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Promoting Productive Agriculture in Massachusetts: An Analysis of Chapter 61A Land in Hardwick, Massachusetts

Sarah Lang

University of Massachusetts - Amherst

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Promoting Productive Agriculture in Massachusetts:

An analysis of Chapter 61A land in Hardwick, Massachusetts



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Prepared for Hardwick Community Development Advisory Committee
by: Sarah Lang, Research Associate

University of Massachusetts, Amherst
Department of Landscape Architecture and Regional Planning

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& Regional Planning



TITLE PAGE

Title: Promoting Productive Agriculture in Massachusetts: An analysis of Chapter 61A land in Hardwick, Massachusetts

Area of Study: Hardwick, MA and rural Massachusetts

Brief Description: An assessment of MGL Chapter 61A and its impact on productive agriculture

Name of Sponsor: Hardwick Community Development Advisory Committee

Name and Affiliation of Author(s): Sarah Lang, Research Associate
University of Massachusetts, Amherst
Department of Landscape Architecture and Regional Planning
Center for Economic Development
109 Hills North
University of Massachusetts
111Thatcher Road, Ofc 1
Amherst, MA 01003-9357
Tel 413-545-2255

Date of Report: 07 June 2016

EXECUTIVE SUMMARY

Title of Study: Promoting Productive Agriculture in Massachusetts: An analysis of Chapter 61A land in Hardwick, Massachusetts
Consultants: Town of Hardwick, MA
Study location(s): Hardwick, MA and rural Massachusetts
Studied period (years): Spring of 2016
Purpose: The purpose of this study is to look at the role MGL Chapter 61A plays in promoting agricultural production within the state of Massachusetts.
Methodology: 1) <i>Inventory:</i> Data collected from the Hardwick Assessor Office, Massachusetts Department of Agricultural Resources, Mount Grace Land Trust, and the U.S. Department of Agriculture. Data collected on current use programs of New York, Vermont, New Hampshire, Maine, and Connecticut. 2) <i>Analysis:</i> Synthesized data from sources into calculations specific to the town of Hardwick, MA evaluating total taxes owed by Chapter 61A land owners and total maximum production value for corn silage and hay. 3) <i>Recommendations:</i> Use of analyzed data to form recommendations of how Chapter 61A can better support productive agriculture.
Summary of Results and Conclusions <u>Analysis:</u> Through data collected in the inventory phase, I calculated the total taxes owed by Chapter 61A land as \$10,997.90 for FY2016. The maximum production value of the total Chapter 61A land in Hardwick for corn silage is \$23,503,124.38. The maximum production value of the total Chapter 61A land in Hardwick for hay is \$3,159,883.23. Lastly, I calculated the maximum production value for an average sized farm (67 acres) in Massachusetts for corn silage (\$168,116.40) and hay (\$22,602.45). <u>Recommendations:</u> Change the way program eligibility is understood and formulated starting with detailed record keeping on community-specific production. Two systems are recommended in order to successfully promote productive agriculture through Chapter 61A: an incremental eligibility scale and production-specific eligibility. <u>Conclusions:</u> The need for changing the conversation from preserving agricultural land to preserving and promoting productive agricultural land has never been so imperative. The recommendations made here are meant to help enhance the Chapter 61A program. Date of the report: 07 June 2016

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LIST OF ABBREVIATIONS AND DEFINITIONS OF TERMS

DOR	Department of Revenue
FY	Fiscal year
FVAC	Farmland Valuation Advisory Commission
MA	Massachusetts
MDAR	Massachusetts Department of Agricultural Resources
MGL	Massachusetts General Law
NASS	National Agricultural Statistical Service
U.S.	United States
USDA	United States Department of Agriculture

ACKNOWLEDGEMENTS

I'd like to acknowledge Jen Kolenda, MAA, the assessor for the town of Hardwick who dedicated her time to explaining the ins and outs of Chapter 61A in Hardwick. I would also like to thank the Hardwick Community Development Advisory Committee for getting me in touch with the right people.

INTRODUCTION

In the state of Massachusetts, for the year of 2015, there were a total of 7,800 farm operations with a total of 520,000 acres operated. The highest-valued crop based on production was hay, valued at \$31,020,000 (USDA NASS, 2015). Although hay is the highest valued crop, Massachusetts only places 45th within the United States for value of sales of hay and other crops (U.S. Census, 2012). In comparison, Massachusetts ranks in the top-10 states in the U.S. for acres of cranberries and land in berries. Although Massachusetts is a small state, ranking 45th in land acreage in the U.S., agriculture is an important part of its economy and culture. Massachusetts also produces crops unique to the east coast (MDAR, 2012). Figure 1 is a snapshot of agriculture in Massachusetts published by the Massachusetts Department of Agricultural Resources (MDAR). Here you can see that agriculture is present all across the state. In 2012, the majority of farms were between 10 and 149 acres (MDAR, 2012). Between 2007 and 2012, the U.S. experienced a decline in agriculture while Massachusetts was one of the only states to grow 1% in number of farms and acres of farmland. Agriculture continues to be important to the residents of Massachusetts, providing public benefits such as open space, food, and rural character.

