

Massachusetts Agriculture in the Classroom

Social Studies
Economics
Nutrition
Science



Workshops & Conferences

Annual Winter Conference
Saturday, March 9, 8:30 - 3:30
Paul R. Baird Middle School
Ludlow, MA \$50

Day of Garden Skills Workshops & Demonstrations for School Garden
Saturday, April 20, 9:00 - 3:00
Tranquil Lake Nursery, Rehoboth \$20

Summer Graduate Course
8 Workshops on Massachusetts Farms
Starting: Wednesday, June 26, 2013
Ending: Wednesday, August 14, 2013
Farms across the State
Details on page 7.

Feature Topic:



The Magic of Mulching

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.

A School Garden Resource

MA Agriculture in the Classroom has a **long history of supporting school garden efforts across the state**. Since 1994, MAC has awarded more than 170 mini-grants, totaling \$125,000 to school projects that have included garden-based education, nutrition and healthy local foods. Over the past 15 years, professional development trainings have reached more than 4,400 educators through 215 workshops and 15 conferences with a variety of agricultural topics, many with links to garden-based education. Written materials have supported gardening at the school, including teacher resources on soils composting, and growing specific fruits, vegetables, herbs and flowers.

In 2012, MAC developed several new and comprehensive resources to assist teachers who are starting a school garden. These useful tools are now on our website. They were funded by the **MA Department of Agricultural Resources** through a Specialty Crops Grant. An additional grant from MDAR and funds from the **MA Society for Promoting Agriculture** will support even more garden-based materials for 2013.

Thirteen **How-to-Guides for Getting Started in the School Garden** are now on-line. Each technical manual provides in-depth background and suggestions for adaptations for school environments. Topics include: Start-up Budgeting, Siting, Building Garden Beds, Containers, Compost, Soils, Choosing Plants, Watering, Seeding, Transplanting, Mulch, Cover Crops and Theme Gardens. In 2013, MAC will develop three additional guides.



Teachers get the chance to try out garden-based activities at MAC's annual conferences.

Twenty new garden-based lessons for grades one through four are also on-line. Lessons for each grade level include: Soils, Garden Planning, Seeds, Pollination and Nature Journaling. We are now working to enhance each of the lessons with agricultural background and additional activities.

During the year, MAC provided **school garden mentoring** support for twenty schools and will assist an additional twenty schools in 2013. We conducted **garden-based workshops and conferences** throughout the year and have plans to do so again in 2013. We introduced two free, full days of garden skills workshops for teachers in spring and fall and also collaborated with NOFA on school garden education at their winter conference.

MAC also launched three **Directories to support School Garden Efforts**. We invite you to visit our website to view a list of schools gardens with an associated map, educational resources, and businesses that can support these gardens. If you are not yet listed, please fill out a form to tell us about your school garden or garden services.

2012 Mini Grants

In 2012, the MAC Mini-Grant Committee awarded **\$6,950** to support the **16 worthy agricultural education projects** listed below. Each year MAC awards mini-grants to teachers and schools, averaging from \$300 to \$500. Deadlines for proposal submission are the first of April, September & November. We encourage any Massachusetts educators to submit a proposal to enhance their education program. More information and mini-grant guidelines are available on MAC's website.

April 2012 Mini-Grants

"Davis School Vegetable Garden" Davis Elementary School, Bedford	\$250
"From Compost to Cucumbers" Stoneleigh Burnham Sch., Greenfield	\$500
"Selser School Garden" Selser School, Chicopee	\$300
"Farming in the Urban Environment" Gerena Community Sch., Springfield	\$250
"Parker School Greenhouse Project" Francis W. Parker School, Devens	\$500
"Outdoor Classroom Garden" Holden Christian Academy, Holden	\$500

April Funding Total **\$2,300**

September 2012 Mini-Grants

"Center Pepin School Garden" Center Pepin Elem. Sch., Easthampton	\$500
"Southern Berkshire School Farm" Southern Berkshire RSD, Sheffield	\$1,000
"Reflective Volunteering on Local Farm" Dever-McCormack Sch., Dorchester	\$390
"School Farm Garden Project" McGovern School, Medway	\$500

