



Just How Much Cow Manure Do You Need?



There you are in the nursery section of your local big box store having selected flats of annuals, a few perennials, and a couple of bright new pots. You are determined that this will be the year when your containers will look great, the envy of all your gardening neighbors! You mosey along to the last outdoor aisle where you are confronted with seemingly thousands of bags of garden material stacked tightly into columns 20 feet tall. Ok, you think, I just need something to plant these babies in, can't be too hard. Top soil sounds good and is pretty inexpensive; but what about potting soil, gardening soil, container, starting and potting mix? And, bags of cow manure and chicken droppings, what are they for, ex-

actly? How much of those bright yellow Black Kow bags do I need? Wow, I didn't even know worm castings were bagged up and sold. Who does that? Meanwhile, your squirmy toddler is getting more vocal in his displeasure and you have to pick up the kids from school in 20 minutes.

How to Choose What to Buy

Manufacturers make the choice of potting mixture much harder than it needs to be. They all have proprietary blends of ingredients, and don't use the same nomenclature across their product lines. However,



er, mixes can be easily separated into two categories: landscape and potting. Top soils and gardening

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The Soil Issue

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“Ask a Master Gardener”

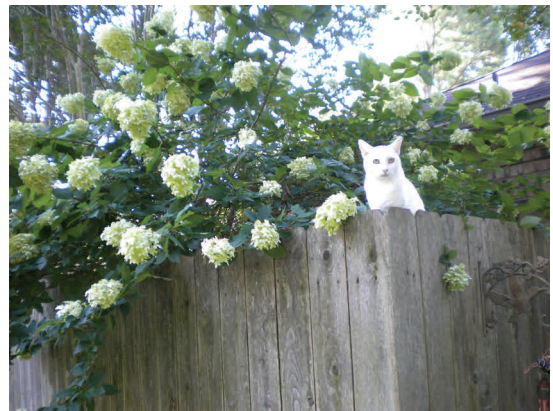
Dahlias looking droopy? Hostas aren't exactly hospitable? Little bitty bugs bugging your blueberry bush? Master Gardeners have the answers to all your burning garden-related queries! Bring all of your questions to the “Ask a Master Gardener” clinic! We have access to the latest research-based information from the University of TN! The “Ask a Master Gardener” clinic will also be at the Downtown Farmer’s Market, and other events during the year. Check our website for times and places. Got a question right now that can't wait? Call our Horticulture Hotline at (901) 752.1207.

Master Gardeners Spring Fling Photo Exhibit Winners



FIRST “HOW ABOUT A HUG”

© Debbie Griste-Evans, Master Gardener



SECOND “PRINCESS & the LIMELIGHTS”

© Jane Carter, Master Gardener



THIRD “BLUEBIRDS”

© Julie Morgan
Master Gardener

What's not to like about a Zinnia?



Zinnias are just about the ideal flower. They are easy to grow and need very little maintenance other than an occasional drink of water. They come in all sizes, heights, colors, and bloom shapes, and have both annual and perennial varieties. They love full sun, and you don't have to weed a thickly sown zinnia bed. Anything that saves me work is a winner.

Wikipedia says Zinnia is a member of the Asteraceae family named for Gottfried Zinn who discovered them in the desert southwest extending into Mexico.

With more than 200 cultivars, you can choose from a broad palette of colors, plant sizes, and bloom shapes. I love tall zinnias in a rich assortment of colors, but I find three varieties especially lovely: the lime green "Envy", any of the multicolored dahlia-like "Swizzles", and "White Wedding."

They grow easily from seed. For a new bed, sow seeds on a well scratched bed then cover them with a sprinkle of dirt and/or sand. They need good soil contact. I usually walk on mine for the soil contact.

Keep them moist, but not soggy, until they sprout, and you will be rewarded with a gift that keeps on giving. Not only will they reseed next year, they will reseed this year flowering until Jack Frost vis-

its your garden and toes.

