with the balance payable in increments over the next five and a half years. While income from renting a portion of the land and sales from the farm will help offset some costs, the majority will be met through fundraising.

In 2005, the family and NACF worked with APR program staff to enroll 35 of the property's 39 acres. The remaining 4 acres will be used for houses for two families that will work the land. The proceeds of the sale of the APR, along with Community Preservation Act funds from the town and approximately \$140,000 in private donations, constituted the downpayment on the farm.

NACF's vision for the farm includes creating more equitable access to fresh, organic produce for the 10,000 people that live within 1.5-miles of the farm. To fulfill that goal, the group solicited proposals from farmers and chose two farm families—one will operate the CSA venture and the other will raise grass-fed animals on the land for meat and eggs. In 2007, 95 families purchased shares in the CSA for the inaugural season; membership for the 2008 season has increased to 150.





NOTE: Adjusted for Inflation: based upon the Bureau of Labor and Statistics CPI calculator: <http://data.bls.gov/cgi-bin/cpicalc.pl>  
 Source: Massachusetts Department of Agricultural Resources, 2008

### Rate of Protection

Since the program’s first APR purchase in 1980, the program has protected an average of 2,300 acres per year. The average yearly decline in farm acreage over the same general time frame, depending on the data source, is estimated at between 2,900 acres and 7,700 acres.<sup>26</sup> Using even the most conservative of farmland loss estimates, since 1980 the Commonwealth has consistently lost more farmland per year than it has protected through the program.

Rising land values are reducing the program’s rate of farmland protection. Due to escalating farm real estate values, the APR program has been paying higher prices to landowners for restrictions. While the average price paid per acre over the life of the program is \$2,864, the average price paid per acre in 2007 was \$6,847. Consequently, the number of acres protected annually has been dropping.

**Land protected through the APR Program to date represents 11.8 percent of the Commonwealth’s land in farms.**

### Leveraging Federal, Local and Private Resources

State expenditures on the APR program have leveraged substantial federal and local funding as well as private contributions from landowners through “bargain sales” (the sale of an agricultural

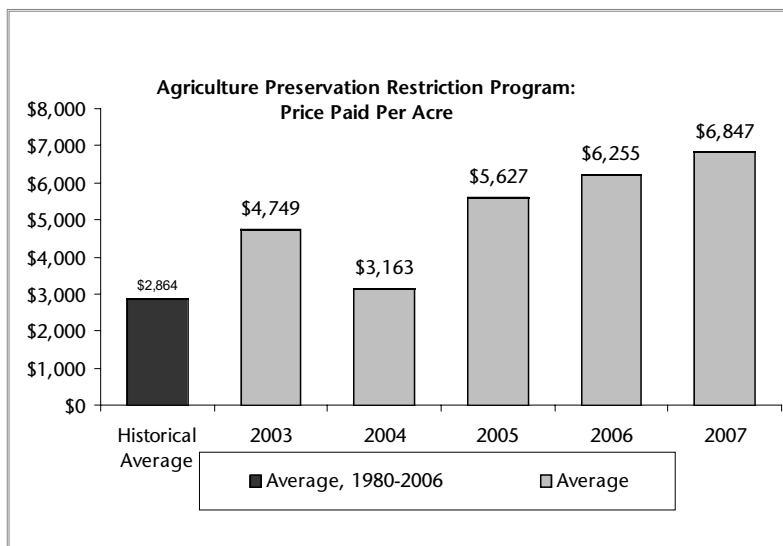
preservation restriction at a price below its appraised fair market value). In fiscal years 2004 through 2008, 41 percent of the value of all APR projects was contributed from sources other than the Commonwealth, including landowner bargain sales, private donations, municipal contributions and federal funding.

**Between 2003 and 2007, the state protected an average of only 1,828 acres each year—an 18 percent drop from the historical average.<sup>27</sup>**

**Federal:** Since 2002, Massachusetts has received an annual allocation from the federal FRPP program based on the number and value of pending APR applications and the availability of state funds. The program provides up to 50 percent of the value of the APR for qualifying parcels. In order to take full advantage of the federal funding—approximately \$25 million since 2002—the state requires that virtually all APR applications qualify for the federal program as well.<sup>28</sup>

Historically, proceeds from the federal program, which Massachusetts receives in the form of a reimbursement, have been used to fund programs other than the APR program, such as the FVEP program and other farm viability initiatives. In a change of approach, the Patrick administration in fiscal year 2008 reinvested a majority of the reimbursement—\$2.6 million of \$3.6 million received—in the APR program.

