

E X E C U T I V E S U M M A R Y

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# Agriculture's Hold on the Commonwealth



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## EXECUTIVE SUMMARY

**S**ince Colonial times, Massachusetts has held fast to its cherished legacy as an agricultural state. This traditional image has paled in the minds of many, however, with ever-increasing commercial and residential development. In recent years, farmers feeling the pressures of this development, higher production costs, and a shrinking portion of the consumer dollar, have instituted changes of their own. They are discovering ways to make their farms more viable by getting the most from each acre, and they have found ways to benefit, rather than suffer, from their closer proximity to consumers. Because of farmers' ability to respond to challenges, Massachusetts agriculture today shows promise as a dynamic and vital industry.

### The Current State of Farming

Massachusetts has some of the best agricultural land in the nation. Farmers in the fertile Connecticut River valley grow top-quality vegetables, ranging from asparagus to zucchini. The state has several pioneers in the field of aquaculture and maintains some of the oldest dairy farms in the country. In the hills, farmers grow excellent apples, which they sell both fresh and processed into cider. In the late winter and early spring, maple syrup is produced in many local sugarhouses. Agriculture is also finding a place in the Commonwealth's tourism industry. From Ocean Spray's headquarters and cranberry bogs to small family operations, farmers are finding ways to profit from the public's interest in their operations.

Preserving agriculture in Massachusetts is no easy task. Massachusetts farmers face higher labor and other production costs than farmers in many competing states. The Massachusetts growing season is short, and taking measures to extend the season is also very costly. The percentage of the consumer dollar going to farmers has dropped; a larger portion now goes to cover costs within the food processing, transportation, and retailing sectors of the economy. The state's strong economy and its proximity to large population centers exert pressure to develop farmland for alternative uses. But Massachusetts farmers have responded to these challenges and found ways to benefit from their close proximity to consumers. As a result of this, Massachusetts agriculture remains a vital industry.

### An Improved Outlook for Massachusetts Farms

Massachusetts farmers are discovering ways to make their farms more viable by getting the most from each acre. In 1997, farm product sales reached an all-time high of \$454 million. Net farm income—returns to the farm operator after paying expenses—is also rising. By 1997, it had climbed to a record high of \$143 million.

In 1998, farm employment was recorded at 21,583, a mere 0.7 percent of the state's total employment. This figure belies the stable presence of the industry, however, as many Massachusetts farmers now hold full-time, non-farm jobs while continuing to work their farms on the side. The percentage of farm operators for whom farming was not a primary occupation increased from 39 percent in 1974 to 47 percent in 1997.

*Though Massachusetts ranks only 43rd among all states in agricultural production, it ranks 14th of all states in net farm income per farm operation and 4th in net farm income per acre.*



*Roadside stands, farmers' markets, pick-your-own crops, and subscription farms (also known as community-supported agriculture) play a major role in increasing profitability.*

### A Healthy Balance Sheet

The conservative strategy of Massachusetts farmers has provided financial stability and enhanced survival. Debt-to-asset ratios on Massachusetts farms averaged only 9.2 percent from 1987 through 1997. U.S. averages in those years were 17 percent and 16.3 percent, respectively.

Rates of return in the agriculture sector have been consistently low. Nationally, the rate of return on assets from current farm income averaged 3.2 percent from 1960 to 1997. In Massachusetts, the average was only 1.3 percent. When considering their total rate of return on assets, however, farmers also include increasing property values, as measured in real capital gains. The rate of return on assets from real capital gains during this period was 3.7 percent for Massachusetts farmers, much better than the national average of 1 percent. Combining these two rates of return, the average Massachusetts farmer had a total rate of return of about 5 percent, as compared with just over 4 percent for the average U.S. farmer.

## CASE STUDY: One Farm's Diversification Keeps It Profitable

The story of one farm that participated in the Massachusetts Department of Food and Agriculture's Farm Viability Enhancement Program (FVEP) highlights some of the measures Massachusetts farmers are taking to increase their profitability and ensure their survival.