September Funding Total **\$2,390**

November 2012 Mini-Grants

"How Does Your Garden Grow?" * Lowell High School, Lowell	\$500
"Reflective Volunteering in Local Farm" Higginson-Lewis K-8 School, Boston	\$350
"Page School Colonial Garden Project" John C. Page Elem. Sch., W. Newbury	\$810
"Agricultural Field Trip & Farm Day" Greenager, Great Barrington	\$100
"Sowing a Garden of Learning" * Mt. View Elem., E. Longmeadow	\$280
"Agricultural Education at Colburn" * Colburn Elem. Sch., W. Springfield	\$220

November Funding Total **\$2,260**

2012 Mini-Grant Total **\$6,950**

* These grants were funded thanks to a donation from Chipotle Mexican Grill.

President's Message

2012 was a year of exponential growth for Massachusetts Agriculture in the Classroom, and it was all thanks to our many supporters. The **MA Department of Agricultural Resources** provided a Specialty Crops grant to get us started on a new statewide school-gardening initiative. We enlisted garden educator **Alice Posner** as Program Associate to work with **Debi Hogan** to develop these new educational materials. During the year, **Christopher Szkutak** assisted with technical support including videotaping workshops and a new map for our school garden directory and **Molly Faulkner** provided additional garden mentoring assistance.

The **Massachusetts Society for Promoting Agriculture** awarded a grant to MAC to expand these garden-based resources and a new Specialty Crops Grant will also allow us to continue our school garden focus in 2013. Please visit our website often to review and utilize these terrific and growing resources.

Our workshops and conferences also increased during the year. We introduced two, free, days of garden skills workshops and demonstrations for the school garden, held in spring and fall at local farms. The Fall "Greening the School" Conference reached a record number. It was sponsored by **Chipotle Mexican Grill** with assistance from **Whole Foods Markets**. We are partnering with **Connecticut Agriculture in the Classroom** for our March 9, 2013 Annual Winter Conference with eight workshop choices in each session.

As always, it is the farmers who open their businesses and share what they do, and the teachers who offer insights and activities from their agricultural classrooms that make our programs successful. You are our greatest asset. Program participants love learning from you. This small non-profit organization would not exist without the aid of the educators, farmers and businesses that make financial contributions year-after-year. We appreciate your support and thank you for helping us to grow.

*Marjorie Cooper
President*

Win A Trip to the Big E!



Drawing of the Big E experience from a student who attended the fair from Harvard-Kent Elementary School in Charlestown.

MAC and Massachusetts Trustees of the Eastern States Exposition are partnering to promote the **3rd Annual Massachusetts AgriScience Excellence Award**. The winning teacher will receive recognition in the MAC newsletter; a plaque and award ceremony at the Big E; a classroom grant of \$200, and a trip to the Big E with busing and tickets for his/her students for September of 2013. The application form and guidelines can be found on the MAC website under grants. It is due February 14.

Three additional bus trips and tickets to the Big E will be awarded. One for any classroom in western Mass. and two to urban classrooms in the eastern part of the state, courtesy of the Mass. Trustees. To apply, send an e-mail to MAC with your name, school, grade and a brief description of how the trip will benefit your students. Send by February 14. Awards will be notified in March.

Make a Donation Today!

MAC is growing and you can help us to grow! This small non-profit has been **working since 1984 to support agricultural education in classrooms and school gardens across the state**. We provide agricultural education resources and technical information; professional development workshops and conferences, mini-grants and so much more. All programs are funded through donations and grants. If you like what we do, we ask you to support our educational programs with a contribution today. Your tax deductible donation will make a real difference.