**Local:** The APR program also is leveraging three types of local funding sources. The first is municipal contributions toward the cost of an APR project. While municipal contributions have been requested by the state for years, the process was formalized in 2004 when the MDAR administratively instituted the APR Municipal Grant Program. Virtually all APR applications are now run through the Municipal Grant Program, and an applicant's score and ultimate approval are determined in part on the basis of actions taken in support of agriculture by the town in which the land is located.



Source: Massachusetts Department of Agricultural Resources, 2007

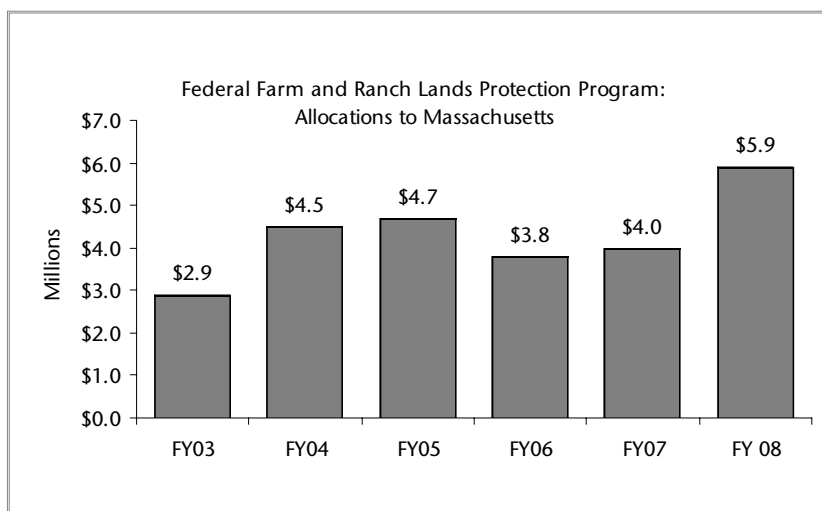
Private contributions are another source of local funding. One type of private contribution is a “bargain sale,” a donation made by the landowner selling the agricultural preservation restriction or a portion of the restriction’s fair market value. Contributions from individuals, typically made to a land trust that then uses the funds to help satisfy the local match requirement for the APR application, are another source of local funding.<sup>29</sup>

One of the primary requirements of the Municipal Grant Program is a local contribution of up to 20 percent of the cost of an APR project. A local contribution can include any or all of the three types of local funding sources noted above, and towns can reduce the required match by taking

specific actions to support farming and encourage farmland protection locally. The program has managed to achieve an overall 20 percent contribution from local sources annually and has exceeded that goal over the past five years. Of the approximately \$66 million in value of APR projects completed from fiscal year 2004 through fiscal year 2008, \$8.5 million was contributed through landowner “bargain sales,” and an additional \$11.1 million from municipalities and land trusts, for an overall 30 percent local contribution.<sup>30</sup>

### Role of Land Trusts

The MDAR estimates that 20 to 30 percent of APR applications involve land trusts. Land trusts play an increasingly important role in the program by helping landowners and towns navigate the application process, finding additional financial resources to contribute to APR applications, and providing interim funding to landowners by “pre-acquiring” restrictions. A 2007 survey by AFT of 33 land trusts around the state found that land trusts have either pre-acquired or played a significant fundraising role in at least 89 APR projects involving over 10,000 acres — one-sixth of all land protected through the program.