Once a 150-acre dairy farm with a modest apple orchard, this farm now includes "pick-your-own" fruit and pumpkins, "choose-and-cut" Christmas trees, and a large agri-tourism component. Thanks to good foresight, the farm is now grossing \$1 million annually.

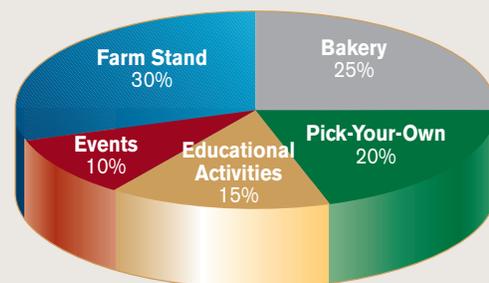
By selling development rights on approximately two-thirds of his land to the state Agriculture Preservation Restriction (APR) program, the owner was able to build a substantial farm stand. The stand and an on-site bakery now generate the largest portions of the farm's revenue, 30 percent and 25 percent, respectively. The stand sells produce and other food products, gifts, coffee, beverages, and baked goods featuring seasonal fruits.

The farm has also sought agri-tourism revenues. Areas outside the farm stand have been outfitted to encourage shoppers to spend time relaxing. There are picnic tables, a children's play area, a covered patio, and walking trails. Entertainment, events, and educational programs now generate about 25 percent of total revenues. Activities include a petting zoo, tractor-drawn hayrides, birthday parties, weekend fruit festivals and holiday events, summer writing and craft/nature camps, story hours, and educational group tours on planting, beekeeping, and wildlife. The farm also offers rental sites for private functions.

The farm owner took a calculated financial risk in broadening the scope of his enterprise. He realized that generating sufficient sales to prosper as a traditional wholesale farmer with a modest land base did not seem feasible, so he has adopted several non-traditional marketing strategies to enhance profits. To minimize his financial risk, he has created diverse sources of income. By direct marketing (through the farm stand), engaging in value-added enterprises (such as the bakery), and selling the farm experience, he has been able to keep the farm in business. The farmer's annual net income, which had averaged under \$2,500 in 1995, 1996, and 1997, reached \$62,000 in 1999.

### Case Study Farm Revenue 1999–2000

*Total Revenue \$1 million*



Many Massachusetts farmers improved their profitability by installing irrigation systems. The number of farms with irrigation increased from 879 in 1974 to 1,630 in 1997. Others utilized new technologies to increase production efficiency.

The cost of marketing is taking an ever-larger proportion of the consumer's food dollar. Some Massachusetts farmers have responded by taking on marketing tasks to capture those dollars for themselves. Roadside stands, farmers' markets, pick-your-own crops, and subscription farms (also known as community-supported agriculture) play a major role in increasing agriculture's profitability. Direct marketing sales by farms in Massachusetts grew from \$9.6 million in 1978 to \$20 million in 1997.

### **Farm Size Drops, but Number Grows**

While farm numbers have continued to decline nationally, the Massachusetts trend is in the opposite direction, with farm numbers increasing by 24 percent from 1974 to 1997. In 1997 there were 5,574 farms in Massachusetts.

The average size of farms fell 31 percent, from 134 acres in 1974 to 93 acres in 1997. Massachusetts farms are small in terms of sales as well. About 30 percent of farms have sales under \$2,500 per year, and about 55 percent have sales under \$10,000.

Losses of farmland in the state have continued. Total Massachusetts farm acreage declined by 14 percent from 601,734 acres in 1974 to 518,299 acres in 1997. Worcester County lost the most farmland during this period, followed by Hampshire and Berkshire counties. Franklin was the only county in which farm acreage increased.

### **Farmer Demographics Have Changed**

The farming population is aging, and fewer young people are entering the field. In 1997, the average age of farmers in Massachusetts—55—was at an all-time high. This trend could result in a surge of future retirements and subsequent farm losses, unless new farmers are attracted to farming and find it a viable occupation.

In 1997, there were 926 women managing 47,374 farm acres, representing a doubling since 1978. The number of farms operated by non-white minorities has remained small, at 36 farms comprising 1,309 acres.