Resources for Mulching

Mass. Dept. of Agricultural Resources
www.mass.gov/agr

Mass. Flower Growers Association
www.massflowergrowers.com

Mass. Nursery & Landscape Association
www.mnla.com

**Mass. Dept. of Environmental Protection
Bureau of Waste Prev. - Composting**
www.thegreenteam.org

Mass. Agriculture in the Classroom
How-to-Guide on Mulching by Alice Posner
& School Garden Resource Directories
www.aginclassroom.org

Other Resource Websites

All About Mulch - Savvy Gardeners
www.savvygardener.com/Features/mulch.html

Garden Guides - www.gardenguides.com

Mulches for the Vegetable Garden
www.cmg.colostate.edu/gardennotes/715.html

Mulching for a Healthy Landscape
<http://pubs.ext.vt.edu/426/426-724/426-724.html>

Mulch Guide Blog
<http://mulch-guide.blogspot.com>

Royal Horticultural Society
<http://apps.rhs.org.uk/advicesearch/profile.aspx?pid+323>

Seattle Tilth
<http://seattletilth.org/learn/resources-1/compost/mulch>

University of Rhode Island
www.uri.edu/ce/factsheets/sheets/mulch.html

USDA Backyard Tip Sheet for Mulching
www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_023231.pdf

Understanding Benefits of Garden Mulch
www.dummies.com/how-to/content/understanding-the-benefits-of-garden-mulch.html

Books

The Mulch Book: the Complete Book for Gardeners by Stu Campbell, Storey Publishing.

Rodale's All-New Encyclopedia of Organic Gardening: The Indispensable Resource for Every Gardener, Rodale Books, 1993.

Lasagna Gardening by Patricia Lanza, Rodale Press.

The Vegetable Gardeners Bible by Edward C. Smith, Storey Publishing.

Information for this newsletter was taken from the resources listed above.

The Magic of Mulching

Mulching is an important way to maintain the health of plants in the garden and landscape. It protects and enriches the soil, while decreasing the amount of time spent on upkeep. Mulching mimics the natural cycles of the forest ecosystem in which spent leaves, twigs, flowers and fruits fall to the ground and form a protective layer over the soil. As they decompose, they support the soil organisms while adding nutrients and building the soil.

What is Mulch?

Mulch is any type of material that is applied to the surface of the soil as a covering. It forms a protective layer for both plants and soil. Mulch may be organic or inorganic, and temporary or permanent, depending upon the needs of the gardener and the environment.

An **organic mulch** is made of natural substances such as bark, wood chips, leaves, pine needles or grass clippings. Organic mulches decompose over time supporting the life of the soil. They must be replaced regularly and may attract some garden pests such as slugs, voles and birds. **Inorganic mulches**, such as gravel, pebbles, black plastic and landscape fabrics, do not attract pests or break down or require frequent replacing.

Benefits of Mulch

Mulch functions in several ways to **conserve soil moisture and help to make water more available for plants**, protecting the plants from drying out and stabilizing the soil moisture levels that support beneficial organisms. By covering the soil surface it reduces the amount of water that evaporates from the surface. It also quickly soaks up water when it rains, holding that water until it can be absorbed into the soil. When mulch breaks down it adds organic material to the soil, increasing the water holding capacity, while also feeding soil microbes and earthworms.

Mulch acts as an **insulating layer on top of the soil, moderating soil-temperature fluctuations.**

This protects plant roots from stress. In the heat of summer, plant roots are kept cool and actively growing.

In the winter, mulch protects roots from cold, while also preventing frost heaving, which pushes plants out of the ground as soil expands and contracts with each freeze and thaw. In spring, a layer of mulch may keep soils that have warmed during the day from cooling at night, while also supporting microbial activity. Plastic mulches can be used to warm soil in spring to support heat loving plants.

Mulching **inhibits the germination and growth of weeds.** It also makes it easier to pull weeds that do manage to grow. A thick layer of mulch can even be used to smother existing weeds. This saves time for the gardener and conserves soil resources for the desirable garden plants.



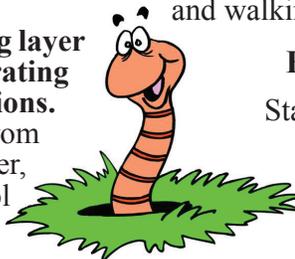
Over time, organic mulches break down, **improving the texture, fertility and health of the soil.** This decreases soil compaction, increases water filtration through heavy soils, while also holding water in dry sandy soils. Depending upon the mulch used, soil Ph can be changed to become more or less acidic.