My in-laws, Ralph and Opal Graham, used to have large beds of many varieties of zinnias which were the talk of the Hurricane MS community. People would drive by their home and stop and ask about them. Their thickly sown beds would grow a riot of colors and heights, and be covered with bees, butterflies, bluebirds, and goldfinches. They were a joy to behold, both my in-laws and their zinnias.

Zinnias are grown by organic gardeners, too. Like squash used by the American Indians in a Three

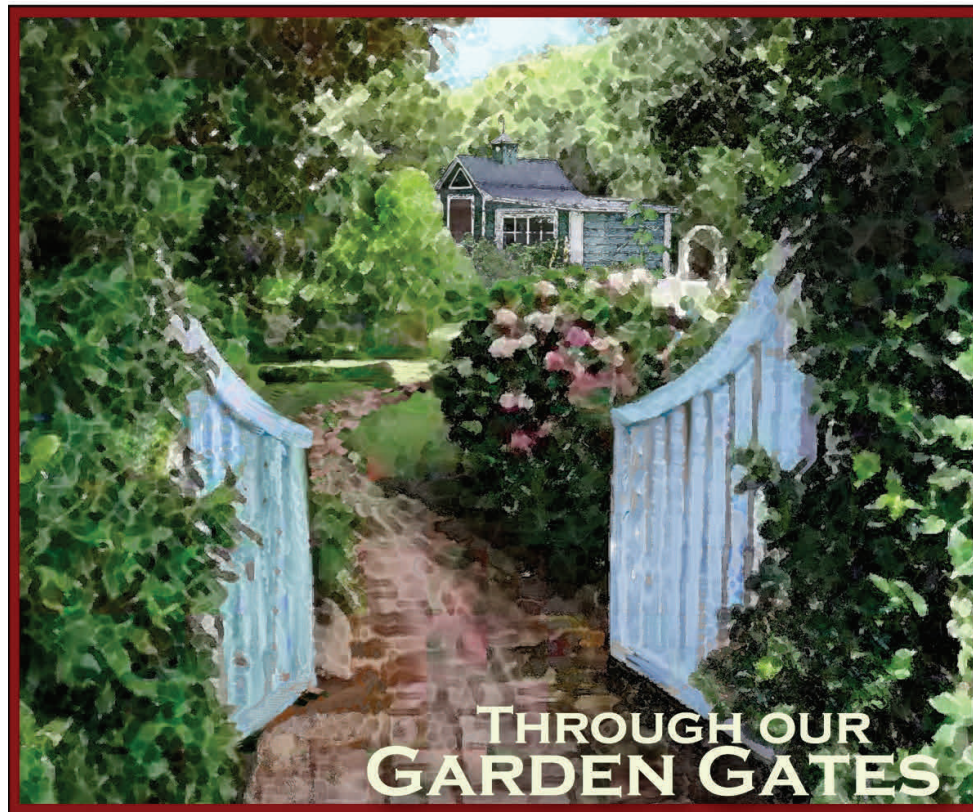


Sisters configuration with corn and beans, they shade the ground enough to discourage unwanted plants from growing under and around them. This is why thickly sown zinnia flower beds don't need weeding. Neither do gardens with thickly sown zinnia planted in the middles between the rows but not so close to your crops so as to shade them.

An additional benefit for veggie gardeners is they attract pollinators. Zinnias and sunflowers in your garden will attract bees and birds. The birds will not only eat zinnia seeds, they also will catch a fat bug or worm they spot fixing to munch on your peas or tomatoes.

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The Memphis Area Master Gardeners present the 5th Annual



Garden Tour

**Saturday, June 7, 2014
9:00 am – 4:00 pm**

Five Master Gardeners open their gardens revealing espaliers, waterfalls, an outdoor kitchen, terraced hillsides, pass-along plants, garden art, and wildlife habitats.

Two gardens in Lakeland: 10252 Oak Levee Drive and 4213 Herons Pond Lane.

Three gardens in East Memphis: 410 Goodwyn Street,
4525 Barfield Road, and 354 Sequoia Cove.