### **Challenges to Profitability**

Farming in Massachusetts presents distinct challenges. There is a constant temptation to sell farmland to developers when profits cannot compete with land prices. Investment costs for land, buildings, machinery, and equipment are onerously high. Farming is also labor-intensive: Massachusetts farms paid \$82 million for hired labor in 1997, representing 18 percent of their gross. (This figure does not include the value of the operator's labor or unpaid family labor.) Farmers must be able to justify high financial investment with the promise of reasonable financial returns. More than ever, Massachusetts farmers must continue to find ways to benefit from, rather than be hurt by, population pressures.

### **The Role of Government**

The state's efforts have protected thousands of acres of farmland, increased exports of agricultural and processed foods, encouraged and supported farmers' markets, and reminded consumers that local produce is fresh and of top quality. They have also helped to forge new links and strengthen old ones between farmers, processors, retailers, university researchers, government agencies, and local groups.

*Farmers must be able to justify high financial investment with the promise of reasonable financial returns. More than ever, Massachusetts farmers must continue to find ways to benefit from, rather than be hurt by, population pressures.*



*Massachusetts agriculture is becoming more diverse and less dependent on traditional, mainstream products.*

### The State's Agricultural Strongholds

Massachusetts agriculture is becoming more diverse and less dependent on traditional, mainstream products. By maintaining diversity in their operations, farmers spread risk and are poised to take advantage of new opportunities.

In 1997, the top categories of Massachusetts agricultural production, in terms of cash receipts, were (1) fruits, nuts, and berries, (2) nursery and greenhouse products, (3) dairy products, (4) vegetables, sweet corn, and melons, and (5) tobacco.

**Fruits, Nuts, and Berries.** The best-performing segment of Massachusetts agriculture has been cranberry production, which increased by 114 percent from 1992 to 1997. Cranberry prices, however, have suffered a steep decline since 1997. Apples represent the fourth largest crop in the state. Apple production has declined; the 1997 crop was only 67 percent as large as the 1992 crop.

**Nursery and Greenhouse Products.** Nursery and greenhouse production is a blossoming sector of Massachusetts agriculture, ranking second in cash receipts.

### Regional Strengths Vary

There are clear differences in agricultural production from region to region. Cranberry production dominates agriculture on Cape Cod and in Plymouth County. Farms in the Greater Boston region have survived in an urban environment by taking advantage of consumer markets, especially for nursery and greenhouse products and vegetable crops. Moving to the south and west, we see a transition to more traditional agriculture, as vegetable production and dairy farms become most prevalent. Apples dominate fruit production in the central and western regions. Tobacco production is concentrated in the Connecticut River valley, though it does not lead all sectors in any one county.

### Leading Agricultural Products by County

*Some counties have a dominant product group; others are more diverse.*

County	Leading Product Group	Percent of Agricultural Sales	
		1997	1987
Barnstable	Fruits, nuts, berries	66.9	59.9
Berkshire	Dairy	46.2	51.8
Bristol	Nursery, greenhouse	32.6	40.5
Dukes	Vegetables, sweet corn, melons	18.2	n/a
Essex	Nursery, greenhouse	57.2	48.5
Franklin	Dairy	30.0	44.8
Hampden	Nursery, greenhouse	28.9	29.7
Hampshire	Dairy	19.8	33.6
Middlesex	Nursery, greenhouse	71.6	45.3
Nantucket	Nursery, greenhouse	36.0	15.5
Norfolk	Nursery, greenhouse	66.9	57.8
Plymouth	Fruits, nuts, berries	91.4	87.8
Worcester	Nursery, greenhouse	29.9	12.8



Much of this increase is attributable to the landscaping business, whose growth has been enhanced by the state's long-running construction boom. Sales increased by 58 percent from 1987 to 1997.

**Dairy Products.** Dairy products ranked third in Massachusetts. While dairy sales have been fairly stable in recent years, the number of dairy farms fell from 609 in 1987 to 353 in 1997. The number has remained stable recently, in part due to institution of the Northeast Dairy Compact.