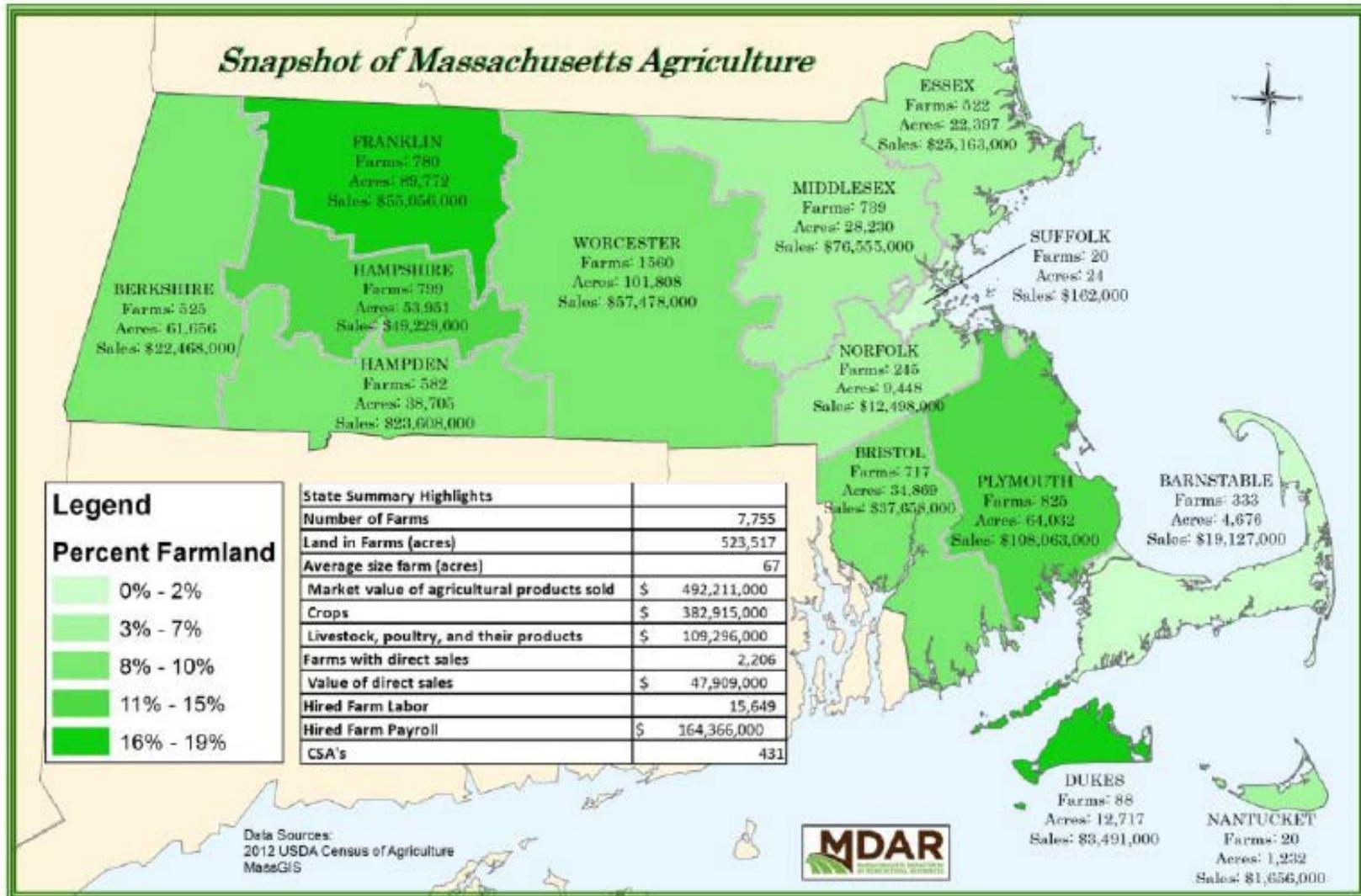


Figure 1: Snapshot of Agriculture in MA (Source: MDAR, 2012)

While researching the place agriculture holds in the economy of Massachusetts and in the hearts of the state's residents, this question became clear: *How do we help the state preserve its agricultural heritage, while ensuring that farmlands stay productive?* There are many programs and laws in Massachusetts that help preserve farm land such as Right-To-Farm Bylaws, Agriculture Preservation Restriction, and Massachusetts General Law Chapter 61A. The scope of this project is to better understand what preservation programs are in place that also facilitate production.

In an effort to conserve open space and prevent development, land owners often investigate the applicability of agricultural programs and laws to their proposed land uses. Applications related to the most lenient laws are typically approved if the land owner meets the requirements. The land owners benefit through tax cuts without providing an *equally beneficial* public good.

Due to the fact that this study focuses on economic development, I further researched the programs and laws related to agriculture preservation to find elements of economic development, if any. One of the most common programs in Massachusetts is MGL Chapter 61A: Assessment and Taxation of Agriculture and Horticultural Land. Understanding that the law's main purpose is to *preserve agricultural land*, it was then necessary to ask, does it also ensure productive farm land? If not, how can the law be modified to **aid in the preservation of productive farmland?**

PURPOSE

The purpose of this study is to examine the role MGL Chapter 61A plays in promoting agricultural production within the state of Massachusetts.

GOALS AND OBJECTIVES

The primary task is to assess MGL Chapter 61A and how it affects agricultural production, using Hardwick, Massachusetts as the sample community.