Mulch also **protects the soil from crusting** which would reduce oxygen availability for plant roots. Mulch **prevents erosion** from wind and heavy rains and **reduces soil splashing**, which keeps soil-borne diseases from transferring to plants while also keeping fruits and vegetables clean.

Visually mulch can add to the finished and uniform look of the landscape or garden. Mulch in the pathways will keep feet clean even when the soil is damp, to avoid tracking dirt indoors. It can also be used to prevent trees and shrubs from damage by lawn mowers and other power equipment or to soften the hard impact of play areas and walking paths.

How to Apply Mulch

Start by removing all weeds by pulling them up by the roots. Water the soil thoroughly and lay mulch over moist unfrozen soil.



For best effect, mulch should be **thick enough to keep out sunlight and deter weed growth.**

To avoid suffocating plant roots, finer mulches that tend to mat down, such as grass clippings and shredded leaves, should be applied no deeper than 2 inches. Coarser mulches, such as wood chips and pine needles, can be applied to a depth of four inches.

Apply evenly around trees, shrubs, perennials and annuals, including garden vegetables. Do not bring the mulch directly into contact with the stems and crowns of herbaceous plants, leaving an inch or more of open space to help prevent diseases caused by excess humidity. Avoid smothering low growing plants. Around trees and shrubs keep mulch four to six inches away from the stems. This prevents moisture from decaying the bark and will also deter bark-chewing animals in winter. Always keep the mulch six to twelve inches away from buildings to prevent termites from using mulch as a bridge across treated soils.



When to Mulch

Mulch any new plantings as soon as they are in the ground. For established plantings, mulch can be applied in the mid spring or fall. **Spring mulching** helps prevent weed seeds from sprouting, keeps soil temperatures even over the summer and, if organic, adds nutrients to the soil. Since it serves as a layer of insulation, it should be applied only after the soil temperature has warmed sufficiently, as cool wet soil will cause newly planted seeds and seedlings to decay.

Fall mulching helps keep soil temperatures warmer through the following winter and protects plants from being heaved out of the ground by alternating freezing and thawing. Wait until the ground is frozen to apply the mulch, to avoid attracting mice and other rodents who are looking for a warm winter home. Use loose materials that will not compact under the weight of the snow, such as pine needles, straw, salt marsh hay or evergreen boughs.

Where to Find Mulch

Many mulch materials can be found inexpensively in your home garden or at the school. Use your own compost or chop fall leaves with a lawn mower. **Gather** pine needles from beneath the trees. Collect grass clippings from untreated lawns. Save your newspapers and compost them. Find a local source for bales of clean straw.

Mulch can also be purchased bagged or in bulk from a local garden center or nursery. **Bagged mulch** is ideal for small projects. It comes in 3 cubic foot packages and is easy to transport and handle. **Bulk mulch** is less expensive for covering larger areas, as it can be purchased in quantity. You'll need to have a way to haul it, or pay an additional fee for delivery. Bulk mulch also requires a temporary storage location, until it is fully applied to the garden.



Sheet Mulching

Sheet mulching is a way to create or build new garden beds without digging, by converting sod or lawn to a garden. It is recommended to sheet mulch in areas that you will not be planting for three or more months. Fall is an ideal time to create a new bed for the spring. Here is how to do it:

Mow or scythe the lawn as low to the ground as you can. Then stake and string out the areas where you will be creating the new bed.



Sheet mulching layers of cardboard, leaves, straw and compost.

With a garden fork, **make holes** all over the bed areas for aeration. You may choose to also dig up the lawn. **Lay sheets of cardboard** over the bed areas, overlapping the sheets so that there are no spaces anywhere. If you intend to mulch your pathways with wood-chips, lay cardboard over these areas as well.

Soak the cardboard with a sprinkler for a couple of hours until thoroughly wet. **Cover the cardboard with about two feet of mulch.** You can layer in manure and some green materials if you like. Use about a 25:1 brown to green ratio. Make the pile slightly higher in the middle to account for settling.

For the final layer use **something aesthetically pleasing** such as a layer of leaves or straw on top. Leave the beds to break down for two to three months or through the winter.

