



## HISTORY & VALUE OF MASSACHUSETTS DAIRY FARMS

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Massachusetts has a rich history of agricultural land use dating back to the cultivation of the land by the native peoples. Between 1620 and 1649, twenty thousand English settlers arrived to establish permanent agricultural settlements along the coastal plains and major rivers. European husbandry was adapted to New England soils and climate, incorporating elements of the native ecological system such as cultivated crops, meadow grasses, fish and game.



The colonists worked together to till fields, growing crops and cutting native grasses for hay to feed the livestock. Cattle were most important, providing milk, butter, cheese, meat, leather, manure and oxen to work the fields. Livestock shared common pasture in meadows and marshes and untilled fields as part of a single herd during the day, and then were enclosed in a community fence at night.

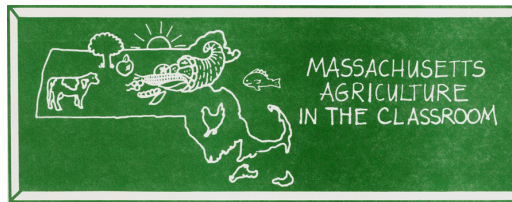
New generations of settlers filled the coastal region with farms and then moved inland from the coast and upward from tidal rivers toward the uninhabited interior. There they created self-sufficient homestead farms. They cleared the land to build cabins for their families and fences for livestock. By the late 1600s, most farms were independently owned and operated.

While farming and fishing continued as the mainstay of the economy, mercantile commerce began to grow in cities and seaports. The farmers supported this commerce, selling grain, meat, cattle, fish and lumber. They then purchased the needed goods such as textiles, metalware, sugar, rum and tea. While most milk was still produced for home use, excess milk and dairy products could also be taken to local markets.

By 1820, only one fifth of the population of Massachusetts lived in cities. Most people lived on farms or in small rural communities spread across the state. Most towns had a public common for grazing animals, around which the meeting house and other major buildings were located. Rivers and canals were the main transportation routes. Farms were generally small, 100 to 200 acres in size, with about one-third of the land in crops, one-third in pasture for horses, cows, and sheep, and one-third as the woodlot for timber and fuel. Farmers continued to sell crops, cattle, meat and other bounty from their lands.

\* Dairy Lesson supported by a grant from the Massachusetts Dairy Promotion Board





## Industrial Revolution Brings Changes in Rural Life

Massachusetts was one of the places where America's Industrial Revolution began. In 1814, the Boston Manufacturing Company built a water-powered cotton mill on the Charles River in Waltham. Seven years later they built another mill on the Merrimack River in Lowell. These mills, and the others that followed, transformed the landscape of Massachusetts. At first the mills were located rurally and relied on labor from local farm communities. Starting in 1830, as a network of railroads replaced travel by river, canal and turnpike, and as coal replaced water as the principal energy source, the mills became concentrated in a few major cities.



Between 1820 and 1920, the population of Massachusetts shifted from a mostly rural population of 523,000 to 3.8 million people, four-fifths of whom lived in cities and large towns. Industrialization and immigration fueled this change. In the mid-1840's, immigrants arrived from Ireland and then Germany to work the mills. After the Civil War, they came from Italy, Eastern Europe and French Canada.

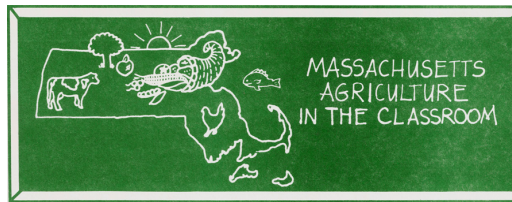
The rise of industry affected rural areas as well as cities, connecting New England to the national economy. Road systems, railroads and especially the opening of the Erie Canal in 1825 reduced the transportation costs of food supplies. Rural communities began to meet many of their material needs through importation. Wheat flour from the Midwest replaced corn and rye; factory made cotton replaced homespun; shoes came from factories; and coal from Pennsylvania augmented firewood for heat. Purchasing these commodities allowed farmers to concentrate on marketable crops. They expanded output and tried specialty crops, from merino sheep wool to beef and dairy. They also introduced new breeds of livestock.