**Vegetables, Sweet Corn, and Melons.** Bristol, Hampshire, and Middlesex counties were first, second, and third in vegetable production, respectively, producing 47 percent of the state's total. Worcester and Franklin counties combined to produce an additional 23 percent of the state's vegetables, sweet corn, and melons.

**Tobacco.** Some of the greatest increases in net farm income were on tobacco farms. With an infrastructure in place, farmers have been able to respond quickly to improved market prices for this high-value-per-acre specialty crop.

## The Food Processing Industry

No modern food system exists without a healthy food processing sector. This is the key link in the food marketing chain. It provides the critical services of preservation and transformation of raw agricultural commodities into value-added products, and begins the process of moving food products to their final consumers. Farmers benefit from having processors located nearby, and the state benefits from the substantial economic activity they provide.

Massachusetts is a densely populated state, and its population and location allow it to have a much higher national rank in food processing (26th) than in agricultural production (43rd). This population density also supports significant food wholesaling, food retailing, and food service industries.

### The Decline Has Been Reversed

The mid-century decline experienced by the Massachusetts food processing industry was largely over by the late 1970s; subsequently, the sector has witnessed growth, and some categories (e.g., fruit and vegetable processing) have posted significant gains. Food processing now employs roughly 20,000 people in Massachusetts.

Overall, Massachusetts accounted for 1.3 percent of the nation's value-added in food processing, far more than its 0.2 percent share of the nation's agricultural production. The Commonwealth had its highest share in three of nine food processing industry groups that comprise the food processing sector: dairy processing, bakery products, and miscellaneous foods. Each of these categories accounts for about 20 percent of the state's food processing work force. The next four largest industry groups, each having 8 to 9 percent of the state's food processing employment, were meat products, preserved fruits and vegetables, sugar and confectionery products, and beverages. The two smallest industry groups in Massachusetts were grain mill products and fats and oils.

When the nine industry groups are broken down into the 47 industries that make up the food processing sector, the three largest industries in Massachusetts were bread, cake, and related products, with 18.7 percent of the state's food processing employment in 1992; fluid milk, with 12 percent; and prepared fresh or frozen fish or seafood, with 10.5 percent. No other industry reached a 10 percent share of the state's total employment in food processing. The next four largest processing industries were sausage and prepared meats, confectionery products,

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*The dairy processing industries represent an opportunity to combine local production and processing to serve the state's large population centers.*



soft drinks, and ice cream, each with about a 6 percent share. Of these four, only ice cream represents a significant market for local traditional farmers. The four largest industries accounted for 48 percent of the state's 1992 total employment in food processing, and the next three largest industries added another 18 percent. Thus, just seven food industries accounted for two-thirds of the state's employment in food processing.

### **The Top Processing Industries**

**Dairy products.** Dairy farmers rely on a healthy dairy processing sector, as milk must be processed before being sold to consumers. The dairy processing industries represent an opportunity to combine local production and processing to serve the state's large population centers. Fluid milk has been a regional market, with farmers transporting their milk to local processing plants. The distances that farmers ship their milk have increased over time, leading to a reduction in the number of milk processing plants. Consumers, however, have responded to efforts to market a more local product. Dairy processors in Vermont have had great success with tying their product to their state's dairy image (e.g., Ben and Jerry's), and Massachusetts farmers are experimenting with this approach (e.g., Our Family Farms).

**Bakery products.** Bakery products do not rely on local agricultural producers; this large industry group is more significant to consumers who demand fresh bread than to Massachusetts farmers.

**Miscellaneous foods.** The miscellaneous foods category is a catch-all, which includes the very important fresh and frozen packaged fish industry and numerous other small industries, some of which are important (e.g., potato chips) and some less significant (e.g., tea) for Massachusetts farmers. Many Massachusetts businesses are producing important niche products, such as maple syrup and tofu-based products, that are lost in this category.