Source: USDA Natural Resources Conservation Services, 2008

# CHAPTER FOUR

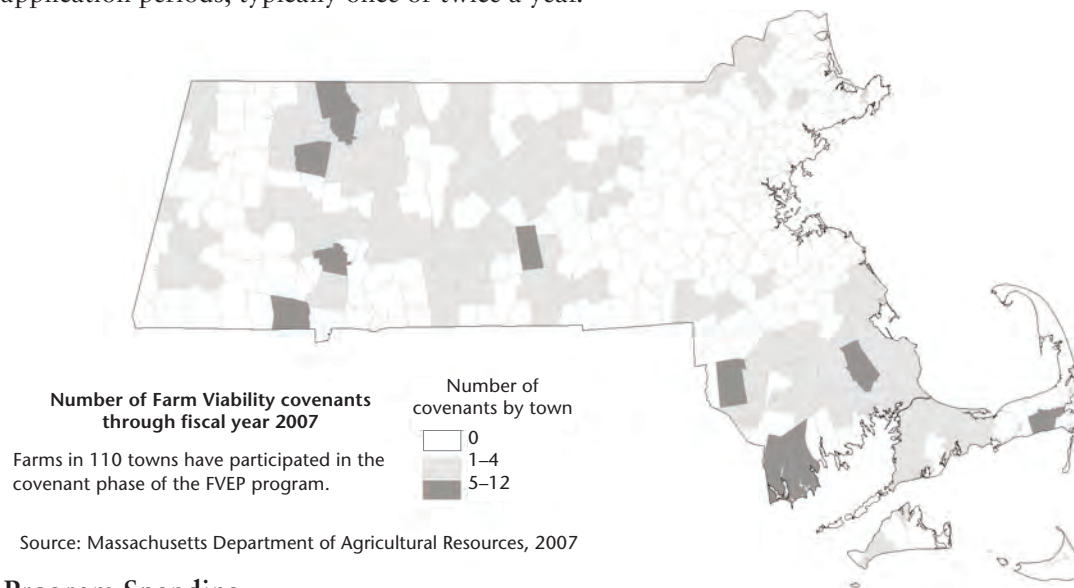
## Farm Viability and Conservation Programs

### Farm Viability Enhancement Program

The Farm Viability Enhancement Program (FVEP) has been a powerful tool in helping Massachusetts farmers adapt to changing markets and consumer demands. The program provides farmers with two types of assistance.

In Phase I, a team of consultants helps participating farmers develop a “farm viability plan” to improve their farm profitability. The plan might focus on improved management practices, diversification, direct marketing, possible value-added initiatives, agritourism or some combination thereof. The plan may also address farm environmental and/or energy concerns.

Phase II provides funding to implement components of the plan; the participating farmer must grant to the Commonwealth a non-development covenant on the land for a number of years. The size of the grant varies from \$25,000 to \$100,000 depending on the size of the farm, the components of the plan to be implemented and the length of the covenant—five to 10 years. The program holds periodic open application periods, typically once or twice a year.



### Program Spending

Over the past 10 years, annual spending for the two phases of the program has averaged \$1.2 million. Since 1996, \$1.5 million has been expended on Phase I, helping develop viability plans for 278 farms, or an average of 25 farms a year. Through Phase II, an additional \$11.9 million has funded 259 covenants, temporarily protecting 29,011 acres of Massachusetts farmland from development and providing valuable financing for farm business improvements.<sup>31</sup>

The FVEP, authorized under Massachusetts General Laws Chapter 20, Section 22, is funded through the state’s capital budget. The 2008 Environmental Bond bill provided \$30 million over five years for a suite of farm viability initiatives, including the FVEP. Another statute enacted

in 2008, the Dairy Farm Preservation Act, expands FVEP Phase II eligibility to owners of land enrolled in the APR program, provided the implementation funding improves the economic viability or productivity of the farm, creates additional jobs and tax revenues, supports on-farm renewable energy or environmental remediation projects, or expands and supports farm markets and infrastructure that strengthen the farm industry.

Since its enactment in 1996, the FVEP has provided \$13.5 million in assistance to 278 farmers under the two phases of the program.<sup>32</sup>



### Farm Viability Enhancement Program: Connecting Farms with Consumers

At *Diemand Farm* in Wendell, plans to expand the refrigeration capacity are underway, made possible by the FVEP. This is the second time the farm has made use of the program; the farm owes its current success in large part, says the Diemand family, to changes made through earlier business planning and funding through the program.

Before Diemand Farm enrolled in the FVEP, customers who wished to purchase the farm's eggs would pick them up from a self-serve outdoor refrigerator on the farm. The farm's turkey potpies were popular, but the farm produced only about 50 of them a year. The FVEP grant changed this. Business planning allowed the family to explore the expansion of its product line and the construction of a farm store. A Phase II grant put the plan into action.

Today the farm sells eggs, fresh turkeys and chickens, turkey potpies, soups, ground turkey, fruit pies and cookies, maple syrup, honey and compost. The farm's store employs one full-time and two part-time staff, and production of turkey potpies has multiplied to several hundred a year. Diemand Farm products can now be found in University of Massachusetts dining halls and in the Cooley Dickinson Hospital café and are available at local grocery stores and through a home delivery service. Expanding the refrigeration capacity will open the door to further market opportunities, helping the family meet growing demand for its products.