The peak of agricultural activity occurred between 1830 and 1880, when 60 to 80 percent of Massachusetts' land was cleared for pasture, tillage, orchard and buildings. Better farm tools and implements, crop varieties and improved livestock breeds became available to farmers. As more market goods became available, farms shifted their focus to commercial cash sales. It became necessary to improve the quality of milk and make it a commercially viable product. New cattle breeds were introduced that produced more and better quality milk, such as the Holstein, Guernsey and Jersey. The dairy industry has evolved throughout the years with the development and changes in technology, transportation and public policy.

The same transportation revolution that exposed New England to the national marketplace also brought pressure on traditional agricultural commodities. The Massachusetts farmers were unable to compete with

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crops grown on the cheaper land and better soils of the Midwest. The cultural prestige of farming and its profitability began to decline. Beginning in the mid-1800s and continuing for more than a century, thousands of rural farms and pastures were abandoned across New England, especially in upland areas removed from growing industrial cities. Men and women moved away, drawn by richer soils in the Midwest or factory jobs in the cities.

### **Dairy Farming in Massachusetts Today**

Between 1970 and 2007, Massachusetts lost on average 40 dairy farms a year.

The difference between the farm price for milk and the cost of production inputs have resulted in a decline in the number of dairy farms in Massachusetts and the Northeast. For example, in 2002, Massachusetts dairy cattle and milk production farms were ranked second in acreage at 92,040 (17%) second in market value at \$55,333,000 (14.40%), as ranked against all the farms in the state. By 2007, Massachusetts dairy cattle and milk production farms were ranked third in acreage at 65,645 (12.68%) fourth in market value at \$54,153,000 (11.060%), as ranked against all the farms in the state.

There is growing concern now that Massachusetts could lose its remaining dairy farms. Loss of dairy farms means losing part of the Commonwealth's agricultural history and landscape.

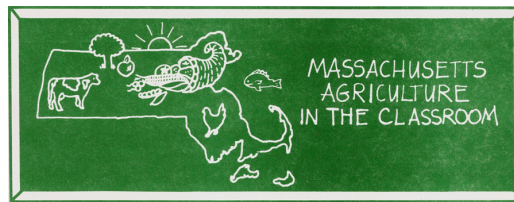
### **Value of Dairy Farming**

In Massachusetts, farms are seen as an important part of the rural landscape and character. Agriculture is part of our New England heritage and the history of our communities. Farms provide scenic vistas, open space, soil and water resource protection, wildlife habitat, community economics and healthy local foods that are critical for quality of life.

Dairy farming is essential to the vitality and diversity of Massachusetts agriculture. Dairy farming maintains 113,600 acres of open space and rural character and circulates approximately \$40 million to a local economy.

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Fields, pastures and waterways contribute quietly and gently to our way of life by providing open space and a curious blend of scenic beauty and industry. Distinctive agricultural landscapes are magnets for tourism and offer outdoor recreational opportunities. Agriculture is part of our New England heritage and identity. With the arrival of English settlers in 1620, agriculture became important for survival. By 1820, most people in Massachusetts lived on farms or in small rural villages. Farming communities spread all across the state reaching a peak in 1850. This early economic history survives in the mosaic of small fields and woods, coastal villages, and town centers with a church and common.



Most dairy farmers live and work on their farms, so it's important to them to protect the land, water and air for their families, surrounding communities and future generations. Many Massachusetts dairy farms utilize innovative "green" farming practices and support energy efficiencies on their farms. Soil, water and air are natural resources that are necessary for agricultural production and also environmental quality. Well-managed farmland preserves soils, helps filter impurities from air and water, protects wetlands and watersheds, reduces flooding and helps recharge groundwater. Under good stewardship, farmland also protects the wildlife habitat in the local community.

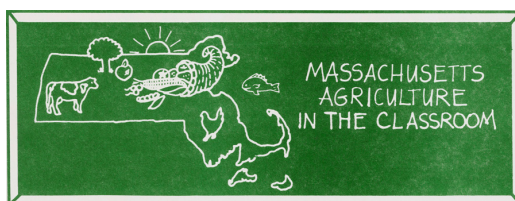
Local agriculture is good for the community. Saving farmland is an investment in community infrastructure and economic development. Taxes from agricultural development yield a community net earnings of seventy cents on the dollar, while residential development costs a community an average of one dollar and twenty five cents per dollar earned. Farms are important resources that provide many jobs in agriculture and related industry opportunities.

Food is one of life's most basic necessities. The best and freshest food comes from a local farmer. In addition to flavor, fresh produce, grown locally, is better for you and the environment. Local agriculture assures a food system that is safe, affordable and accessible to all by providing a wide variety of fresh, high quality food and agricultural products sold at their peak of flavor and nutritional value.

