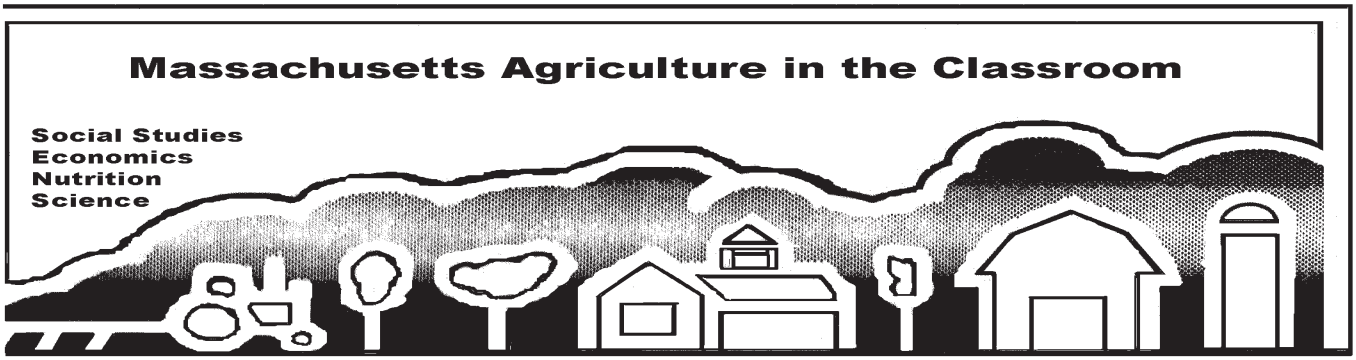
The Newsletter of **Spring 2009**



Workshops on the Farm

$30 Each Workshop - 9 a.m. to 3 p.m

Sheep, Wool & Fibers
Thursday, June 25
Natural Resources Trust of Easton

Cranberries, Bogs & Wetlands
Tuesday, June 30
Flax Pond Cranberry Farm, Carver

Field to Plate Connections at School
Thursday, July 9
L.D. Batchelder School, North Reading

Raising Pigs & Nutrition Related to Grass Fed and Free Range
Wednesday, July 15
Artichoke Farm, Newburyport

Massachusetts Agricultural History
Wednesday, July 22
Pocumtuck Valley Memorial Museum, Deerfield

Composting and Healthy Soils
Tuesday, July 28
Hubbardston Ctr. Sch & Country Hen

Feature Topic: Gardening in Containers

Mission: Massachusetts Agriculture in the Classroom is a non-profit 501 (c)(3) educational organization with the mission to foster an awareness and learning in all areas related to the food and agriculture industries and the economic and social importance of agriculture to the state, nation and the world.

MAC Newsletter Available on the Web

Massachusetts Agriculture in the Classroom (MAC) has been producing our **popular and informational newsletter since 1995**. Originally published just twice a year, the number of editions was increased to **three time a year** in 1997 to match the school year and provide more resources for teachers.

Each edition offers an overview of upcoming programs and available resources as well as detailed information on one aspect of our program such as the mini-grants, annual conference, summer graduate course, Massachusetts agriculture calendar and our teacher-of-the year honoree. In addition, each newsletter also offers **an educational unit focusing on one Massachusetts agriculture topic.** This four-page, pull-out insert provides background information, classroom connections, activity ideas, resource lists and more.

Over the years we have received many favorable comments about our newsletter from principals and educators representing all grade levels and communities across the state. They tell us that they keep the educational units from our newsletter in their classrooms, using them to teach many different topics. We also hear from librarians who save the newsletter as a resource for those seeking information about agriculture in the state. Farmers also call and write to tell us how much they enjoy reading the newsletter.

We are pleased with the popularity of our newsletter. Each edition represents a lot of research and work. Each topic is covered in depth from a variety of angles and educational perspectives. It is meant to be a tool that teachers can readily use in their classrooms.

However, this popularity means that our newsletter mailing list is every increasing, now reaching approximately 11,000 subscribers. In addition to the copies sent to every school and public library in the state, we now reach as many as 6,200 individual teachers and farm educators. With printing and postage rates ever increasing, it now cost us approximately $5,000 to print and mail each edition.

We are now **looking for sponsors** to help us offset the cost of printing and postage for each edition. These donors will be acknowledged in the newsletter and in our Annual Report. We also ask you, our customers, to consider **making the change to the web version** of the newsletter.

Did you know that we produce our newsletter in both html and pdf format and post it on our website at the same time that we send out the mailing? When we are ready to publish the newsletter, we can send you and e-mail reminder and the link to these files on our website. You can choose to read the newsletter on-line or print your own copy from the pdf file. It looks identical to the printed version we mail. Send us an e-mail now and make the switch.