## **Food Service Leads the Food Sectors**

**A**s a broad measure of the entire food system, a vertical view is used to gauge economic activity, from agricultural production to processing, wholesaling, and then to retailing and food service (e.g., restaurants and drinking places). Data are not always available or well-suited for the task. They do reveal, however, that in 1997 Massachusetts had at least 27,000 establishments involved in the agricultural and food system, which employed at least 364,000 people. Largest among employers were food service operations, representing half of the establishments and 55.5 percent of the employees. Within food service, restaurants, both full-service and limited-service, dominated. Food service is of great importance to Massachusetts, and farmers and food processors would do well to cater to this sector.

The next largest is retailing, accounting for nearly 22 percent of the establishments and 27 percent of the employees. Supermarkets and grocery stores dramatically dominate in terms of sales and employees.

Wholesaling follows, with 5 percent of the establishments and 7.5 percent of the employees. The state plays an important role as food wholesaler to the northern East Coast region. Its locational advantage is reflected by the \$28.6 billion sales.

Food processing in Massachusetts accounted for only 1.6 percent of the establishments but 6 percent of the employees, and had sales of \$5.6 billion in 1997.

While agriculture is as large as the retailing stage in terms of establishments, it accounts for just under 3 percent of the food-sector's employees.

The fresh and frozen packaged fish industry clearly benefits by locating near the fisheries along the East Coast. Although this large processing industry is critical to Massachusetts fishermen and to the state’s economy, most farmers do not benefit from it directly. Aquaculture is developing in the state, however, and this new endeavor blurs the line between fisherman and farmer.

Two other industry groups within the food processing sector, meat processing and preserved fruits and vegetables, serve a vital role for local farmers. Though they are smaller, they provide farmers with a way to market excess supply during the harvest period or a way to provide consumers with a more convenient product form.

**Meat processing.** The meat processing industry in Massachusetts is small, but it is vital to livestock producers. Most of the state’s meat producers are not in the slaughtering business but manufacture sausages and other prepared meats made from boxed meat imported from elsewhere. Such establishments do not buy local livestock. The current effort by Western Massachusetts livestock farmers to build a slaughtering facility is an attempt to solve this problem.

*The distances that farmers ship their milk have increased over time, leading to a reduction in the number of milk processing plants. Consumers, however, have responded to efforts to market a more local product.*

## Is Food Production Keeping Up with Demand?

*While the New England states still depend on outside regions for most of their food supplies, New England food producers have consistently met consumer demand for regional foods and products. In Massachusetts, numbers have improved in the past quarter century.*

### Self-Sufficiency in Massachusetts, 1997 (in millions)

	<b>Poultry</b>	<b>Meat</b>	<b>Eggs</b>	<b>Dairy</b>	<b>Vegetables</b>	<b>Fruits</b>	<b>Seafood &amp; Aquaculture</b>
Estimated Consumer Expenditures	\$759	\$2,001	\$154	\$1,401	\$1,033	\$1,217	\$463
Estimated Retail Value of In-State Production	\$8	\$26	\$17	\$205	\$341	\$790	\$909
Surplus/(Deficit)	(\$751)	(\$1,976)	(\$137)	(\$1,197)	(\$691)	(\$428)	\$446
Percent Self-Sufficiency	1.0	1.3	11.2	14.6	33.1	64.9	\$196.3

Though Massachusetts produces a surplus only in seafood, figures since 1975 suggest that food production has been preserved and even enhanced in some sectors. In products important to Massachusetts agriculture, the level of self-sufficiency climbed from about 19 percent in 1975 to nearly 32 percent in 1997.

The need to increase levels of food self-sufficiency has been used in various public policy contexts as a justification for farmland preservation, farm market expansion and development, and assistance to specific agricultural industries or commodity groups. Complete food self-sufficiency for Massachusetts is not practical or even feasible without sacrificing the variety of foods and products consumers now enjoy. However, there are certain commodity groups that give Massachusetts farmers a competitive advantage. Policymakers must continue to support trade, assist New England farmers in finding the most profitable operations, and promote the value of open space and other amenities provided by farms that are difficult for farmers to capture in the price of their products.