#### Program Demand

Demand for the FVEP has been relatively constant. In the past five years, the program received 293 applications, 68 of which went unfunded. While some of these applications were deemed ineligible, some would likely have been funded had the resources been available. As older covenants expire, many program participants are seeking renewal contracts to implement other components of their viability plan. Since 2004, 25 renewal applications have been accepted.<sup>33</sup>

#### Leveraging Private Dollars

As with any type of business, farm upgrades and expansions can be costly. The FVEP has helped leverage bank financing for farm business improvements and additional farm owner investments.

Of FVEP participants to date, 73 percent have invested additional funds to complete improvements described in their viability plans. The total estimated value of these leveraged funds is over \$6 million.<sup>34</sup>

**Seventy-three percent of FVEP participants contribute additional funds to implement their viability plans, at an average of \$31,791 per farm.**<sup>35</sup>

#### Other Farm Viability Programs

In addition to the FVEP, a number of smaller programs are funded through the "farm viability" capital account.

##### ACCELERATED CONSERVATION PLANNING PARTNERSHIP

Well-managed farms can provide multiple environmental benefits, from carbon sequestration to water filtration to wildlife habitat. While some farming practices that provide habitat, conserve water or energy, or reduce fertilizer or pesticide use are inexpensive to implement, others can be complicated and expensive. Accordingly, several federal and state conservation programs have been created to help farmers plan for and adopt conservation measures. One such program is the state's Accelerated Conservation Planning Partnership (ACPP), a program that helps farmers identify the type of conservation practices that make sense for their farm.

ACPP's conservation planners provide farmers and other landowners with information about state and federal farm conservation programs. The program has developed conservation plans for more than 15,000 acres in nine Massachusetts counties, helping to ensure landowner eligibility for these programs. Participants in the APR

program, the FVEP program, and the state’s AEEP are given priority as each of these programs requires that farmers have and comply with a farm conservation plan. The Commonwealth’s annual investment of around \$200,000 has been matched with equal funding from USDA’s Natural Resources Conservation Service (NRCS).<sup>36</sup>

**FARM-TO-SCHOOL**

Interest in serving locally grown foods in school cafeterias and other public and private institutions has increased dramatically in recent years, and a recently enacted state “agricultural preference” law is intended to encourage this trend.

Through support for the Farm-to-School Project, the MDAR helps match farm suppliers with institutions. In the past three years, the number of farms selling directly to schools has grown from 20 to 69. State spending on this initiative totaled \$65,000 in 2005 and 2006. The program’s total budget for 2008–2009 is \$133,000.<sup>37</sup>

**Over 167 public school districts, private schools and colleges around the state now serve local foods.**

**AGRICULTURE BUSINESS TRAINING PROGRAM**

The Agriculture Business Training Program (ABTP) provides locally tailored business training to farmers around the state. The program offers multiple course formats, including a 10-session

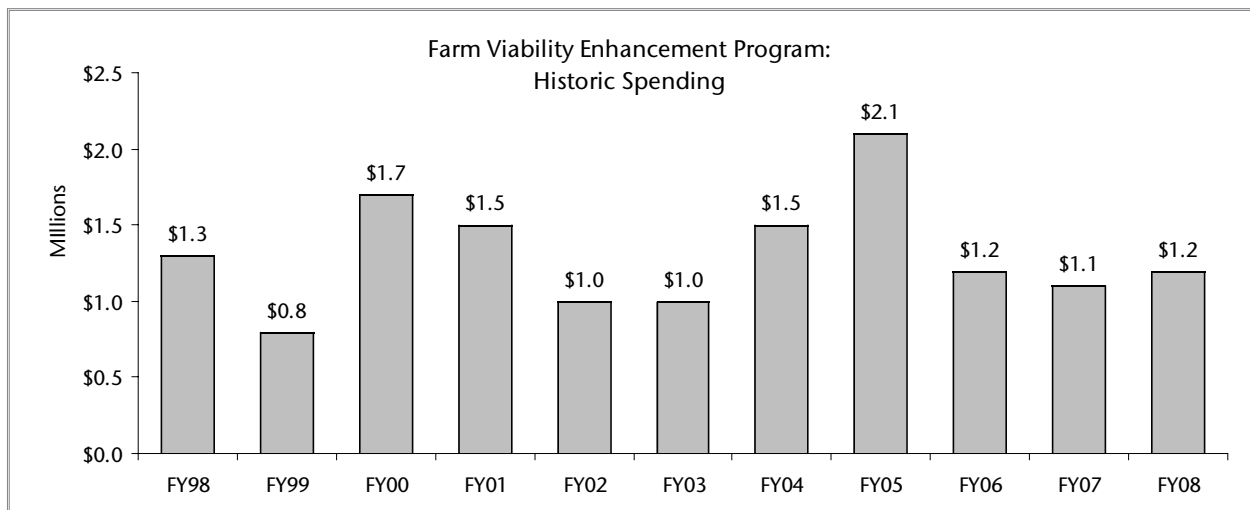
general agriculture business course (Tilling the Soil of Opportunity) and beginning farmer training (Exploring Your Small Farm Dream). Co-sponsors of these courses have included regional “Buy Local” campaigns, Resource Conservation and Development Councils, Community Development Corporations, and commodity associations.