Mini Grants

Any Massachusetts teacher or school can apply for a mini-grant to support their agriculture in the classroom efforts. Each year MAC awards grants of up to $1,500 to teachers for agricultural education projects. Mini-grant proposals are due the first of April, September and November. To receive a copy of our mini-grant guidelines, visit our website or send a letter to MAC.

Graduate Level Course

Once again this summer, Mass. Agriculture in the Classroom is collaborating with **Fitchburg State College** to offer a three-credit graduate course. Using Massachusetts farms as their classrooms, teachers will participate in agricultural-literacy training through fun, hands-on study and investigation. The course also offers agricultural education resources to help enhance curricula and meet many MCAS requirements.

The Graduate Course will meet on **Wednesdays, June 24** and **August 12** at the **Brigham Hill Community Farm** in **North Grafton** from 9 a.m. to 3 p.m. Each participant must attend both sessions and also participate in six additional workshops during the summer, selected from twelve workshops on various topics at locations across the state. Participants will also keep a journal of their agricultural journey and develop five lesson plans for the classroom, presenting one lesson to their peers on August 12.

This course will assist new educators, and those who want to expand their offerings, to integrate agriculture into the classroom. The fee for this eight-day course is **$475** and includes all materials; farm workshops; some meals and **three graduate credits** or 67 professional development points from Fitchburg State College. Participants will be paired with a MAC board member for access to agricultural resources and support. For more information and workshop descriptions and locations visit our website - www.aginclassroom.org.

President's Message

On February 1st, just prior to our Annual Conference, Massachusetts Agriculture in the Classroom lost one of our most dedicated members. **Lenore Paul** had been a Board Member since 2003, was our 2004 Mass. Agriculture in the Classroom Teacher of the Year and was an active participant at all of our workshops.

Lenore Paul was a great advocate for agricultural education and a regular participant at our Summer Workshops for Teachers on the Farm.

Lenore first became involved in MAC in 2000, attending three of our Summer Workshops for Teachers on the Farm. A year later she signed up for all seven summer workshops and has been a regular attendee ever since, telling us "the workshops are her summer vacation." She had traveled in several countries, and the workshops on farms around the state allowed her to investigate Massachusetts agriculture first hand.

It was at one of our 2001 Summer Workshops, at the Bisbee Mill Museum in Chesterfield, that Lenore discovered another passion. A young turkey had been abandoned and was being raised by a local farmer. When he asked if anyone knew of a good home for it, Lenore plunged right in and took the turkey home that day. Many more farm animal adoptions followed including several at other MAC workshops.

Lenore had always lived in Ludlow, where she taught 5th grade at the **Veterans Park Elementary School**, played the organ on Sunday at her local church and Chaired the new Agricultural Commission. She raised her farm animal menagerie in the backyard of her family home and on nearby farmland that she'd purchased several years ago in anticipation of the farm that she would run after she retired from teaching. She was scheduled to retire this June and had many plans for her next life stage.

Lenore was a wonderful teacher, she combined discipline, encouragement and discovery. We are fortunate that she found and loved agriculture. She especially liked to interest new teachers in science and was able to attach any curriculum framework to agriculture. No matter the topic, there was always a teachable moment.

Lenore's passion for agriculture and knowledge on the subject was a great asset at our Summer Workshops. She always had a story to tell or an activity idea to share. Those teachers who have attended our workshops or conferences will remember her brimmed hat, various agriculturally themed t-shirts and the always present purse that resembled a chicken. She also regularly brought a pound cake to share, made from eggs from her own flock and flavored to match the workshop topic.

Lenore was instrumental in bringing our Annual **Winter Teacher Conference** to Ludlow, where the school facilities at the **Paul R. Baird Middle School** and the delicious local food provided by **Randall's Farm** have both helped make the conference a huge success. And when MAC partnered with **Fitchburg State College** to offer a Summer Graduate Course, Lenore stepped forward to lead the efforts.

Over the past few months we have received so many expressions of admiration from teachers from across the state, who have attended workshops and are as stunned as we are at the loss of such an important advocate for agriculture and education. Some of these comments were combined with images of Lenore to present a special tribute at our February conference. The school asked to place this display at the funeral home and later at her school.

We also received several donations in Lenore's memory and many others have asked if there is a way to honor Lenore's work with MAC. We created a special fund to develop agricultural framework connections for teachers. A fitting tribute to a great teacher and friend. Send your contribution made out to MAC - Lenore Paul Fund.