Perennials, trees and shrubs can be planted directly through the many layers into the new garden bed. Before planting, remove any weeds that have successfully made it through the thick layers by digging them up by the roots.

For vegetables, dig over the new garden bed to break up the soil and incorporate the decomposing organic materials. This will loosen the soil and create a good home for new seeds and plants. Remove any surviving grass or weeds by digging them up by the roots.

By MAC Program Associate, Alice Posner

Organic Mulches

Organic mulches are made from natural materials. They protect and insulate the soil, conserve water and gradually break down to improve soil structure and release nutrients. Once decomposed, they must be replaced. Try one of these organic mulches:

Compost makes a terrific mulch for perennials or vegetables. It's free to use and readily breaks down to improve soil texture and fertility. When fully composted it is free of weed seeds and will not heat up and burn young plants. Use in the spring or fall as a protective layer for soil, as a fertilizer top dressing or to insulate the soil for winter.

Leaves can be applied directly to the garden in the fall as a winter mulch or as composted leaf mold in the spring. In either case they should be thoroughly shredded to speed up the decomposition and prevent mats that inhibit water penetration into the soil. A two-to-three inch layer provides good weed control. Dig into the soil once decomposed. Oak and beech leaves will lower the soil Ph.

Grass clippings make an excellent vegetable garden mulch or can be used to suppress weeds in open areas. When applied thickly, they mat down and turn slimy and smelly, producing trapped heat which burns young plants. Apply in thin (1/4") layers weekly, allowing each layer to dry thoroughly, or mix with shredded leaves or compost to aerate and facilitate decomposition. Grass has a high water content and will decompose quickly returning nitrates to the soil. Don't use clippings from recently treated lawns.

Straw is commonly used as an inexpensive mulch for the vegetable garden or for winter cover. It's composed of grass stalks and is sold in compressed bales. Use a local source to assure it was cut prior to bloom and is weed-seed free. Straw is lightweight, readily biodegradable, protective of soil moisture and neutral in Ph. Cultivate into the soil as an amendment once the season is past.

Salt marsh hay is a favorite mulch for vegetable gardens and as a winter cover. It's more expensive than straw, yet offers the same benefits, while presenting no weed-seed issues. Spread to a depth of 4-6 inches.

Hay though inexpensive is not an ideal mulch, as it contains weed seeds. Use only on bare ground, pathways or under shrubs planted in turf. Apply thickly to 4-6 inches deep.

Pine needles are a good mulch for acid-loving plants such as blueberries and rhododendrons. They're attractive, allow water to penetrate and will not blow away. Apply 2-4 inches and use as a top dressing over other mulches.

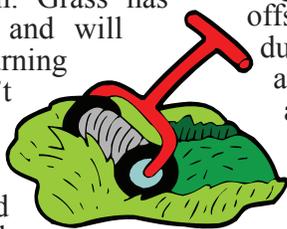
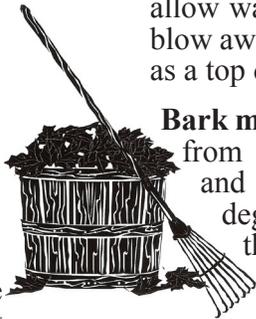
Bark mulch is attractive and derived from composted bark from pines and evergreens. It eventually degrades and becomes part of the soil. Size ranges from shredded to large particles.

Apply in a 2-3 inch layer for weed control. Smaller chips are easier to spread, while large nuggets may float away with rains. Keep away from woody plant stems to avoid creating a home for rodents, and from buildings to avoid termites.

Wood Chips are a by-product of tree and shrub prunings and come in various sizes from shredded to coarse blocks. They are best applied under trees and shrubs to 3 inches deep to conserve soil moisture, moderate soil temperature, suppress weeds and prevent compaction. They are also used for paths and trails. Apply a light application of fertilizer to offset nitrates consumed from soil during decomposition. Keep away from woody stems to avoid providing a hiding place for rodents and away from buildings.