Buying locally grown food supports local jobs. Agriculture is a vital part of the Massachusetts economy, employing thousands of people in a variety of careers on and off the farm. Locally grown foods require less energy input thus resulting in reduced environmental impact and financial cost for transportation. Dairy farmers and their cows work hard every day to produce roughly 246 million pounds of fresh, nutritious, wholesome milk which is used to make delicious products like cheese, yogurt, ice-cream, and butter.



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## HISTORY AND VALUE OF DAIRY FARMS LESSON

**Grade Level:** Grades 3 - 4

### **Lesson/Activity Description**

In this lesson, students will learn about the history and value of dairy farms in their town and state.

### **Guiding Question**

Are there farms in my town? What can I do to help them?

### **Big Idea**

There are remnants of farms in every community in Massachusetts. Students can have an effect on the farms that still exist in their town and the farms throughout Massachusetts by purchasing local food.



### **Learning Objectives**

- To understand the historical importance of farms and the value of farms in Massachusetts.

### **Materials**

- White paper
- Construction paper
- Markers/colored pencils

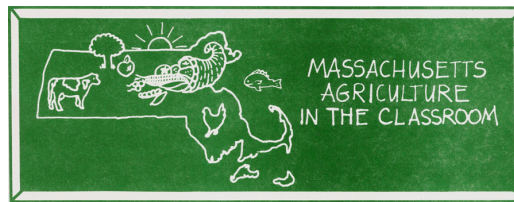
### **Preparation**

Visit your town hall and investigate the history of agriculture in your own community. How many farms were there 100 years ago, 60 years ago? How many still exist today? Where are they now? How large were these farms of the past and what was grown on them? What do farmers grow today? Try to find pictures from your town or surrounding areas from different points in the past.

When you have this information, invite a local farmer to visit the classroom to talk to students about the work that takes place on his/her farm. Ask them to bring in some of tools they use. Alternatively, Plan a trip to a local farm to learn about the animals that area raised, crops that are grown and the daily life.

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### **Introducing the Lesson**

Explain to students the history of farms in your town. Tell them about what you learned from visiting the town hall.

### **Activate prior knowledge**

Talk to students about farms in town in general. Have they ever visited a farm? What did they see?

### **Engage Student Interest:**

Introduce students to the history of stone walls and town commons. Ask them if they have seen any of these things before in town.

### **What's a Common?**

The Puritan communities that settled in New England generally established a common grazing land in the center of town. This land was owned by all the families as a place for grazing and securing their animals. The animals might be pastured in outer fields during the day, but were brought to the common at night for protection from predators.



The Puritans built their homes around this grassy common. In addition to a grazing land, it functioned as a place for public gatherings, ceremonial ritual, a training area for militia and sometimes as a cemetery for burying the dead. The church and meeting hall were built there as well. In later years, most New England towns were built around a common.

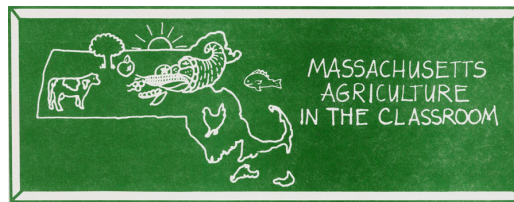
### **Fences and Stone Walls**

The Native Americans people did not domesticate animals and therefore had no need for fences. European colonists introduced fences to protect their crops from livestock and to protect the livestock from cross-breeding and predators. As individuals farmers moved from colonial communities onto their own land, fences were also utilized to form property boundaries. Laws were made requiring fences and that they be kept in good repair.

The early fences were made of wood, which was readily available. Sometimes they consisted of stumps set along the field edge. Logs might be stacked along the top to deter larger animals. Later fences were made of timbers stacked atop one another in a zig zag pattern. These were eventually replaced by rail or picket fences and later by stone walls.

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Walls constructed from quarried stone had always been part of the more prosperous farms and estates of the eighteenth century. By 1810, much of Massachusetts' forests had been cleared for agriculture and any remaining wood was needed for fuel and construction materials. Ever resourceful, the farmers found a use for the stones pulled from their fields during cultivation – stone fences.