Marjorie Cooper
President

Container Gardening Resources

Massachusetts Flower Growers' Association
8 Gould Road
Bedford, MA 01730-1241
781-275-4811
www.massflowergrowers.com

Mass. Nursery & Landscape Association
P.O. Box 387
Conway, MA 01341
www.mnla.com

Tranquil Lake Nursery - Warren Leach
45 River Street Rehoboth, MA 02769
www.tranquil-lake.com

UMass Extension Plant Culture Sheets
www.umassgreeninfo.org/fact_sheets/index.html

Other Websites

Container Gardening for Wildlife
www.nwf.org/backyardwildlifehabitat/container.cfm

Container Gardening Lessons
http://aggie-horticulture.tamu.edu/floriculture/container-garden/lesson/index.html

Container Gardening with Children
www.fns.usda.gov/tn/Parents/gardening.html

Container Vegetable Gardening
www.ext.vt.edu/departments/envirohort/articles/vegetables/contgrdn.html

Drought Resistant Plants for Pots from BBG
www.bbg.org/gar2/topics/design/handbooks/potted/drought.html

Fine Gardening - Hypertufa Trough Article
www.taunton.com/finegardening/pages/g00117.asp

Guide to Container Gardening
www.gardenguides.com/Tipsandtechniques/container.htm

Books

The Complete Container Garden, David Joyce, Reader's Digest, 2003.

Container Gardening, Storey Publishing Wisdom Series.

Container Water Gardens, Phillip Swindells, Barron's Educational Series, 2001.

The Edible Container Garden: Growing Fresh Food in Small Spaces, Michael Guerra, Simon and Schuster, 2000.

Gardening in Containers: Creative Ideas from America's Best Gardeners, Fine Gardening Editors, Taunton Press, 2002.

Growing Herbs in Containers, Sal Gilberte and Maggie Oster, Storey Publications.

Roof Gardens, Balconies and Terraces, David Stevens and Jerry Harpur, Rizzoli Publishing. 1997.

Information for this newsletter was taken from the resources listed above. Thanks also to Warren Leach for his assistance.

Gardening in Containers

Gardening in containers offers many benefits for both the plant and for the gardener. Essentially, it provides a **means to control the environment**, allowing for optimization of the growing culture for plants when those conditions can not be met naturally. It also provides the opportunity for the gardener to **overcome challenges** that might limit gardening in scope or area.

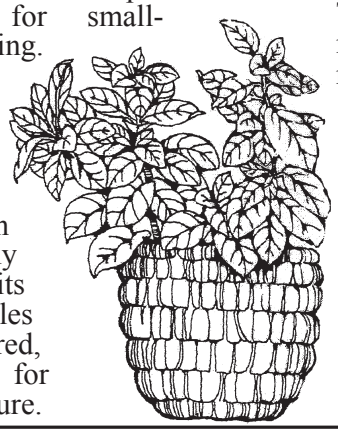
Optimize Cultural Conditions

Plants can be grown in containers when **soil is poor** in nutrients or water holding capacity; polluted with toxins or heavy metals; compacted by foot and construction traffic; infested with nematodes and other soil borne pests, or where competition from tree roots limits growth. The **growing medium can be amended** to provide optimum drainage, nutrients, Ph. and water holding capacity to meet the unique requirements of each individual plant. Vigorous growers such as mints and bamboos can also be planted in pots to **restrain** their rambling habits.

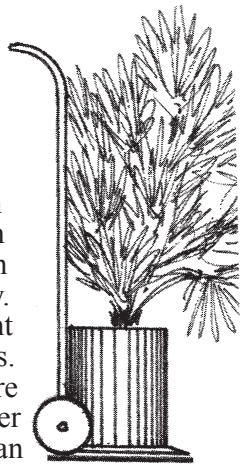
Container gardening liberates the gardener from their geography. Each plant can be placed where it will receive the best light conditions, whether in sun or shade. Tropical and frost-sensitive plants can spend the summer outside. Vegetables can be started indoors to extend the season. Since the soil in the pots heats up quickly, gardeners can get a jump on the season using containers. Unique plants that inhabit wetlands and bogs are not out of reach.

Space and Flexibility

Containers allow options for those with limited outdoor spaces and where a traditional garden is awkward or impossible. A window sill, patio, deck, balcony, rooftop, driveway, stairway or even the front stoop offers the opportunity for small-scale gardening. A vertical container, trellice or hanging baskets can take the garden upwards. Many flowers, fruits and vegetables have been bred, specifically for container culture.



Container gardens are non-permanent and portable. Take the garden with you when you move or when school closes for summer. Place plants in the public view when they are in full bloom. Move them when they have outgrown their space or when the sun's position changes seasonally. Repot and replant to freshen displays. And when there are storms or a danger of frost, plants can be moved indoors or clustered in a corner away from wind and freezing temperatures. Experiment to optimize environmental conditions.



Beauty and Instant Display

Container gardens can supply instant display. They elevate their contents above the ground and put plants "on stage," where they can really show off their flowers and foliage. Use them to add color, fragrance and pizzazz to balconies, decks, patios, entranceway or the home landscape. Group them to add a spot of color or hide an eyesore. Add a few to the border to provide and accent or color echo. Weatherproof containers, planted with hardy perennials or woody shrubs, add year-round sculptural interest to the garden.