-DONATIONS APPRECIATED -



For more information & tour route call 901-752-1207
Visit www.memphisareamastergardeners.org for tour route map
Friend us at [facebook.com/memphisareamastergardeners](https://www.facebook.com/memphisareamastergardeners)

Springtime Tree Maintenance

CAUTION: DO NOT FERTILIZE YOUR TREE .. until NOW.

Many tree owners are anxious to fertilize their trees whenever the mood strikes them and caution is in order ... until NOW.

The danger is that if you fertilize your trees any time from early fall to late winter with a fertilizer that has nitrogen in it, you will encourage growth at the very time the tree is trying to go dormant. A hard freeze will kill the new growth and interrupt the normal physiological processes of the tree. This is not conducive to optimum health.

How can you know if a fertilizer has nitrogen in it? Every commercial fertilizer will have three numbers listed on the container. The first number represents the nitrogen content. For example, on the bag in the picture below, the number 18-24-6 means it contains 18% Nitrogen.



NOW, early spring, is a good time to fertilize because the tree is preparing to relocate its food reserves which were stored in the roots and trunk to the branches where it can flower, fruit and grow leaves to replenish the food energy needed to reproduce, maintain its growth pattern and deal with injury and disease. Nitrogen is essential to these processes.

Do not fertilize near the trunk, this is a waste. The main feeder roots start about half way from the trunk and extend to the drip edge and beyond.



Spring is also a good time to spread mulch over the root system *but not up against the tree trunk*. After all, why would you want to build a compost pile around the base of the tree? Mulching improves the soil around the roots and helps prevent lawnmower and string trimmer diseases.

Another desirable spring activity is to prune out any damaged, diseased or dead limbs. It is advisable to hire an International Society of Arboriculture (ISA) Certified Arborist to advise and properly execute this task. A list of local areas arborists is available on the ISA website: isa-arbor.com/

Jim Volgas
Master Gardener
Certified Arborist

Picture Credits: Lowes.com; Treesaregood.org

Plant Camp 2014: Dirt Made My Lunch!

Agricenter International and your Memphis Area Master Gardeners will be sponsoring their ninth annual PLANT CAMP this year. Camp will be held the week of June 9 through June 13 from 9:00am until Noon (Monday – Friday). PLANT CAMP happens outdoors at the Agricenter located at 7777 Walnut Grove Road just west of Germantown Parkway. The camp is for boys and girls, ages 8–12 and is limited to 30 campers.