1.1 GOALS

The goal for this study is to understand how Chapter 61A either helps or hinders the optimal amount of agricultural production in Hardwick, MA. This also entails assessing how other states in New England address the protection and support of agricultural land.

1.2 OBJECTIVES

The objectives are to collect data on the Chapter 61A land in Hardwick, MA, along with tax and crop data. This will help us understand what kinds of impact Chapter 61A is having on the taxes owed to the town of Hardwick, MA. An overview of how Chapter 61A works will be provided to understand if its original intent is succeeding.

METHODOLOGY

This study follows the UMass, Amherst Center for Economic Development's (CED) three-pronged process: 1) Inventory, 2) Analysis, and 3) Recommendations.

1.3 INVENTORY

The inventory phase consisted of data collection from the town of Hardwick, the Massachusetts Department of Revenue, the Mount Grace Land Trust, and the U.S. Department of Agriculture. This data includes Chapter 61A parcels, total acreage of Chapter 61A land, Hardwick tax rates, assessment/classification reports (LA-4 form), farmland inventory, crop yields and price per acre.

This phase also included collecting information on the current use programs in New York, Vermont, New Hampshire, Maine, and Connecticut. The important data for analysis are the total minimum acreage and minimum gross sales needed for eligibility for the current use programs.

1.4 ANALYSIS

Information gathered from the inventory phase was analyzed and synthesized to form our recommendations. Existing conditions of Hardwick, MA and best-practices from other New England states were combined to recommend how Chapter 61A can better support agricultural production in the state of Massachusetts.

1.5 RECOMMENDATIONS

Based on the analysis of information gathered in the inventory phase, I form recommendations on possible law reform that can better integrate an economic development aspect in order to preserve productive farmlands. These recommendations focus mostly on the eligibility expectations.

CONTEXT AND BACKGROUND

1.6 STUDY AREA



Figure 2: The Town of Hardwick and Worcester County in Massachusetts (Source: MassGIS)

Hardwick is a rural New England town in Worcester County (see Figure 2) with a rich heritage and outstanding natural resources, including brooks, open fields, agricultural homesteads, and vast tracks of forests. It is located 30 miles to the west of the city of Worcester

and 64 miles from Boston. A portion of the town lies within the pristine watershed of the Quabbin Reservoir and several farms remain active in this picturesque town. The Quabbin Reservoir forms the northern and western boundary of Hardwick; Ware lies to the south; Petersham to the north; Barre to the northeast, and New Braintree to the east.

1.7 DEMOGRAPHIC CONTEXT

The total population of Hardwick is 2,990 (U.S. Census, 2010) with the majority of residents located in the two former mill villages, Gilbertville and Wheelwright. Hardwick is mainly a town of Irish and French-Canadian heritage. In 2010, the population was 96.4 percent white, 2.3 percent African American, and 1.4 percent Hispanic or Latino. The medium income of Hardwick is \$45,752 with 5.5 percent of families and 7.5 percent of individuals living below the poverty line.

Hardwick has a population density of 67.9 people per square mile. Their household makeup is similar to the state, with 63.5 percent of the households in Hardwick being family households and 36.5 percent non-family households. Family households are 29.3 percent “married without children”, 15.3 percent married with children, and 9.1 percent single parent. Older adults (45-64) make up the largest portion of the population at 34.2 percent followed by young adults (25 to 44) at 21.3 percent (see Table 1).

**Table 1: Population by Age in 2010 in Hardwick, MA
(Source: American Community Survey, Five Year Estimates)**

	Hardwick Population	Percent
Total	2,990	100%
Preschool (0 to 4)	156	5.8%
School Age (5 to 17)	498	18.6%
College Age (18 to 24)	175	6.0%
Young Adult (25 to 44)	622	21.3%
Older Adult(45 to 64)	1,000	34.2%
Older (65 plus)	475	16.2%
Median Age	45.1	

1.8 HISTORICAL CONTEXT

Hardwick has a rich historical past dating back to the King Philip War in 1675, where a portion of the conflict occurred in Winnimisset, an area that later included Hardwick. In 1687, the English purchased a plot of land that was twelve miles long and eight miles wide for twenty pounds. The land was purchased from John Magus and other Indians Sachems. After much legal entanglement, Hardwick was incorporated in 1739 and named in honor of Lord Hardwicke (Town of Hardwick, 2015).

Hardwick experienced great prosperity before the Revolutionary War, both industrially and socially. General Timothy Ruggles, a representative from the General Court, introduced the Hardwick Community Fair in 1762 which is still a social highlight for the community to this day. Hardwick saw industrial success with the creation of saw and grist mills, which harnessed mechanical power from Ware River, Muddy Brook, Danforth Brook, and Moose Brook. In the 1800s, the availability of railroads allowed Hardwick to ship agricultural products and

manufactured goods such as cannonballs to larger cities, which became an important part of the local economy (Town of Hardwick, 2015).