Cardboard or newspaper is used to suppress weeds under heavier mulches such as compost. Wet thoroughly and avoid glossy paper, as the ink may not be soy based.

Other organic mulches include buckwheat hulls, cocoa hulls, seaweed, pecan shells, sawdust, corn cobs, peat moss, shells, wool and other agricultural by-products.



Inorganic Mulches

Inorganic Mulches do not decompose or add to the fertility or texture of the soil. They do suppress weeds, conserve moisture and some have the added advantage of being decorative.

Rubber mulch is made of recycled tires and looks like shredded wood mulch. It is very long lasting, comes in many colors and provides a softer surface for paths and play areas. It can smell strongly of rubber.



Landscape fabric is made of woven fabric, plastic or paper that is treated to resist decomposition. It suppresses weeds and also allows air, moisture and heat into the soil. It must be fastened down and openings must be cut for plants. It is more effective under another mulch such as wood chips.

Black Plastic mulch is used mostly in commercial operations where it warms the soil, suppresses weeds and reduces the need for irrigation. Slits are cut in the fabric for planting, which must occur early enough that foliage shades the black plastic in summer. Remove and discard in fall, as plastic will not break down in the soil, only in sunlight.

Clear plastic will not suppress weed growth because light penetrates the film and raises the soil temperature, which may result in an increased growth of weeds in early spring.

Aluminum-coated plastic and foil provides excellent weed control with just one layer. They decompose very slowly, but are also very expensive and quite unattractive mulches.

Gravel, pebbles and crushed stone are best used for permanent plantings. A one inch layer will provide good weed control. Do not use around acid-loving plants. These materials reflect solar radiation and can create a very hot landscape environment during the summer months.

Living Mulches

The term **living mulch** refers to the use of living plants that are installed in the garden to produce many of the same benefits as other traditional mulches. Depending upon the garden, the living mulch may be planted permanently, used to cover beds through the winter or planted to protect growing crops.

Ground Covers: Many perennial ground covers will shield the soil acting as a permanent mulch. Once established, they out-compete the weeds and moderate soil temperatures. Those that are evergreen will maintain this benefit through the winter. They also slow water loss and prevent soil erosion, especially on slopes. Try periwinkle, pachysandra, lungwort, ginger, epimedium, sweet woodruff, thyme or chamomile or woody plants such as bearberry and juniper.

Cover Crops: A thick cover crop planting of oats, buckwheat, rye or legumes will blanket the garden through the winter or during periods when beds are vacant. This prevents erosion, loosens the soil, and increases garden fertility. It also deprives weed seeds of sunlight. Cover crops offer an added benefit of providing food for beneficial insects. When it's time to plant, dig the cover crop into the soil, or chop the tops off and plant right through it into the garden. Try planting a cover crop of white clover in pathways to keep out other weeds and eliminate mowing.



Interplanting: Plant compatible vegetables in close proximity to one another, so that one will act as a living mulch for another. Try growing lettuce amongst onions, corn, beets and cabbage. Lettuce is a light feeder, so it does not compete with the other plants. Yet it does benefit from the shade as these plants grow taller.

Massachusetts Agriculture in the Classroom
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Dust Mulch

A **dust mulch** is a fine, loose layer of pulverized surface soil that is quickly dried by sun and wind. It is maintained by cultivating around plants. The dust mulch prevents the evaporation of soil moisture and conserves water for roots, since capillary water beneath this mulch cannot penetrate the dust layer and escape into the air.

This once common practice has lost favor in recent years. Research has shown that while dust mulching does conserve moisture in soils and inhibit weed growth, it also has a negative effect on soil structure since it is susceptible to wind erosion. It also adds no organic material or fertility to the soil.



Mulch Makes Good Habitat

The addition of mulch in the garden and landscape as a cover for bare soil benefits the earthworms, insects and other soil decomposing organisms by moderating soil temperatures and maintaining adequate moisture levels. The organic layer also provides a home for other organisms including important pollinators.



Butterflies, moths and fritillaries overwinter as eggs, caterpillars, chrysalis and even adults depending upon the species. A mulch layer may protect them. During warmer months, some species hide in the leaf litter during the day and feed at night.