Since the program began, more than 300 farm businesses have graduated from the program’s various courses. From 2001 to 2005, the program spent approximately \$15,000 per year, some of which came from federal grants. In 2006 and 2007, program spending increased to \$30,000 with new course formats. The MDAR anticipates that the program will cost \$35,000 annually in future years.<sup>38</sup>

**Improving on-farm irrigation efficiency relieves pressure on public water supplies and improves stream flows for fish and other aquatic species.**

**AGRICULTURAL ENVIRONMENTAL ENHANCEMENT PROGRAM**

The AEEP is designed to help farms mitigate their impact on the environment and to encourage environmental stewardship. While primarily a water quality program, AEEP also funds practices that promote energy efficiency, conserve water and



NOTE: Adjusted for Inflation: based upon the Bureau of Labor and Statistics CPI calculator: <http://data.bls.gov/cgi-bin/cpicalc.pl>  
 Source: Massachusetts Department of Agricultural Resources, 2008

reduce greenhouse gas emissions. Participating farmers are reimbursed for the cost of materials, up to \$30,000.

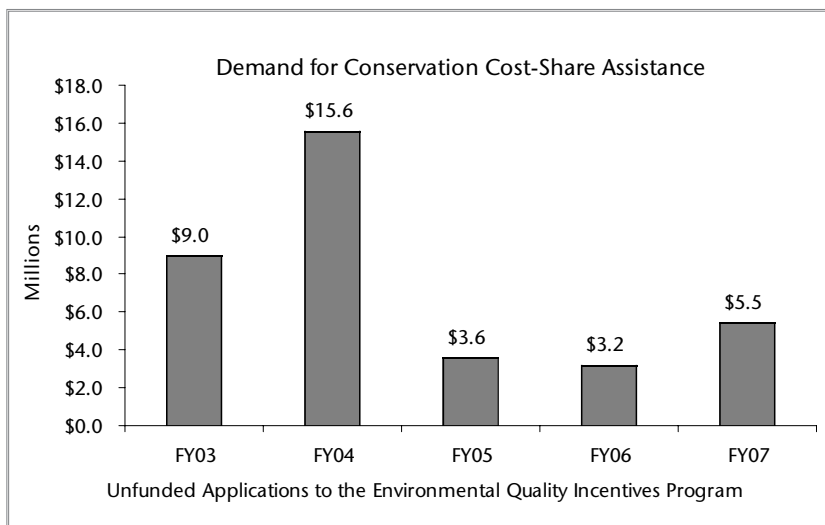
Since 1999, the program has funded 267 projects statewide. These projects have ranged from the installation of animal manure waste systems to pesticide storage facilities to fencing to keep livestock away from wetlands and water supplies. Conservation practices like these can help farmers reduce expenses, provide valuable public benefits and, in some cases, command higher prices for products. These practices also help farmers comply with federal rules, such as those that regulate animal feeding operations.

### Program Spending

Since 1999, the program has awarded 267 grants to farmers, totaling \$2.3 million. Annual program spending has averaged about \$270,000, and, over the past three years, about 29 farms a year have received grants.<sup>39</sup> The 2008 Environmental Bond bill provides \$3 million in bond authority for the program over the next five years.

**AEEP: Helping Farms Make Good Neighbors**

Water is a critical component of cranberry production. To control the water flow from a bog, cranberry growers often use “flumes,” boards made out of steel, aluminum or concrete. After applying pesticides, growers will hold water in a bog for a number of days until the pesticides become inactive and can be released without threat of harm. During this time, it is important that there not be seepage through the flumes. AEEP funding has helped at least one cranberry grower with deteriorated flumes.<sup>41</sup> Such assistance is helping cranberry growers make good neighbors.