As industry grew, the town developed into four district villages: Old Furnace, Gilbertville, Wheelwright, and Hardwick (see Figure 3). From the 1860s to the 1930s, George H. Gilbert expanded his wool factories and built up the factory village of Gilbertville. The available work at the mill attracted many Irish, French-Canadian, and Polish immigrants, who created a tight-knit community in the village. There was a similar story in Wheelwright Village, which grew to host a high-quality rag paper factory and its employees. Old Furnace also created its own living and working village, with its main economic base an iron foundry. The foundry produced hollow ware castings that utilized wood from the forests in Hardwick Village. In contrast to the industrial villages, the village of Hardwick retained its agricultural roots in dairy farming, which provided economic stability through the production of milk and dairy products (Town of Hardwick, 2015).

The Quabbin Reservoir, Hardwick's eastern and northern border, was created in the 1930s to provide a drinking water supply to the city of Boston. Its creation required flooding the land of surrounding communities, including Hardwick. Hardwick's western upland area was flooded displacing four communities. The Quabbin Reservoir is currently a recreational asset as well as a point of frustration in the community due the strict regulations associated with it (Town of Hardwick, 2015).

As industry began to decline in the early- to mid-1900s, Hardwick saw a drop in population and began to rely more heavily on its agricultural roots. Hardwick began to expand in dairy farming, animal husbandry, and vegetable crops. Hardwick continues to identify as an agricultural community, and takes pride in its existing open space and agricultural heritage (Town of Hardwick, 2015).

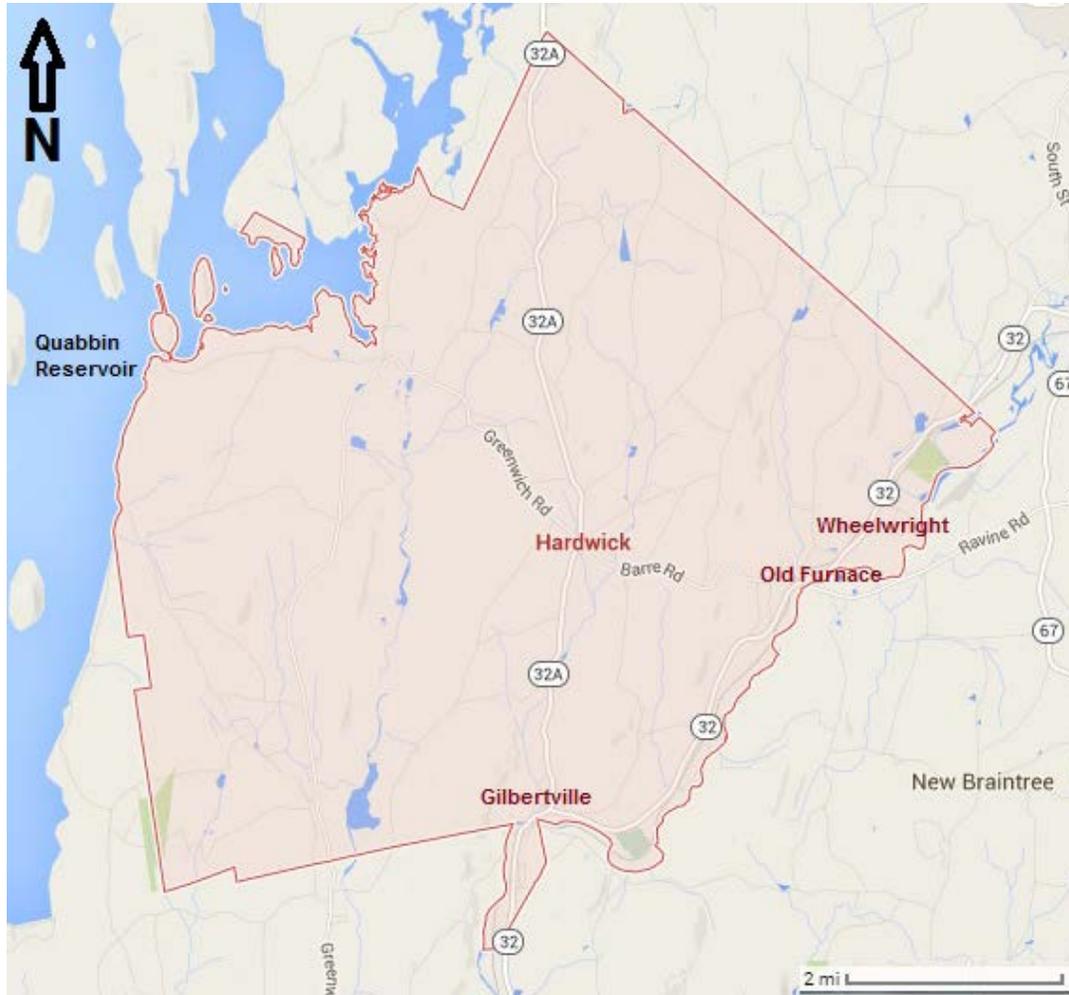


Figure 3: The town of Hardwick, MA and its villages (Source: Google Map)

1.9 EXISTING AGRICULTURAL CONDITIONS

Nearly one-half of Hardwick is permanently protected or enrolled in one of the state's "current use" property taxation categories under General Law Chapter 61, 61A, and 61B. These General Law Chapters discuss the classification and taxation of forest land and forest products, the assessment and taxation of agricultural and horticultural land, and the classification and taxation of recreational land, respectively.