Many **native bees** build their homes in the soil and are protected by the mulch. Most will overwinter there as well. Spiders, ants and other garden insects live there too.

Toads will make a happy home in the garden, and repay you by eating undesirable insects.

Mulch Math

Mulch is usually sold in bulk by the cubic yard. There are 27 cubic feet in one cubic yard. Imagine a large pickup truck bed full. One cubic yard will cover a 324-square-foot area with an inch of mulch.

To calculate the amount of mulch needed for an area, first determine the desired depth based on your needs. The thicker the mulch, the more it will block weeds and insulate the soil, however, too thick a mulch may keep water and oxygen from reaching the plant's roots.

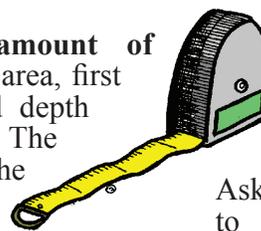


Figure out the square footage. This is the width times the length for square or rectangular beds. For circular bed it is the distance from the middle of the circle to the outside, multiplied by itself and then pi or 3.14.

To calculate the volume of mulch you need: Multiply the area (in square feet) by the depth (in inches), then dividing by 324. This will allow you to project the cubic yards needed.

Mulch Activity Ideas

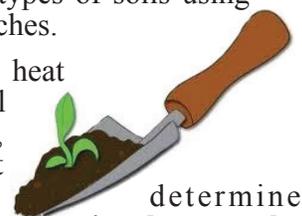
Ask students to use the internet, books, and other resources to **research the different types of mulches**. For each, develop a list of advantages and disadvantages for your school.

Research the **local forest and agricultural industry** to determine if there are by-products local to your area that would make a good mulch?

Ask students to design an experiment to **investigate the decomposition rates** of various mulches in different soil types. Compare the effect of decomposition with no water and with various amounts of water.

Test the **rate of water infiltration** for different types of soils using different mulches.

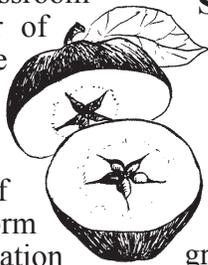
Using a heat lamp and soil thermometer, test different mulches to determine which will **insulate the soil best from fluctuations in temperatures**.



Annual Winter Conference

MAC is sponsoring our **12th Annual Winter Conference for Educators** at the **Paul R. Baird Middle School** in **Ludlow** on **Saturday, March 9th** from **8:30 a.m. to 3:30 p.m.** This year, for the first time, MAC will collaborate with Connecticut Agriculture in the Classroom. The conference provides teachers with activity ideas, resources and curriculum connections to link the farm and the classroom.

Four workshop sessions will be held during the day, with a choice of **eight concurrent workshops per session**. Each workshop will be taught by a teacher, or teacher working together with a farmer, and will offer specific background and activities for either elementary, middle or high school. The **\$50 fee** includes all workshops; breakfast snack and lunch from nearby Randall's Farm; materials, and ten PDPs with a related classroom activity. A limited number of **scholarships** are available thanks to a grant from **Farm Credit Northeast AgEnhancement**. Visit the MAC website for a full list of workshops, registration form and the scholarship information at www.aginclassroom.org.



Day of Garden Skills Workshops & Demos for the School Garden

Spend an educational and fun day brushing up on your gardening techniques and learning new activity ideas for the school garden on **Saturday, April 20**, from **9 a.m. to 3 p.m.** at **Tranquil Lake Nursery** in **Rehoboth**. Twelve workshops and demonstrations to support successful efforts in the school garden will be held throughout the day, including fall crops, cover cropping, food preservation, seed saving, soil testing, cold frames, etc. A \$20 fee covers materials and some costs. Open to all with registration. This educational event is supported, in part, by the **MA Dept. of Agricultural Resources**.

Summer Graduate Course

Check out our 3-credit Graduate Course presented with **Fitchburg State College**. The course meets **Wednesdays, June 26** and **August 14** in North Grafton from 9 a.m. to 3 p.m. Each participant will attend both sessions and participate in six additional workshops on the farm. The fee for the three graduate credits, eight workshop days, materials and meals is \$500.