Source: USDA Natural Resources Conservation Service, 2008

### Program Demand

This program consistently receives two-and-a-half times the number of requests for eligible projects than can be funded. In 2008, the program received requests for approximately \$900,000 in cost-share assistance with only \$400,000 available.

A particular strength of the AEEP program is its ability to complement federal funding for environmental quality practices on farms, thus enabling the completion of, for example, a costly manure management system that otherwise a farmer could not have afforded.

The USDA administers a program similar to AEEP known as the Environmental Quality Incentives Program (EQIP). The program helps finance structural or management practices that promote environmental quality and is consistently over-subscribed in Massachusetts. From 2003 to 2006, there were 1,301 applications to the program from farmers around the state—requesting \$31.4 million in conservation cost-share assistance—that went unfunded.<sup>40</sup> The unmet demand for this program suggests a need for additional AEEP funding.



## CHAPTER FIVE

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### Recommendations

#### *Agricultural Preservation Restriction Program*

**To protect 20 percent of the Commonwealth's land in farms by 2020 will require an increased investment of \$25–\$30 million annually. A yearly investment of \$15 million is needed simply to keep pace with historic protection rates.**

Less than 12 percent of Massachusetts' land in farms is permanently protected, yet the amount of land enrolled annually through the APR program has been declining as the cost of protecting it has been rising. While land values may be leveling off, an increase in current spending, to \$15 million annually, will be required just to keep pace with the program's historic average of 2,300 acres protected per year. With a population of aging farmers and non-farming landowners retiring and relocating, farmland in Massachusetts is especially vulnerable to development as it passes from one generation to the next. An aggressive goal of permanently protecting a total of 20 percent of the Commonwealth's farmland by 2020 would provide new opportunities for young and beginning farmers, spur additional investments in farm businesses, and help stabilize a land base that is growing in importance for local food and renewable energy production, water filtration and carbon sequestration.

**Reinvest all funds received from the federal Farm and Ranch Lands Protection program in the APR program.**

From 2003 through 2007, the U.S. Department of Agriculture allocated over \$19 million to Massachusetts through the federal Farm and Ranch Lands Protection Program (FRPP). Yet Massachusetts has used less than \$9 million of that funding for the APR program. While the Department of Agricultural Resources (MDAR) is under no obligation to use the FRPP reimbursement for the program, the use of this funding for other programs within the department, primarily the Farm Viability Enhancement Program (FVEP), has limited the impact of the federal program's focus on permanent farmland protection efforts. The Patrick administration has made an important change in this regard, dedicating \$2.6 million of the \$3.6 million of the 2007 reimbursement to the APR program. An investment of the entire FRPP reimbursement—\$5.7 million in 2008 and potentially higher in future years as FRPP spending increases under the 2008 Farm Bill—in addition to the yearly \$13.35 million state investment as envisioned in the 2008 Environmental Bond would provide the APR Program with \$19 million. This would allow the program to improve its monitoring and enforcement of existing restrictions while aggressively pursuing new acquisitions.

**Establish a process to consider changes in APR program policies.**

New regulations for the APR program are expected in 2009. While these regulations will provide needed guidance on program implementation, they are not likely to address a number of important program policies that impact the type and quality of applications to the program, the selection and approval process, and the continued viability of farms with land enrolled in the program. These policies include the program's current cap on prices paid per acre, its eligibility criteria and ranking system, the local contribution requirement, and its policy with regard to housing on protected parcels. The MDAR should establish a formal process that invites stakeholder participation in the review of and recommendation for changes to these and other program policies.

**Expand the Agricultural Lands Preservation Committee to include two new members—a land trust representative and a municipal representative.**

Established in the statute that created the APR Program, the Agricultural Lands Preservation Committee evaluates and acts on APR applications and advises the MDAR on program implementation. The nine-member committee consists of the Commissioner of Agriculture; the Chair of the Board of Agriculture; representatives from the Executive Office of Energy and Environmental Affairs, Department of Housing and Community Development, and Office of State Planning; and four public members appointed by the Governor, two of whom must be farmers. There are two non-voting members—the Dean of the College of Food and Natural Resources at University of Massachusetts and the USDA Natural Resources Conservation Service State Conservationist. Given the significant role both land trusts and local governments now play in identifying, financing and stewarding APR projects, adding representation from these two communities would provide valuable perspective.