Garden with Ease

Gardening chores such as watering, feeding, weeding, staking, spraying, and removing faded blooms are easily managed in containers. To save time and energy, group them in just a few areas. They also provide a solution for areas where water is limited during the growing season. Container gardening is also accessible to almost everyone. Those who can not bend over or who must sit when they garden can easily reach many raised containers.

Wildlife Habitat

Container gardens can even be used to supplement habitat for wildlife. Provide favorite foliage, nectar, pollen, berries, seeds and nuts. Incorporate feeders to supplement food and supply water, cover, and sheltered places to raise the young. Use sustainable practices. And if wildlife is your problem in the vege-

table garden, containers located on a deck or patio may discourage pests.

Stress and Challenges

Some of the same elements that make container gardening ideal for the gardener can add environmental stress for the plant. Pots hold only a limited amount of soil in which roots can spread. The soil temperature in containers is higher than that in the ground. During the heat of summer, roots may be restricted by heat from growing near the sides of the container. Darker pots will heat up more quickly than lighter colored ones, and are better suited for the shade. Pruning will help keep plants in proportion to roots.

Containers dry out very quickly and vigilance with watering is essential. Clay pots are especially porous and lose water from the sides. Plants that have been grouped into one containers must have similar moisture needs. Those that require a lot of water can be placed in the shade. Self-watering pots can also help make for worry free vacations and weekends.

A 2-3 inch layer of mulch placed on top of the soil surface will cool the soil and help it retain moisture. It increases soil fertility as it decomposes and prevents crusting on the surface, allowing water to penetrate to the root zone.

Types of Containers

Containers come in many sizes, shapes, and styles. The size of the container needed will vary according to the plants selected, space available and the size and number of plants to be grown in the container. It should be large enough to support plants when fully grown; hold soil without spilling; have adequate drainage, and never have held products that would be toxic to people or plants. Avoid containers with narrow openings.

Almost anything can be used for a growing container from stoneware pots to small terracotta and plastic pots, bushel baskets, drums, gallon cans, tubs, wooden boxes or found objects such as old boots, wheelbarrows, barrels or even an ancient bathtub.

Commercial pots are made of many materials including: clay; ceramic; metal; wood, and inexpensive and lightweight plastic, resin and fiberglass. Choose a container that complements aesthetically and functionally. Look for lightweight containers for balconies and rooftops. Build your own window boxes, planters and vertical gardens from wood and make hanging baskets from moss and wire.

Clay pots are available in unglazed and glazed styles. Unglazed terracotta pots are porous and withstand a range of temperatures, however, they break easily.

Glazed clay pots aren't as porous and do not dry out as quickly as terracotta, They come in a range of colors. Most low-fired ceramic flower pots must be stored inside during the cold months.

Stoneware is a high-fired pottery in which the clay turns vitreous and glass-like. It comes in many decorative colors and is stronger and heavier than earthenware. It doesn't absorb water and will not break in winter if filled with a soil medium (with or without plants).

Container Culture

Soil: "Soilless" potting mixtures are best, because they drain rapidly, hold enough moisture for the plant's roots, are light weight, are free of disease and weed seeds and are available at all garden stores. You can also use garden compost or make your own mix from equal parts of sand, loamy garden soil and peat moss.

Consider adding a packet of water-retaining polymers to the soil. They can hold several hundred times their weight in water, making it available to plants longer. Mycorrhizal fungi can be added to improve the ability of the roots to take up water and nutrients.

Check the requirements of your plants to determine whether you'll need to amend the soil with peat moss to add more watering holding capacity for moisture-loving plants or by adding additional perlite, coarse sand, pea gravel or turf face for those plants that like to dry out between watering. Commercial mixes are usually slightly acidic, so you may need to add lime for plants with a preferred alkaline Ph.

Watering: Proper watering is essential. Most containers will require water at least once a day. Water well, so that the water drains from the bottom of the pot. Plants that are pot bound, or in a very sunny or windy location, may need more than one watering a day. Avoid wet foliage which encourages diseases. Poor drainage will waterlog the soil. Repot and add proper drainage.

Wet soil thoroughly prior to planting. Leave a 2" space at the top of the container, so that you can add ½ inch or so of mulch or gravel.

Fertilization: Fertilization is important to keep container plants blooming and healthy. Container mixes drain rapidly, washing nutrients from the soil with each watering. Use a nutrient solution and pour it over the soil mix to fertilize. There are many good commercial fertilizer mixes available, including organic feeds. Lighter soil mixes require more frequent fertilizing. During the summer, when actively growing and flowering, plants can be fertilized well once a week, or use a dilute solution at each watering. Never fertilize your plants when they are dry; it will burn the roots. Occasionally, add a minor element solution. Flush the container well ever one or two weeks to reduce the build up of salts associated with water soluble fertilizers.