For this study, I only consider land falling under Chapter 61A, which allows for an assessment of land at a lower-than-market value rate in order to procure lower taxes for land owners. Land eligible for Chapter 61A must fall under the use category of agriculture and/or horticulture. See the "Chapter 61A: An Overview" section below for more details. According to the town's assessor data, there is a total of 9367 acres (162 parcels) under Chapter 61A in Hardwick.

Agricultural land in Hardwick is diverse, like in many New England towns, because of the diverse soil types. It is not uncommon to find many types of soil in one field (Hardwick Open Space Plan, 2013). The diversification of soil allows for flexible agricultural production, ranging from vegetables or animals to pasture or silage. Over the years there has been a steep decline in dairy farming, from 30 farms to three. Currently, the major crop of farmlands in the North and East Quabbin, including Hardwick, is hay (Mount Grace Land Conservation Trust, 2016).

As stated in the Hardwick Open Space Plan (2013), "people recognize that the agricultural land is not only aesthetically pleasing, but it also represents the local character, history, and roots of the Town since colonial days" (p. 33). This type of appreciation and connection to the land is paramount in keeping agriculture relevant and prevalent.

CHAPTER 61A: AN OVERVIEW

Agricultural land in Massachusetts is a sight to be seen. However, its picturesque rolling hills and fertile valleys are ideal places for developers to build. On a farmer's income, it is hard not to consider selling land to developers at market value. The state of Massachusetts wanted to provide a way to help farmers keep their land and to protect it from being consumed by developers. Hence, the Massachusetts General Law Chapter 61A: Assessment and Taxation of Agriculture and Horticulture Land, was created. Its purpose is to assess farm land for taxation at its current use value instead of its market value. This allows for a more affordable tax bill for farmers, as well as providing the public benefit of food production and rural character.

Chapter 61A defines land in agricultural use as “when primarily and directly used in raising animals...for the purpose of selling such animals or product derived from such animals in the regular course of business” (MGL Ch. 61A, §1). The law defines land in horticultural use as “when primarily and directly used in raising fruit, vegetables, berries, nuts and other foods for human consumption, feed for animals, tobacco, flower, sod, trees, nursery or greenhouse products and ornamental plants and shrubs for the purpose of selling these products in the regular course of business” (MGL Ch. 61A, § 2). For the basis of this report, “agriculture” will refer to both definitions of “agriculture” and “horticulture,” as defined by MGL Chapter 61A.

1.10 ELIGIBILITY

The Chapter 61A program sets minimum requirements for land whose owners want a reduced tax bill. There is a minimum of five acres that must have been used for agriculture for at least two years before program application. Some exclusions from the total acreage apply, such as residences and other structures. This land is assessed and taxed at full value. Therefore, land that qualifies under Chapter 61A must be productive agriculture land.

The second minimum requirement set for Chapter 61A is a minimum of \$500 in annual gross agriculture product sales for the first five acres, then \$5 per additional acre of productive agricultural land. This requirement is an attempt to guarantee that the land receiving a tax break is productive and active agricultural land, producing a public benefit.

1.11 ASSESSED VALUE

As mentioned before, land under Chapter 61A is assessed at its current use value instead of its market value. The state-appointed commission, Farmland Valuation Advisory Commission (FVAC), produces yearly agricultural assessment values based on “the estimated market value of agricultural products the land is capable of producing” (Van Fleet et al., 2016). Figure 4 shows the FVAC recommended values for fiscal year 2016. It is obvious from this chart that the value of current use drastically fluctuates depending on what exactly the land is being used for.

FVAC CHAPTER LAND RECOMMENDED VALUE – FISCAL YEAR 2016

Per Acre Range of Values

Chapter Land 61 and 61A Use Categories	Productivity Based on Dominate Soil Ratings*			
	Use Code	Below Average	Average	Above Average
Cropland Harvested; Vegetables, Tobacco, Sod and Nursery	711, 712, 719	\$642	\$802	\$963
Cropland Harvested; Dairy, Beef and Hay, Tillable forage cropland etc.	713	\$144	\$180	\$216
Cropland Harvested; Orchards, Vineyards and Blueberries	714	\$649	\$811	\$973
Christmas Trees	602, 715	\$108	\$108	\$108
Nonproductive Land Wet land, Scrub Land, Rock Land	720	\$40	\$40	\$40
Cropland Pastured, Permanent Pasture., Necessary & Related Land –farms roads, ponds, etc.	716, 718	\$160	\$160	\$160
Productive Woodland; Land Use Categories – Chapter Land 61or 61A with a Forest Management Plan West of the Connecticut River	601, 717	\$58	\$73	\$87
Productive Woodland; Land Use Categories – Chapter Land 61or 61A with a Forest Management Plan East of the Connecticut River	601, 717	\$35	\$43	\$52
Range of Production / Barrels Per Acre	710	<=110	111-166	>=167
Cranberries		\$1,606	\$2,008	\$2,409

Figure 4: FVAC Current Use Values, FY 2016 (Source: MA DOR)

Assessing the property at the current rather than market value results in a lower tax bill for the land owners, providing the opportunity to continue to function as agricultural land. Figure 5 shows how property tax is calculated for Chapter 61A land.