Exceptional Teacher Award

Do you know a teacher who does an exceptional job of bringing agriculture to life for his/her students? Consider nominating him or her for the **MAC Teacher of the Year Award for 2013**. Send us a description of his/her agricultural classroom and the reasons for your recommendation for the award. Applications are due **March 15, 2013** and will be announced in the autumn 2013 edition of our newsletter.



National Conference!

Mark Your Calendar! The **2013 National Agriculture in the Classroom Conference** will be held **June 25-28** in **Minneapolis, Minnesota** at the Marriott City Center. The theme is: **Land of 10,000 Ag Opportunities**. The conference offers hands-on workshops and mini-workshops; make-and-take sessions and tours, as well as the opportunity to meet and share ideas with other educators. For more information visit www.agclassroom.org.

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 Winter Conference on March 9 in Ludlow \$50 enclosed please send directions

I am registering for the Day of Garden Skills Workshops & Demonstration, April 20 in Rehoboth \$20 enclosed
 please send directions

Please send information on:

The 2013 Summer Graduate Course; MAC 2012 Annual Report; Mini-Grant Guidelines

I would like to order: "Eight Lessons About Agriculture & the Environment" \$ 12

"Farm Field Trip Manual" \$12; "Schoolyard Gardens & Their Community Partnerships Manual" \$10

I'd like to make a tax-deductible donation in the amount of: \$100; \$50; \$25 Other donation _____

Calendar of Events

- **February 6 to 8 - New England Grows**, at Boston Convention Center. Visit www.newenglandgrows.org.
- **February 9 - Urban Farming Conf.**, Roxbury, For info., 617-415-4915 or Crystal@ISESPlanning.com.
- **Feb. 27 & 28 - Ecological Landscaping Conference**, in Springfield, visit www.ecolandscaping.org.
- **February 27 & 28 - Harvest NE Agricultural Marketing Conf.** in Sturbridge. For information e-mail to david.webber@state.ma.us.
- **March 6 - MEES Conference** at Holy Cross in Worcester. Theme Strengthening Communities. Visit www.massmees.org.
- **March 19 - SBN Buy Local Trade Show**, Seaport World Trade Center, Boston, <http://bostonlocalfood.com>.
- **March 23 - MA Land Conservation Conference** 8-4 in Worcester, visit www.massconservation.org.
- **April 3 - Massachusetts Agriculture Day** at the State House. For info. e-mail to agpromoboard@mfbf.org.
- **April 24 - MA Sustainable Communities Conference**, Worcester at www.masustainablecommunities.com.

Resources

- **2013 Ag Day Essay Contest & Food Facts** for Ag Day on March 19 at www.agday.org.
- **Directory of Free Ag. Education Materials** at http://myamericanfarm.com/educator_resources/.
- **Food Safety: from Farm to Fork** and other lessons from CA AITC at www.learnaboutag.org/lessonplans/?active=archive.
- **Feeding Minds Cultivating Growth** resource from Amer. Farm Bureau at www.agfoundation.org.
- **Cotton Mills in New England:** check historic locations at <http://newenglandtowns.org/cotton-mills>.
- **Farms Food & Fun** facts, trivia, activities and arts and crafts, visit www.farmsfoodfun.com.
- **Maple Farms, Resources & Recipes** at www.massmaple.org.
- **Home Gardener Fact Sheets** from UMass <http://extension.umass.edu/landscape/publications-resources/>.
- **High Tech Foods: Science in Your Shopping Cart** and other Agricultural Resources for teachers from Agriculture in the Classroom at www.agclassroom.org/teacher/stem.htm.

- **2013 Massachusetts Agriculture Calendar Photo Contest.** Now is the time to start taking pictures for the 2013 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, and more by June 1 to Photo Contest, Mass. DAR, 251 Causeway Street, S. 500, Boston, MA 02114. For more information, e-mail to Richard. LeBlanc@state.ma.us. The twelve winners will be featured in the 2014 Mass. Agriculture Calendar and posted on MAC's website. For details visit www.mass.gov/agr/.

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

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