Light: Most container grown plants, especially those grown for their flowers and fruits, will grow and produce better in full sunlight, with a minimum of six hours of direct light a day. However, some plants are shade tolerant. A few are even shade loving. Get to know the sun and shade availability of your site before you select plants. Then choose plants that are best suited to your environmental conditions.

Diseases and Insects: Plants grown in containers can be attacked by various types of insects and diseases. Inspect them periodically for the presence of foliage and fruit-feeding insects as well as the occurrence of diseases. Should problems occur, your local nursery or garden center can advise.

Planting Permanent Pots

Durable containers can be planted seasonally with annuals or permanently with shrubs, trees or perennials. Permanently planted containers offer year-round display outdoors, and will endure despite exposure to frigid winter temperatures. However, since container culture exposes the plant's root zone to much colder winter temperatures than those planted in the ground, some plants that are hardy in the ground may not be root hardy in containers. Yet, many evergreen shrubs, dwarf conifers, grasses and herbaceous perennials will survive these low winter temperatures above ground.

There are many container materials from which to choose: rot-resistant wood, cast stone, metals such as zinc, hypertufa and even durable plastics that mimic terracotta. Stoneware, even unglazed, becomes vitreous from its high firing and does not absorb water and break like soft, low-fired earthenware. The container should be large enough to prevent frequent drying. For small trees and shrubs, a minimum pot size of 18-24" is required.

To prevent breakage of stoneware pots, be sure to keep them filled with growing medium throughout the winter. When empty, they will fill with water and freeze. Raise containers off the ground by setting them on several bricks to ensure drainage. This also prevents stress fractures that occur when the bottom of pots are frozen to the ground while the tops are warmed by the winter sun.

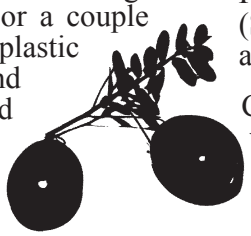
Drainage is the most important factor in the potting mix. A coarse mixture composed of composted bark, peat-moss, perlite and loam works well. As with any container, watering is essential, especially into the fall. Hardy trees and shrubs should not be fertilized frequently and do not need a regime of root pruning and repotting. They will reach and maintain an equilibrium of top growth to roots.

Favorite plants that survive and even thrive in containers year-round include: pine, falsecypress, spruce, elm, arborvitae, birch, ninebark, willow and many more. ***by Warren Leach***

Create A Bog Garden

Unique plants that naturally grow in wetlands and bogs suffer when planted in most garden soil. To successfully grow these water loving beauties, regardless of soil type, you can easily make a **bog-like garden container within the garden**. It will create a barrier to hold water rich soils while also preventing roots of nearby plants from overtaking the wetland plants.

To make the bog garden, dig a hole 24 inches deep and wide enough to hold the plants that you will be adding. Use a rubber pond liner or a couple of layers of heavy plastic to line the bottom and sides of the bog and create a barrier.



Fill with the soil removed from the hole, supplemented with at least 30 percent rich organic matter. Trim the top of the liner at the soil level.

When filled, water well to saturate the soil. Let stand for a day before planting. Depending upon whether the new bog garden is located in the sun or shade, select water loving plants that meet the available solar needs.

In full sun, plant cranberries, bog rosemary, Japanese Iris, Japanese Sweet Grass (Acorus calamus), Blueberries, Winterberry Holly (Ilex verticillata) or carnivorous plants such as sundews and pitcher plants.

In the shady bog, try growing Filipendula, Ligularia, Meadowsweet (Spiraea), Sweet pepperbush (Clethra), and Sweetshrub (Lindera).

Consider adding the bog to an area where rainwater frequently channels. The rich organic soil will collect the water as it travels across the surface, recharging the bog and preventing soil wash out from the runoff. During droughts add supplemental water to keep the bog plants thriving.

Make Your Own Container

Consider making your own pots, troughs, benches, bird baths and more out of hypertufa. The only ingredients needed are: water; 3 buckets Portland cement; 3 buckets mason's sand (fine textured sand), and 3 buckets sifted peat moss.

Measure the cement, peat moss and sand and add them to a wheelbarrow. Use a hoe or small shovel to blend thoroughly. Add water and blend again. The amount of water required varies, so add a little at a time. The hypertufa is ready to be molded when you can squeeze a few drops of water from a handful.

Form the hypertufa in boxes lined with plastic or make a polystyrene form from 2" insulation, secured with 2 ½" deck screws and reinforce with gaffer's tape. If you are making a planting container, be sure to provide adequate drainage holes.

Pack the hypertufa firmly and tamp down. Continue adding and tamping until hypertufa reaches the preferred depth or fills the form.

Cover with plastic; dry for 48 hours. Remove the box or form and sculpt by knocking off corners and sharp edges. Add texture and grooves to sides with a paint scraper or screwdriver. Brush surface with a wire brush.