**Report annually on the program's progress and undertake a comprehensive program evaluation.**

In 2008, 31 years after its creation and 28 after buying its first restriction, the APR Program hit a milestone of 60,000 acres enrolled. There is little, though, to measure this milestone against. While many other state Purchase of Conservation Easement (PACE) programs have acreage goals or a process for evaluating their progress, the APR program has neither. An annual report required by Massachusetts General Law Chapter 20 Section 25, which is intended to provide the number and geographic distribution of APR applications accepted and rejected, the acreage and costs of purchases, and “such other information as will enable the program to be evaluated,” has not been produced in recent years, nor has a comprehensive evaluation been undertaken. Such an evaluation, which might examine the ownership patterns of APR land, the type and extent of farm products being produced, the profitability of farms with APR land relative to farms that have not enrolled land in the program, and the geographic location of APR land relative to state infrastructure investments and areas of significant farmland loss, could help chart a path and develop goals for the program for the next 10 years.

***Farm Viability Programs***

**Invest at least \$4 million annually in the Department of Agricultural Resources' suite of Farm Viability programs, including the Farm Viability Enhancement Program, the Farm Energy Program, the Accelerated Conservation Planning Partnership, and the Farm-to-School Project.**

This level of investment is in accord with the 2008 Environmental Bond, which provides \$30 million for these and other programs, including a \$10 million earmark to facilitate the creation of a public market in Boston. As noted in Chapter Four, yearly spending on the FVEP program over the past 10 years has averaged \$1.2 million; this small investment in farm business planning and the implementation of those business plans have not only improved farm profitability, but helped to connect farmers and consumers by supporting the transition of farms from wholesale to retail marketing and value-added product development. A yearly investment of \$2 million in the FVEP could allow a small increase in farms served by the program in addition to expanding implementation grants to farms now enrolled in the APR program as authorized through the 2008 Dairy Farm Preservation Act, leaving an equal amount to fund the other valuable programs within the farm viability bond account.

**Report annually on the Farm Viability Enhancement Program’s progress and undertake a comprehensive program evaluation.**

As with the APR program, there is no regular report on the yearly milestones for the FVEP program nor has there been a comprehensive evaluation of the program to date. Such an evaluation is especially needed as the MDAR begins to allow farmers to seek successive FVEP implementation grants at the end of their initial grant term. An evaluation that quantifies the increases in sales, net income and employment on participating farms, as well as improvements in productivity, technology and marketing could help to underscore the program’s benefits and provide valuable perspective on program direction for the next 10 years.

**Encourage the transition of farms from the Farm Viability Enhancement Program to the Agricultural Preservation Restriction Program.**

Current policy discourages farmers who are participating in the FVEP from transitioning land into the APR Program, by requiring farmers to reimburse the entire implementation grant when they enroll land in the APR program, regardless of where they may be in the length of their FVEP contract. For example, a farmer who receives a \$75,000 FVEP grant and signs a 10-year no-development covenant on 100 acres of farmland must repay the entire \$75,000 grant if, in year seven, the farmer wishes to enroll those 100 acres in the APR program. A policy that prorates the required reimbursement to the length of time remaining in a FVEP contract—in the above example, \$22,500 rather than \$75,000—would encourage the transition of farmland from one program to the other.

***Agricultural Environmental Enhancement Program***

**Invest at least \$1 million annually in the Agricultural Environmental Enhancement Program.**

An investment of this size would require additional bond authority above the \$3 million provided in the 2008 Environmental Bond, yet would serve to maximize the environmental benefits produced by the Commonwealth’s 518,000 acres of working farmland. Much as the Agricultural Conservation Planning Partnership, which funds the development of whole farm conservation plans, is comparable to the business planning phase of the FVEP, the AEEP is like Phase II of that program, funding the implementation of conservation plans. Unlike for farm business plans, there are significant federal resources available for conservation plan implementation. Funding for the federal Environmental Quality Incentives Program (EQIP)—that provides grants to farmers to implement on-farm energy, air, soil and water conservation practices—is scheduled to ramp up over the next five years, and the Farm Bill’s “regional equity” provision will help to ensure that some of that funding increase comes to Massachusetts. As EQIP generally requires a 25-50 percent cost-share, increased funding for AEEP should allow Massachusetts farmers to leverage significant new federal resources for practices that will lead to cleaner air and water and reduced water and energy use.