Ironically, it was the clearing of the land for agriculture that multiplied the stones in their fields. The bare agricultural soil, with no intertwining roots below its surface, was more exposed to winter cold and froze more deeply than the forest soils. This accelerated the process of frost heaving, where rocks were lifted by frost but did not fall back to their original positions during the thaw. Gradually the stones migrated through the finer-grained soil toward the surface. In addition, when the spring rains and snow melt came, the water was not able to infiltrate easily through the bare soil, forcing it to flow over the surface, eroding the loam and concentrating the stone.

Each year, the newly raised stones were removed from the soil before the land could be cultivated. Large boulders were rolled into position at the field edge using oxen or draft horses. Smaller stones were tossed above and between them.

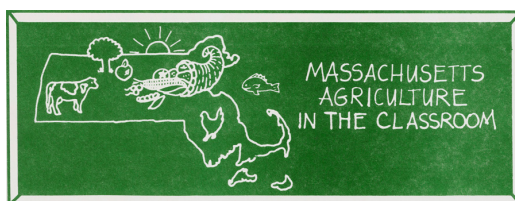
Stone walls with numerous small rocks on their construction tell that the adjacent land was cultivated for crops. Walls composed solely of larger rocks were likely built to keep livestock in pastures or out of hayfields, since neither of those activities required removing small stones.

Most stone walls were not used as stand-alone fences. They were capped with wooden rails or brush to increase the height of the wall and restrain the animals. Later wire was added atop the walls. The invention and use of barbed wire in the 1870s replaced the need for stone walls.

It has been estimated that there were once 250,000 miles of stone walls in the northeast, mostly in New England. Most of these walls were built between 1810 and 1850. When thousands of rural farms were abandoned in the mid 1800s, many of these stone walls were enveloped by forests. Others were quarried for their stone, which was used for bridges, canals, and piers, or crushed for subgrading roads. As many as half of these stone walls remain, although they are not protected.

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## Procedure

Total time approximately. 30 minutes

1. After the talk from the farmer or the visit to the farm, have the students brainstorm about what it would be like to live on a farm now and in the past.
2. Have the students write a story and draw pictures about what life was like for children living on a dairy farm during a time period in the past.
3. When the students have completed their story, brainstorm with students why farms are important to people. Discuss with them the importance of buying local food. The benefits, how it helps farmers, etc. Have the student brainstorm ways in which they could help their local farmers.
4. Have the students write a letter to the editor of the local newspaper, outlining things the average person can do to help local farms. Make sure they include why they think farms are important.
5. Combine the stories and the letter in one booklet.



## Wrap up

Have the students share their stories with the class. What have they learned about how life was different where they live in the past? What can they do to help farmers to keep farming?

## Assessing Student Knowledge

For homework, have the students explore their own food choices. How could their family change their buying habits to help local farmers?

## Extensions

Have students create their own agricultural family tree to discover their own agricultural roots. Ask students to interview immediate and extended family members, using this page to trace family roots. Write down the name of each family member, together with any connection to the farm and the jobs that were done there. (see Agricultural Roots Chart on page 10)

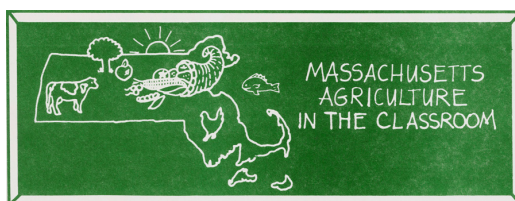
Ask each family member if they, or an immediate relative, lived on a farm. Where was that farm located? What animals or crops were raised on the farm? What was life like for the people who grew up on these farms? When you are finished, share your findings with your class.

(This activity was taken from the Minnesota Agriculture in the Classroom's AgMag. Image Design by Liz at Northern Design in Minnesota.)

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**\* Some of the Massachusetts Department of Education Standards in this lesson \***

### **Grade 3**

#### **Social Studies:**

12. Explain how objects or artifacts of everyday life in the past tell us how ordinary people lived and how everyday life has changed. Draw on the services of the local historical society and local museums as needed.