Wrap the piece in plastic, and put it in a cool place to cure. The longer it cures the stronger it will be. After at least a month, unwrap and let it cure in the open for several more weeks. If making a planter, periodically rinse with water to remove some of the alkalinity. Add vinegar to the rinse to speed this process.

After the planter has cured outside for several weeks, move it inside away from any sources of moisture, to cure for another week or so. Then apply a coat of masonry sealer to basins or other pieces that must hold water.

Victory Gardens for Today

Victory Gardens were first proposed by **Richard Gardner** in the **1600s.** In anticipation of a possible invasion by Spain, he wrote that England should encouraged cities to provide for the citizenry through gardens. At the end of **World War I**, the term became widely used in the United States as the government encouraged its citizens to take up gardening to ward off food shortages, like those that had been prevalent in Europe.

It was during the **Second World War**, however, that the concept really took hold. Individuals in the U.S., Canada and U.K. were asked to provide their own fruits and vegetables by growing **"Victory Gardens,"** also known as **"Food Gardens for Defense."**

These gardens were promoted as patriotic. They also empowered individuals to make a contribution and allowed more farm produced food to be shipped to the troops. The price of food was kept low, and labor and transportation shortages were reduced, making it easier to harvest and transport produce. Families were encouraged to can their own vegetables, saving commercially canned goods for the troops.

Nearly 20 million Americans planted gardens in backyards, empty lots, parks, public lands and even on city rooftops. The harvest was estimated at as much as 8-10 tons - an amount equal to all commercial production of fresh fruits and vegetables. Neighbors pooled their resources, planting different kinds of foods and forming cooperatives.

When World War II ended, so did the government promotion of Victory Gardens. Now that the strong economy of the 1980s and 1990s has weakened, there are lessons to be learned from the past. Consider planting your own edible food garden. It will increase your self sufficiency, help you connect with the earth, and provide tasty and nutritious food.

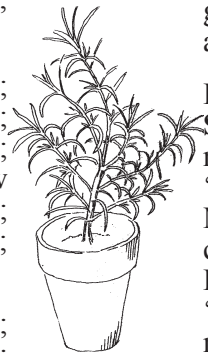
Massachusetts Agriculture in the Classroom
P.O. Box 345 Seekonk, MA 02771
www.aginclassroom.org

Plants for the Container

There are many plants that can be grown outdoors in containers throughout the summer. A few will live outdoors in the gardens for years. Most must be brought indoors for the winter, while still other are allowed to live for just one year and die with the frost. Here are a few container recommendations:

Annuals: alyssum; amaranth; begonia; browallia; California poppy; cleome; coleus; geraniums; helichrysum; impatiens; lantana; lobelia; marigolds; nasturtiums; nicotiana; pansies; periwinkle; petunias; portulaca; salvia; senecio; snapdragons; sunflowers; thunbergia; verbena and zinnias.

Vegetables: beans; beets; broccoli; lettuce; cabbage; Chinese cabbage; carrots; cucumbers; eggplant; garlic; gourds; lettuce; New Zealand Spinach; onions; pepper; radish; Scarlet runner beans; spinach; squash and tomato.



Herbs: alpine strawberries; basil; beebalm; dill; chives; coriander; dill; germander; johnny jump up; lady's mantle; lamb's ear; lavender; lemon verbena; gem series marigolds; mint; nasturtium; pineapple sage; rosemary; rue; sage; santolina, scented geraniums; thyme; viola and yarrow.

Hardy and Tender Perennials: Most hardy perennials and tender tropicals can be planted in a container. Those that are tender must be brought indoors before the first frost and many hardy perennials should be planted in the garden for the winter. The following are hardy outdoors in a container: Coreopsis verticillata; Geranium macrorrhizum; Gypsophila repens; Hemerocallis; Hosta; Iris sibirica; Pulmonaria; Sedum spectabile; Sedum 'Matrona', and Yucca 'Bright Edge.'

Hardy Grasses: Helictotrichon sempervirens; Calamagrostis 'Overdam'; Hakonechloa; Molinia caerulea 'Variegata'; Panicum 'Heavy Metal', and Pennisetum 'Hameln'.

Hardy Woody Trees & Shrubs: Aralia spinosa; Cornus 'Silver & Gold'; Cotinus 'Purpureus'; Malus cultivars; Myrica pensylvanica; Physocarpus 'Luteus' and 'Diablo'; Rhus 'Laciniata'; Spiraea 'Gold Flame'; Spiraea 'Goldmound'; Spiraea 'Ogon'; Ulmus parviflora 'Seiju' and Evergreen Shrubs; Chamaecyparis obtusa gracilis; Juniperus varieties; Picea abies 'Little Gem'; Pinus mugo; Taxus cuspidata; and Thuja occidentalis 'Rheingold.'