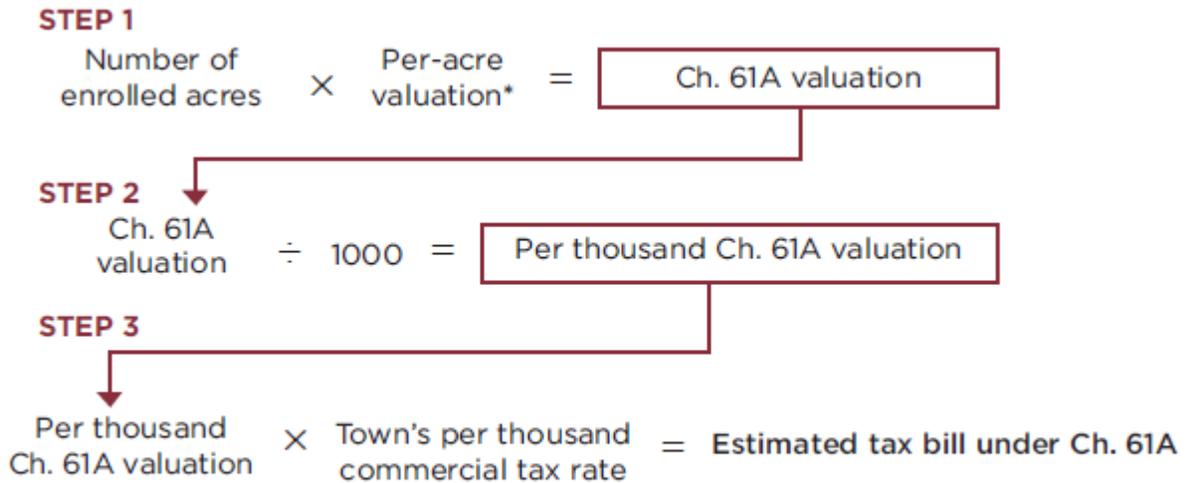


Figure 5: Property Tax Calculation under Chapter 61A (Source: Van Fleet et al., 2016)

1.12 ADDITIONAL INFORMATION

In addition to eligibility requirements, there are also some stipulations once land is enrolled in Chapter 61A. If Chapter 61A land is to be sold or transferred to another owner, there are no penalties as long as the land remains enrolled (or eligible for enrollment) for Chapter 61A. This means that the land must stay in a current use that falls under the definitions provided by Chapter 61A for agriculture and/or horticulture. Withdrawal penalties occur when enrolled land is sold or converted to a use that does not fall within in the Chapter 61A definitions within 10 years of the land falling under Chapter 61A. The responsibility of the land owner for withdrawing from the program is paying rollback taxes or conveyance taxes, whichever is greater. Additionally, if the land is to be sold or converted into a non-agricultural use while enrolled in the program or within one year of withdrawal, the town or city has the “right of first refusal.” This gives the municipality the right to match the offer of purchase on the land. The town or city has the opportunity to protect the land from development or change in current use and preserve the land for its agricultural purpose.

CASE STUDIES: CURRENT USE PROGRAMS OF NEW ENGLAND STATES

States in the U.S. that have an important economic and cultural agricultural sector tend to have some variation of a current use program or law. They also tend to have a similar purpose: to preserve farmland. Programs and laws from New England states were analyzed in order to provide a comparable platform to understand Massachusetts’s Chapter 61A. Though eligibility varies greatly (See Table 2) all programs and laws analyzed provide a lower assessed value for the protected land, therefore providing the land owner with a smaller tax bill. Again, this makes it more feasible for a land owner to continue their farming practices, avoiding a sale to developers.

Table 2: New England State's Current Use Programs Summary (Source: Sarah Lang)

<i>State</i>	<i>Program Title</i>	<i>Min Acreage</i>	<i>Gross sale/year</i>
New York	Agriculture Assessment	7	\$10,000 (P)
Vermont	Current Use/Use Value Appraisal	25	\$2,000
New Hampshire	Current Use	10	N/A
Maine	Farmland Tax Law	5	\$2,000 (P)
Connecticut	Public Act 490	N/A	N/A
Massachusetts	Chapter 61A	5	\$500

{Key: P=from preceding years prior to enrollment}

1.13 NEW YORK

In the state of New York, the Agricultural Assessment Program provides a property tax reduction to land owners of agricultural land in order to “protect and promote the availability of land for farming purposes” (New York State Department of Taxation and Finance, 2016). Under its eligibility requirements, the property must be at least seven acres and used for agricultural purposes within the previous two years. The land must also have annual gross sales of \$10,000 for those preceding two years.

1.14 VERMONT

In the state of Vermont, their program is called Current Use/Use Value Appraisal. One-third of Vermont’s total land area is enrolled in this program (Rural Vermont, 2016). The requirements

include at least 25 contiguous acres with at least \$2,000 in annual gross sales, not to exceed \$5,000 (as a minimum requirement, not a cap). This current use program is unique in the fact that it also requires that the land is owned by a farmer, who is defined as “one who earns at least one-half of the farmer’s annual gross income from the business of farming” (H. 540, § 1), or that the land owner can lease their land to a farmer for at least three years. The land must also have produced annual gross sales of agricultural products in one of two or three of five of the preceding years before appraisal. The first benefits from this program were distributed in 1980.

1.15 NEW HAMPSHIRE

In the state of New Hampshire, the Current Use program’s purpose is to “encourage appreciation for the environment, conserve land and other resources, and to maintain open space” (Town of Hooksett Assessing Department, 2016). This program is not specifically designated for agricultural use, but agriculture is included as a way to support the program’s purpose. The only requirement for enrollment is a minimum of 10 acres.