### **Grade 3 - 4**

#### **Writing:**

2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

### **Resources**

#### **Massachusetts Dairy Promotion Board**

<http://massdairy.com>

#### **Massachusetts Department of Agricultural Resources**

<http://www.mass.gov/agr/massgrown/dairy-farms.htm>

#### **Agricultural Census Statistics on Dairy from UMass**

<http://ag.umass.edu/ma-agricultural-data/agricultural-census>

#### **MAC Newsletter Winter 2009: Massachusetts Agricultural History**

<http://aginclassroom.org/Newsletter/winter2009.html>

#### **MAC Newsletter Fall 2008: Buying Local**

<http://aginclassroom.org/Newsletter/fall2008.html>

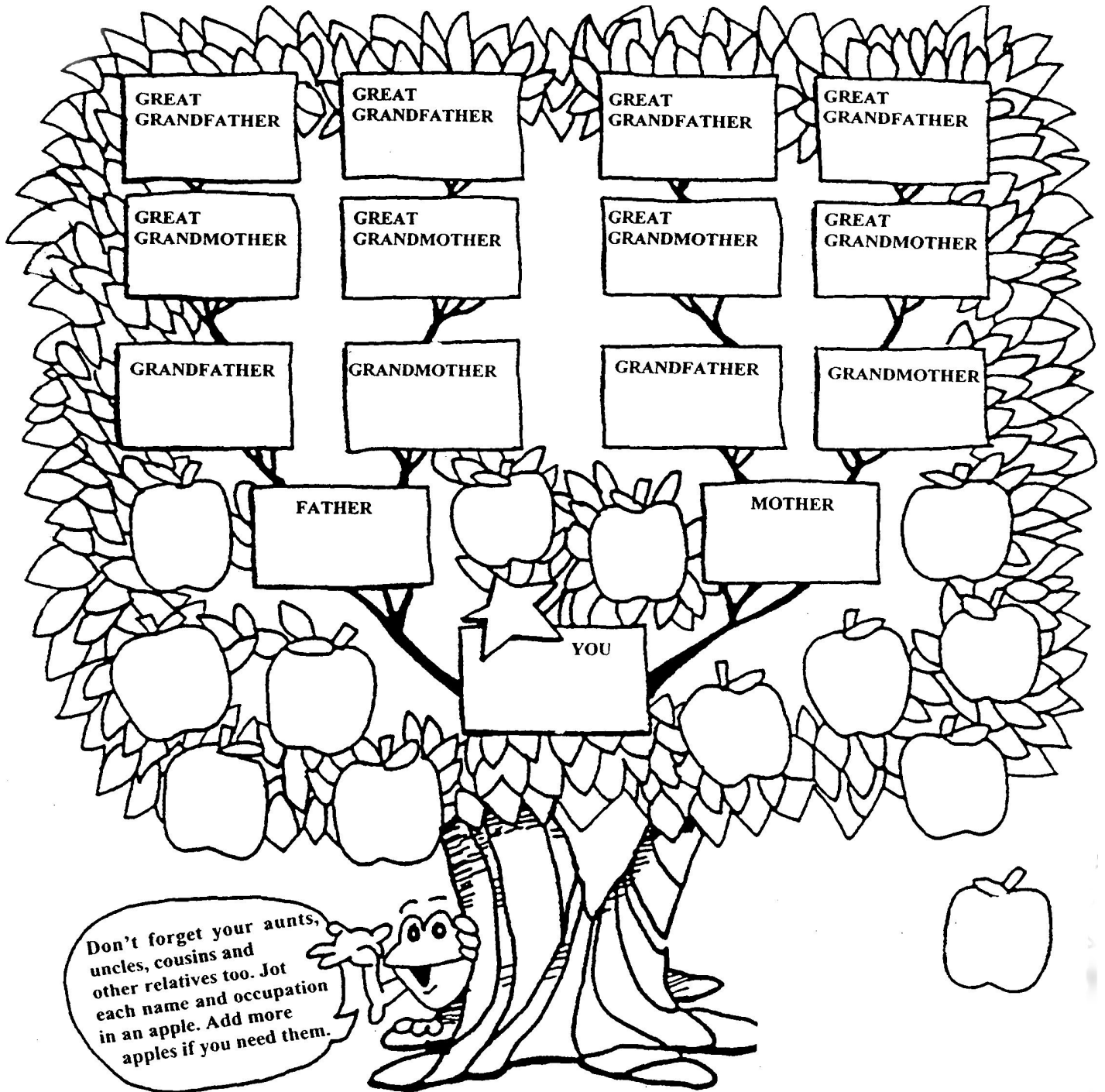
#### **Minnesota Agriculture in the Classroom**

<http://www.mda.state.mn.us/kids.aspx>

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# Agricultural Roots



Don't forget your aunts, uncles, cousins and other relatives too. Jot each name and occupation in an apple. Add more apples if you need them.