## *Expanding the Farmland Conservation Toolbox*

Over the past 30 years, Massachusetts has created and substantially invested in programs to help secure the Commonwealth's farmland base and improve the economic and environmental sustainability of its farms. Some of these programs, like the FVEP, and initiatives, like the APR program's "option at agricultural value," were groundbreaking policy innovations that have been emulated in other states. Another program not detailed in this report but valuable as a tool for financing farmland protection projects—the Community Preservation Act—has been another national model.

As the agricultural industry's land uses and needs evolve and environmental conditions change, there is both a need to evaluate and examine the effectiveness of the current farmland conservation toolbox and a need to assess whether new and complementary tools may be needed. Some potential tools that may be worthy of additional exploration are identified below. AFT hopes that this initial, partial list may provide a starting point for dialogue and innovative thinking among farmers and conservationists, community leaders and policy makers, about new policy initiatives that can continue the Commonwealth's important commitment to ensuring farms for the future.

### **New financing for farmland protection: Installment Purchase Agreements**

Installment Purchase Agreements, or "IPAs," have been used for years by other state and county farmland protection programs as a means of providing landowners who sell agricultural conservation easements with a phased payment option that defers capital gains and provides annual interest payments while stretching public funding for farmland protection by providing less cash to the seller up front. Offering a long-term payment contract option that can be sold or securitized at any time to realize the outstanding principal may attract new interest from land-owners in the APR program.

**Coordinating smart growth, farmland protection and agricultural economic development**  
Massachusetts' Agricultural Incentive Area statute (M.G.L. Chapter 40L) has been largely ignored because of its lack of incentives to municipalities or farmers. A revised Chapter 40L could provide new incentives to communities to identify agricultural or farm and forest districts and encourage land protection within those districts, while targeting new or current state benefits to the landowners within those districts.

### **Linking farm pensions and farmland protection**

For many farmers, their land is their pension. With the equity in their land often their only source of retirement income, they may need to sell individual farmland parcels or their entire farm for top value—typically for development. One possible way to avoid this situation is to actually turn the preservation of a farm into a retirement for its owner. The Delaware Department of Agriculture is exploring the mechanics and feasibility of a program that could link pensions and farmland protection.

### **Compensating farmers for ecosystem services**

As discussed in Chapter Two, Massachusetts farmers provide a number of "non-market" ecosystem services, including air cleansing, water filtration, reduction of runoff and sedimentation, carbon sequestration and wildlife habitat. A potential compensation program that offers payments to farmers in exchange for following prescribed conservation "best management practices" such as no-till cultivation, water-conserving irrigation, nutrient management or Integrated Pest Management, could improve farm profitability while protecting farmland and addressing some of the Commonwealth's environmental needs and concerns.



## Endnotes

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### Chapter One Commonwealth Farms: Many Products, Many Benefits

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- 22 Ibid.

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### Chapter Three Agriculture Preservation Restriction Program

- 23 Figure as of 11/2008; based on statistics from the Massachusetts Department of Agricultural Resources, 2007.
- 24 Figure not adjusted for inflation; based on statistics from the Massachusetts Department of Agricultural Resources, 2007.
- 25 Based on statistics from the Massachusetts Department of Agricultural Resources, 2007.
- 26 Compiled sources cover the time period of 1982 to 2003. USDA Natural Resources Conservation Service, *1997 Five-Year Natural Resources Inventory, 1997*; USDA National Agricultural Statistics Service, *2002 Census of Agriculture*; Massachusetts Geographic Information Service, *Land Use Summary Statistics, 2003*: [http://www.mass.gov/mgis/landuse\\_stats.htm](http://www.mass.gov/mgis/landuse_stats.htm). Accessed: 3/10/2008.
- 27 Based on statistics from the Massachusetts Department of Agricultural Resources, 2007.
- 28 Ibid.
- 29 Ibid.
- 30 The federal Farm and Ranch Lands Protection Program contributed approximately \$6.9 million or 11 percent toward the \$66 million in value of APR projects from FY04 to FY08.

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### Chapter Four Farm Viability and Conservation Programs

- 31 Based on statistics from the Massachusetts Department of Agricultural Resources, 2007. Note: the total expenditures and total participating farms in Phase I & II include an older component of Farm Viability entitled Cranberry Viability. This program is now fully incorporated into Farm Viability: cranberry growers can apply to Farm Viability in the same way other farmers apply.
- 32 Based on statistics from the Massachusetts Department of Agricultural Resources, 2007. Note: Figure does not double count the 2,506 acres that have been placed under new covenants after the first term expired.
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