Moveable Pizza Garden

A moveable garden in a container can provide just the right solution when contaminated soil, vandalism or short term programs that end before a garden can be harvested are the issue.

Collect plastic containers ranging from 5 gallon buckets to one-or-two gallon deli containers. You can even use 2-3 gallon nursery pots. Make sure that each container will drain well when watered. Drill holes to add extra drainage where needed. Give each student their own container in which to plant a garden. You may even want to personalize the containers with paint.

Ask students to fill their containers with soil. Use a good quality potting mix. Give each student a young tomato, pepper and basil plant. Plant and water. Move the gardens as needed. Send them home with students for the summer.

Activity Ideas

1. Plant a salad and herb garden in a container. Harvest the greens to make a salad with students.

2. Select a tropical country and study the plants that would grow their naturally. Find cuttings or seeds from these plants and grow them in containers.

3. Visit a local nursery to learn about container plants. Which ones are most suitable for your school environment?

4. Select a variety of plants with different water requirements, from wetland to desert. Select a container and soil medium for each and try growing them in the classroom.

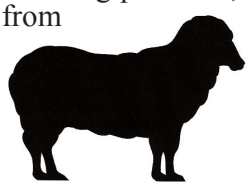
5. Construct and plant a vertical garden, using wood, wire and plastic bag liners to hold the plants vertically.

6. Make a trough garden. Research the needs of plants that grow in alpine areas. Plant and grow these alpines.

Workshops on the Farm

Join us for one of more of our summer workshops and gain knowledge and resources while you explore local farms. Workshops runs from 9 a.m. to 3 p.m., offer classroom-ready activities and focus on unique aspects of agriculture with exploration of the work that takes place at each farm. The fee of $30 includes pdp's, lunch and materials. Six additional workshops can be found on our website.

Thursday, June 25th takes us to **Sheep Pasture** the home of **Natural Resources Trust of Easton.** We'll spend the day focusing on sheep, wool and fibers including an overview of sheep history and breeds, a lesson on sheep anatomy and farming practices, harvest of wool from sheep-to-yarn, spinning and more with Director **Ed Hands,** teachers and naturalists **Monique Melcher** and **Stephanie McNamara.**



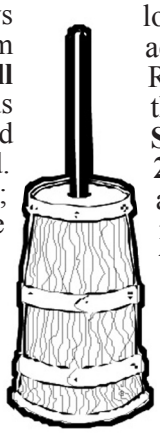
Spend **Tuesday, June 30th** at **Flax Pond Cranberry Farm** in **Carver.** This 100-acre family farm offers 34 acres of bogs, a pond and reservoir, woodlands and Christmas trees. Owners **Jack** and **Dorothy Angley** will introduce the many aspects of cranberry production including: growing cranberries; pest management; tools and equipment; water quality; seasonal changes; importance of bogs; wetlands; associated plant and animal habitat; economics and marketing, and the health benefits of cranberries.

Spend **Thursday, July 9** at the **L.D. Batchelder School** in **North Reading.** Explore an enrichment program that teaches Colonial agriculture and shows the effort involved in bringing food from field to plate. Third grade teacher **Bill Cassell** will guide you through the fields of wheat, corn, beans, and potatoes and apple orchard where students grow food. You'll thresh, winnow and mill wheat; make bread; husk and grind corn; make hasty pudding, and more. He'll offer curriculum-related activities and links to history, math, science, technology, language arts, and problem solving that will engage and excite you, even if you don't have a school garden.

Artichoke Farm in **Newburyport,** raises young piglets until they are 6-8 weeks old. Owners **Lisa and Bruce Colby** also grow vegetables for farm market and hay 300 acres. On **Wednesday, July 15**, learn about hay field management and the nutritional and health benefits of locally grown, hay and grass feed for the animals and the humans who consume them. After lunch, tour the hay and vegetable fields, farm market and meet the piglets.

Wednesday, July 22, takes us to the **Pocumtuck Valley Memorial Museum** in **Deerfield,** where **Sheila Damkoehler** and staff will offer an overview of changes in agriculture over time. Using Deerfield as an example, the workshop will present a model to use in your own town, showing responses to the needs and demands of each time period. We'll visit an "Indian House" local farm, the msueum's tool room and milk bottle exhibit. Then explore a Pioneer Garden, flower and fruit farm.

Karen DiFranza of **Hubbardston** is an avid gardener and composter, who has taken her composting efforts to local schools implementing active programs at Quabbin Regional HS in Barre and the **Hubbardston Center School.** On **Tuesday, July 28**, she'll show you how food and yard wastes are recycled into rich compost, which is then used to grow food for the students. Try out a variety of classroom activities. In the afternoon, we'll visit **The Country Hen**, A nearby egg producing farm that uses the bi-products of raising hens to produce compost.