1.16 MAINE

Maine’s Farmland Tax Law is one of four Current Use Programs. Under this law, eligible land must be at least 5 continuous acres and must provide evidence of at least \$2,000 annual gross income, from one of two or three of five of the preceding years before the application (Maine Revenue Services, 2016). Also, once land is enrolled under the Farmland Tax Law, the land owner must provide evidence every five years of annual gross income from the sale of agricultural products (36 M.R.S. §§ 1101 – 1121).

1.17 CONNECTICUT

In the state of Connecticut, Public Act 490 holds the purpose of encouraging “the preservation of farmland, forest land and open space land in order to maintain a readily

available source of food and farm products close to the metropolitan areas of the state, to conserve the state’s natural resources and to provide for the welfare and happiness of the inhabitants of the state” (Connecticut Department of Agriculture, 2016). This general law has no minimum requirement for acres of farmland and no minimum amount for annual gross sales.

The state of Connecticut makes a valid point on productivity that should be shared. In 2015, the Connecticut Farm Bureau Association commissioned a practical guide to help people navigate Public Act 490. In this report, the following statement was made on productivity of land:

“Productivity is a relative term and it can be a deceptive and problematic criteria. Some forms of agriculture, such as Christmas trees and vineyards, can take several years to become marketable. Farmland may be put into ‘less productive’ use for reasons of soil nutrient replenishment, crop rotation, soil conservation purposes, labor and/or capital investment requirements, market conditions or various other reasons that might result in a less productive use of the land. It is important for the farmland owner to have some type of plan in mind for the land that may lay fallow for periods of time as part of their overall plan for the management of the farm.”

The consideration of the variability of productivity should be noted, understanding that not all crops produce sellable goods at the same rate.

ANALYSIS: HARDWICK, MA

In this analysis, data was provided by the Hardwick Assessor Office, Massachusetts Department of Revenue, Mount Grace Land Conservation Trust, and the U.S. Department of Agriculture. In the town of Hardwick, there are 162 parcels (9366.78 acres) under Chapter 61A, amounting to a total assessed value of \$697,394 for FY2016. Although the land is assessed at varying values in conjunction with the types of agriculture produced, the average assessed value is \$74.45 per acre (See Table 3).

Table 3: Chapter 61A Land in Hardwick, MA (Source: Town of Hardwick, Massachusetts DOR)

Chapter 61A Land in Hardwick, MA	
Total Parcels:	162
Total Acreage:	9366.78
Total Assessed Value FY2016:	\$697,394.00
Assessed Value per Acre:	\$74.45

1.18 TAXES OWED CALCULATION

With the help of Figure 5 (see previous), we can visualize the calculation of the taxes owed to the town of Hardwick by land owners with property under Chapter 61A.

Following the steps provided above, I calculated the estimated taxes owed for all of the land in Hardwick under Chapter 61A for the fiscal year 2016:

Step 1:	The valuation provided in Table 3, \$697,394.00
Step 2:	$\$697,394.00 \div \$1000 = \$697.39$
Step 3:	$\$697.39 \times \$15.77 = \mathbf{\$10,997.90}$
Step 4:	Average taxes owed per acre: $\$10,997.90 \div 9366.78 = \mathbf{\$1.17}$

With this information, it is clear that land owners who have property under Chapter 61A receive the benefit of a tax reduction. Now, using calculated maximum production value of the Chapter 61A land in Hardwick, MA, we can better understand just how much the Chapter 61A land can produce.

1.19 MAXIMUM PRODUCTION VALUE CALCULATIONS

It was stated in a recent farmland inventory conducted by Mount Grace Land Trust that 57% of the products sold by farmers in the North and East Quabbin region, which includes Hardwick, is hay. Also, based on anecdotal evidence from the Town Assessor of Hardwick, the two main crops produced in Hardwick are hay and corn as silage. Therefore, I use hay and corn silage in my calculations for maximum production value of Hardwick’s Chapter 61A land. The data below is specific to Massachusetts and was provided by the U.S. Department of Agriculture (Table 4).

Table 4: Crop Data for Massachusetts (Source: USDA)

Crop:	Average yield per acre:	Unit:	Price per Unit:
Corn, silage	697	Bushel	\$3.60
Hay	1.73	Ton	\$195

Scenario #1: Total acreage of Chapter 61A land producing corn silage

For instance, if all of the Chapter 61A land in Hardwick (9366.78 acres) produced the average yield of corn silage per acre (697 bushels) at \$3.60 per bushel, Hardwick’s Chapter 61A land would have an annual maximum production value of **\$23,503,124.38**.

Scenario #2: Total acreage of Chapter 61A land producing hay

For instance, if all of the Chapter 61A land in Hardwick (9366.78 acres) produced the average yield of hay per acre (1.73 tons) at \$195 per ton, Hardwick’s Chapter 61A land would have an annual maximum production value of **\$3,159,883.23**.

Scenario #3: Acreage of average farm size (MA) producing corn silage or hay

According to the Massachusetts Department of Agriculture, the average farm size in Massachusetts is 67 acres (Figure 1). If an average sized farm in Hardwick produced all corn silage, its annual maximum production value would equate to **\$168,116.40**. If an average sized farm in Hardwick produced all hay, its annual maximum production value would equate to **\$22,602.45**.