*Local farmers are relying more on markets for fresh food, particularly in the food service industry, and even do some processing themselves.*



**Preserved fruits and vegetables.** Fruit and vegetable farmers have been increasing their use of direct marketing, but not all produce can be sold fresh. Farmers rely on processors not only to preserve their fruits and vegetables, but also to transform them into value-added products. Though the preserved fruits and vegetables industry group is not one of the state's largest, it is the only one that grew over the 1958–1996 period. Because Massachusetts does not have a leadership position in crop production (with the notable exception of cranberries), processing firms that need to be close to their farm inputs will likely choose to locate elsewhere. Nevertheless, niche markets remain, and farmers have consistently shown an ability to produce products that keep processors interested in the state's growers. Cucumbers grown in the Connecticut River valley for pickles and relish are an excellent example.

### **Responding to Trends**

Food processors now tend to relocate close to agricultural production centers, rather than near population centers, and rely on modern transportation to get finished products to consumers quickly and efficiently. As a result, the major farm states are likely to increase their rank in food processing. Such a change both hurts Massachusetts processors and provides an opportunity for them to differentiate themselves from faraway agribusiness factories. These factories will have a price advantage, but will be vulnerable to an image problem with consumers who question the need to buy food from large and distant agribusiness processors.

Local farmers are relying more on markets for fresh food, particularly in the food service industry. They even do some processing themselves, provided that small-scale processing is competitive with processed products from major producing states. Massachusetts farmers may have to avoid direct competition with such products and market other products and services that yield them the advantage, appealing to consumer concerns about local food supplies, food safety, and preservation of local agriculture.

### **The Current State of Forestry**

Massachusetts produces only about 10 percent of the forest products it consumes. However, since the horse power–based economy of the nineteenth century began its decline, the forests of the Commonwealth have been continuously growing. Businesses that utilize the forest resource stand poised for future growth.

#### **The Massachusetts Forest Resource Grows Larger**

Timberland comprises 2,642,100 acres, or 52.6 percent of the state's total land area. Combining timberland with other non-commercial forest land brings the total forest cover to 62.3 percent of the state's land. Timberland is concentrated in central and western counties. According to 1998 estimates, the top five counties in timberland acreage are Worcester, Berkshire, Franklin, Hampshire, and Hampden. The greatest timberland losses occurred in Middlesex, Worcester, and Bristol counties.

Even though timberland declined by 5.5 percent between 1972 and 1998, the estimated volume of harvestable trees has increased. According to 1998 figures, the total volume of growing stock (which includes trees five inches or more in diameter at breast height) on Massachusetts timberland was 5,722 million cubic feet, an increase of 68.6 percent since 1972. With the advent of engineered

wood products, which do not rely on large-diameter clear logs, this increase represents an opportunity. Oriented strand board, laminated strand lumber, and laminated veneer lumber are examples of products that could make use of this resource. The increases in growing stock improve the potential to attract these types of wood processing businesses to the state.

Of more immediate interest to the traditional forest products industry is the availability of sawtimber trees—large-diameter trees that can readily be turned into solid sawn lumber products, including structural lumber for housing and finish-dimension lumber for trim, furniture, cabinetry, millwork, and secondary manufacture. The 1998 figures showed Massachusetts with a total sawtimber volume of 16.5 billion board feet, an increase of 150 percent since 1972. Hardwood sawtimber grew by 185.2 percent and softwoods by 121 percent. Overall, sawtimber volume has been increasing at a 1.7 percent annual rate.

More than 121 million board feet of sawtimber is harvested annually from Massachusetts forests. This represents only 28.6 percent of the annual softwood sawtimber growth and 30.6 percent of the hardwood sawtimber growth. The opportunity exists to raise harvest rates without reducing resource stock.

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## Massachusetts Family Forests: Collaborating for Individual and Community Benefit

Private, non-industrial forest landowners own over 2.4 million acres of Massachusetts forests. In Western Massachusetts, some of these landowners have formed a cooperative, Massachusetts Family Forests (MFF). The cooperative's initial focus will be to pool lumber supplies to achieve greater bargaining power with wholesale buyers. Once inventories are established, the group hopes to supply logs in smaller retail quantities to local woodworkers. Semi-finished and finished products will eventually provide the most promising opportunity to earn higher rates of return for members.