Massachusetts Ag Tags

Order your **Agricultural Specialty License Plate.** Proceeds will go to the **Mass. Agricultural Trust.** The **cost to transfer your registration to an "Ag Tag" is $60,** including $40 donation to Agricultural Trust, and $20 fee to swap plates when it arrives. To apply for your Mass. Ag Tag License, send a $40 check made payable to the RMV. For more information on the Ag Tag, visit www.mass.gov/agr/agtag.

Fall Conference

MAC Classroom is now planning a fall conference to be held on a Saturday, in November near Boston. Workshops will focus on gardening, composting, recycling and other green topics. Visit www.aginclassroom.org for updates or to send us your workshop ideas.

REGISTRATION ... DONATION.... MATERIAL ORDER FORM

Please fill out this form and return it to: MAC, Inc. P. O. Box 345 Seekonk, MA 02771

Name _____

School or Organization _____ Address _____

City _____ State _____ Zip _____

Phone Number (day) _____ (evening) _____ e-mail _____

I am registering for the following workshop (s): ☐ $30 enclosed for each workshop registration, ☐ please send directions

☐ June 25, Natural Resources Trust of Easton, North Easton
☐ July 9, Batchelder School, North Reading
☐ July 22, Pocumtuck Valley Memorial Museum, Deerfield
☐ June 30, Flax Pond Cranberry Farm, Carver
☐ July 15, Artichoke Farm, Newburyport
☐ July 28, Hubbardston Center School

☐ I am registering for the Summer Graduate Course ☐ $475 is enclosed (Make Check payable TO MAC)

Please send information on: ☐ The Summer Graduate Course; ☐ Fall Conference; ☐ Mini-Grant Guidelines

☐ Farm Field Trip Manual $12; ☐ 8 Lessons about Agriculture & Environment $5; ☐ School Gardening Manual $10

I'd like to make a tax-deductible donation in the amount of: ☐ $50; ☐ $25; ☐ $10 Other donation _____

Calendar

- **May 23-24, 35th Sheep & Woolcraft Fair**, Cummington, $6 per car. Visit www.masheepwool.org.
- **May 30, Plant Sale** at **Tower Hill Botanic Garden,** Boylston. Heirloom tomato sales support MAC. For information, www.towerhillbg.org.
- **June 23-27, National Agriculture in the Classroom Conference** in St. Louis, Missouri. For more information visit www.agclassroom.org.
- **July 18, Summer Festival, Tranquil Lake Nursery** in Rehoboth. Food Sales support MAC. Call 508-252-4002 or visit www.tranquil-lake.com.
- **August 7-9, 35th Annual NOFA Summer Conference** at UMass, Amherst, visit www.nofa.org.
- **September 18 through October 4 Eastern States Exposition** in West Springfield. For information visit www.thebige.com.
- **September 21-25, MA Harvest for Schools Week 2009,** for info. visit www.mass.gov/agr/markets/Farm_to_school/.
- **October 3-4, North Quabbin Garlic & Arts Festival,** Orange, $5 adults, visit www.garlicandarts.org.

Resources

- **"Growing A Nation,"** a history program for secondary teachers featuring the story of American agriculture is available on-line at www.agclassroom.org.
- **"Milk Matters - Discovering Dairy,"** visit www.cfaitc.org.
- **Power Plants: Farming and Fuel** A virtual tour of the US National Arboretum, including Power Plant, www.usna.usda.gov/Gardens/collections/VirtualTours/.
- A variety of great **"Agricultural Lesson Plans"** for all grades, visit www.agclassroom.org and also www.nyaged.org/aitc/educators/lesson.htm.
- **"The Buzz about Bees"** resources and activities at http://extension.usu.edu/aitc/bees/index.htm.
- **"Environment & Agriculture Lesson Plans"** available on-line at www.agintheclassroom.org/060605/Teachers/classroom_resources.html.
- **Sustainable Agriculture Resources & Programs for K-12 Youth** - A 16-page guide with 50 programs and curricula nationwide available as a pdf file at www.sare.org/publications/edguide.htm.
- **2010 Massachusetts Agriculture Calendar Photo Contest.** Photos must be at least 4" by 6" and no larger than 8" by 10" and must have been taken in Massachusetts in the past three years. Send photos of local rural scenes, farm animals or produce by June 1 to Photo Contest, Mass. DAR, 251 Causeway Street, Suite 500, Boston, MA 02114. For information, call Rick LeBlanc at 617-626-1759 or send an e-mail to Richard.LeBlanc@state.ma.us. The twelve winners will be featured in the 2010 Massachusetts Agriculture calendar and will be honored at the Big E this September.
- **List of Mass. Fairs** can be found at www.mass.gov/agr/fairs.

To receive more information, add a name to our mailing list or give us your comments:

Mass. Agriculture
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Seekonk, MA 02771

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at 508-336-4426
fax: 508-336-0682
e-mail to debi.hogan@earthlink.net
Website: www.aginclassroom.org

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