1.20 ANAYSIS CONCLUSION

The figures calculated in this section will be used as points of reference for the recommendation section below. I am aware of the limitation these calculations are averages and generalizations for the state of Massachusetts. The hope is to start a conversation of what is expected of Massachusetts agricultural land if the state is to provide the land owners a significant tax reduction. There needs to be a relatively equal exchange of benefits: tax reduction for land owners versus public benefits such as food and rural character. Since the lower of the annual maximum production value is well above the minimum requirement of \$500

annual gross sales for Chapter 61A, is there a way the state can better promote productive agriculture?

RECOMMENDATIONS

The overarching recommendation is to realign the focus of Chapter 61A back to successfully promoting productive agriculture. This can be accomplished through appropriately assigning eligibility requirements through the lens of acreage or production. Also, in order to begin to understand the actual agricultural productivity of each town and city in Massachusetts, more detailed record keeping should be a priority and an important first step.

1.21 DETAILED RECORD KEEPING

To understand a town or city's productivity capabilities requires detailed record keeping of product sales and crop data such as yield per acre. With this data, a municipality can build a solid knowledge foundation of actual data specific to their town or even farm, rather than relying on averages from state data.

1.22 INCREMENTAL ELIGIBILITY SCALE

Reviewing the case studies of the New England states, \$500 annual gross sales is on the lower end of the requirements, as is the minimum of five acres. Without excluding the small farms, for which Massachusetts has many, the state should consider an *incremental eligibility scale*. This scale would still allow smaller farms to apply and receive a property tax reduction but it would also require that larger farms produce more agricultural products.

Using the calculations from the Analysis section, a Hardwick farm of five acres that produced the average yield of hay would have an annual maximum production value of \$1,686.75. Understanding that nothing goes as planned, it is reasonable to require a five-acre land under Chapter 61A to produce at least 1/3 of its annual maximum production value.

For larger farms though, the expectations should be set higher, in order to ensure that the land is being used for the original intent of Chapter 61A. For instance, using the same figures as above, if a Hardwick farm of 150 acres produced the average yield of hay, it would have an annual maximum production value of \$50,602.50. So it is reasonable to expect that a farm of 150 acres should be required to produce 1/3 of its annual maximum production value, or about \$17,000, to receive the benefits of a tax reduction through Chapter 61A.

In order to develop appropriate increments of minimum acres and minimum annual gross sales for an incremental eligibility scale, more in depth and nuanced research should be conducted. This recommendation assumes generalities, yet would be easier to develop and require less work by town and city assessors than the other recommendations.

1.23 PRODUCTION-SPECIFIC ELIGIBILITY

This recommendation is a more detailed and a case-specific process than creating an incremental eligibility scale. It would require more ground work and formulations by town and city assessors, with attention to specifics of each farm in their community. This *production-specific eligibility* would necessitate a “maximum crop yield appraisal” of the land before the submission of a Chapter 61A application. Incorporating acreage and the average production value based on the market value of what the farm grows or raises, the assessor would formulate a maximum production value of the specific farm. The land owner would be required to produce at least 1/3 of the production-specific value in order to apply and stay in the Chapter 61A program.

For instance, a Hardwick farm of five acres producing corn silage would have a maximum production value of \$12,546.00. Yet a Hardwick farm of five acres producing hay would have a maximum production value of \$1,686.75. It would be unreasonable to require the same minimum annual gross sale amount from both farms. Therefore, the minimum annual gross sale amount should be specific to what the farm grows or raises. This recommendation takes into

account the suggestion noted by Connecticut's Public Act 490 that "productivity is a relative term and it can be deceptive and problematic criteria" (Connecticut Farm Bureau Association, 2015). Through a production-specific eligibility requirement, productivity will no longer be a problematic criteria but a gauge by which to provide tax reductions and promote appropriately productive farms.

CONCLUSION

It is clear that the economic and cultural aspects of agriculture are important in the state of Massachusetts, as well as all of New England. Through the agricultural programs and laws present in New England states, the preservation of agriculture has been a priority for decades. This study builds on the priority of agriculture preservation by recommending program or law enhancement that can help ensure that the agriculture land being preserved is also being productive.

Through detailed record keeping, incremental eligibility scale, or production-specific eligibility, Massachusetts can better ensure that agricultural land receiving the benefit of a reduced tax bill are adequately contributing to the economy of their town or city. These recommendations are not meant to tighten the requirements of Chapter 61A but to provide a more case-specific program that is more inclusive of the community's and individual needs; in fact, if calculations are done correctly, then agricultural land that is producing average yields will have no problem becoming or staying eligible. They are also more in line with other New England states. These recommendations are also a way to make sure that land owners enrolled in the program are using the program for its intended purpose. Land owners who are looking for ways to protect open space have other options that could potentially not detract from their community's budget, funded by local taxes.

The hope is that with this study, a conversation will evolve from preserving agricultural land to the importance of preserving productive agricultural land in Massachusetts. With current issues such as climate change and resiliency, the rise in “buy local” movements, and the want and possible future need of becoming less dependent on food from national or international sources, productive agricultural land has never been so imperative.

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