*Some goals of the cooperative are:*

- Consolidate member sales of whole, unprocessed logs and firewood
- Create or provide access to markets for low-grade materials
- Develop value-added products
- Improve wildlife habitat, water quality, and recreation
- Barter equipment and services
- Obtain green certification

State legislation requiring ecologically sound forest stewardship practices gives Massachusetts landowners a competitive advantage in the emerging forest products certification movement. The benefits of certification could include a price premium for certified sustainably grown lumber and access to new markets for traditionally “lesser-valued” species, such as eastern hemlock and red maple.

The MFF initiative also seeks to improve the local economy and minimize the expense and energy wasted in long-distance transportation and handling of wood products. Through a “buy-local” distribution system, local producers might be able to receive a higher price while allowing local wood purchasers a lower cost.

The ultimate success of the cooperative will be measured in two ways: first, by the number of landowners who step forward to support it; and second, by whether the activities and businesses it spawns are financially viable. Efforts undertaken so far indicate that MFF is well on its way to forming a successful enterprise that will benefit both the participants and the community at large.

*The number of sawmills in the state fell from 130 in the early 1970s to 85 in 1997, but those remaining have invested in new equipment and have developed strong markets both at home and abroad.*



## The Wood Processing Industry

With its growing natural resource base, Massachusetts could significantly increase its harvest, processing, and manufacture of native wood. Local consumer demand for lumber, wood products, furniture, and paper far exceeds current production. The Commonwealth, with its strict forest management laws, is well positioned to meet growing consumer demand for certified sustainably grown lumber. Transportation costs account for a significant proportion of the cost of wood products, giving another advantage to local sources of wood.

Employment in the lumber and wood products processing industries as a whole fell from 6,200 employees in 1987 to about 3,500 in 1997. Middlesex County had the highest employment in this sector, followed closely by Worcester County.

Primary wood processing has declined in Massachusetts since the 1980s. The number of sawmills in the state fell from 130 in the early 1970s to 85 in 1997, but those remaining have invested in new equipment and have developed strong markets both at home and abroad. Most of the loss in sawmill numbers represents smaller sawmills.

Of the three major forest product categories—lumber and wood products, furniture, and paper—paper is the largest nationwide, and in Massachusetts as well. In 1996, 19,500 people were employed in Massachusetts paper industries, 6,700 in furniture, and 4,500 in lumber and wood products. Looking further down the distribution chain, 10,010 were employed in the wholesale trade for all three categories, and 34,814 in the retail trade. These figures provide evidence of the state's role as a wood products consuming state. There are no reliable data on the portion of production or sales that are derived from the Massachusetts resource base, but it is expected to be small.

Most wood processing manufacturing industries in Massachusetts represent insignificant proportions of national production. However, Massachusetts boasts 2.6 percent of total U.S. employment and 2.8 percent of value-added, in custom architectural woodwork and millwork. Paper industries are also a relative strength for Massachusetts. In folding paperboard box manufacturing, the state accounts for 3.3 percent of employment and 3.2 percent of value-added. The figures for setup paperboard box manufacture are 11.8 percent of employment and 13.7 percent of value-added.

The number of lumber and wood products businesses grew slightly from 1972 to 1987, rising from 399 to a peak of 443, but fell by 21 percent to just 348 businesses by 1997. Most Massachusetts wood products businesses are small; only 14 percent had 20 or more employees in 1997.

Two non-timber forest products also contribute significantly to the state's economy: Christmas trees and greens contribute \$10 million, and the maple syrup industry is estimated to provide an additional \$3 million.

Massachusetts could significantly increase its harvest, processing, and manufacture of native wood. Market opportunities can help entrepreneurs better utilize our wood resources. Local consumer demand for lumber, wood products, furniture, and paper far exceed current production within the state. All of this suggests promise for the Commonwealth's forest industry and, as with farming, we could benefit from appreciating the importance of this economic sector. 🌀