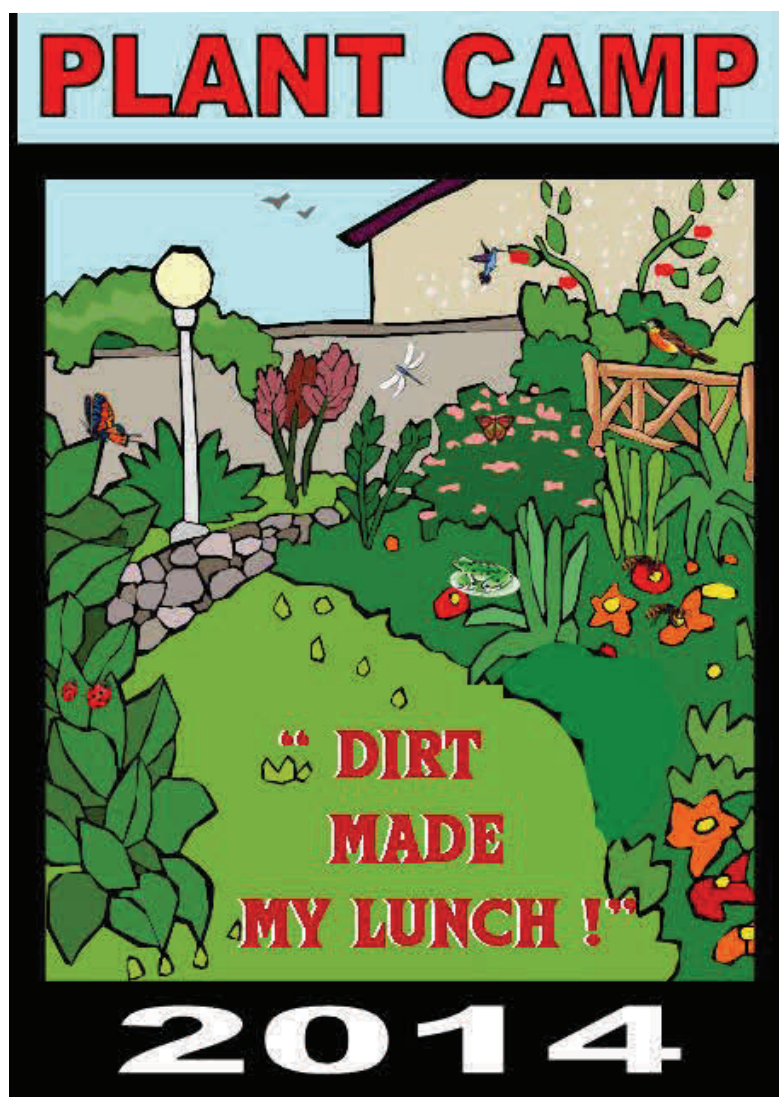
This year's theme is "Dirt Made my Lunch." Each day will find us discovering how dirt plays an integral role in producing what we eat and emphasizes the importance of being Good Stewards of our Earth's Resources.

PLANT CAMP activities relate to the significance that plants perform in our lives and demonstrate ways we can be more environmentally friendly! They will include:

- daily hands-on projects
- educational discussions
- harvesting, planting & recycling
- daily outdoor learning events
- daily journal & Jeopardy
- theme-related snacks
- Friday musical by the campers
- Friday reception for Parents

The fee to attend is \$35.00 per child and includes all project materials, activities and a Plant Camp shirt!

For more information, and to get application materials visit the UT Extension website at: <https://extension.tennessee.edu/shelby/Pages/Plant-Camp.aspx>, or call Tim Roberts at 757-7777 ext.7109.



The deadline for applying to attend PLANT CAMP is Friday, May 30, 2014.

Who are Memphis Area Master Gardeners?

Memphis Area Master Gardeners (MAMG) are volunteers trained through the University of Tennessee Extension program. We initially take 40 hours of classroom teaching and 40 hours of hands-on experience to become certified. Each year thereafter, we complete at least forty hours of service to Shelby County and a minimum of eight continuing education hours. Our mission is to increase the availability of research-based horticulture information to the community and to enhance the quality of life for the residents of the Greater Memphis Area through horticulture. MAMG operates under the direction of Dr. Chris Cooper, Extension Agent, Shelby County Extension Office. Our volunteer projects across the county are varied, and include PAR gardens at Davies Plantation and the Collierville Victory Garden, Habitat for Humanity, Spring Fling, Through Our Garden Gates, Speakers Bureau, Greenline Garden Classes for both adults and children, Ggrow Memphis, the "Ask a Master Gardener Hotline" and the Weekend Gardening Seminar series, among others. In 2012, Memphis Area Master Gardeners donated almost 28,000 hours of service to Shelby County and clocked in almost 7,000 continuing education credits. In addition, MAMG provided almost 9,000 pounds of fresh produce to local non-profits. We are a busy bunch!!

Dr. Cooper Hosts Local Gardening Show



The Family Plot:
Gardening in the Midsouth
WKNO-Channel 10
Thursdays at 8pm
Shelby County Extension Agent
Dr. Chris Cooper
will tackle your gardening dilemmas!
Send your questions to
FamilyPlot@wkno.org

Zinnias

(con't from page 3)

The joy we at the Collierville Victory Garden garner from the zinnias we grow is when we deliver bouquets of cut zinnias to the local hospice, the local nursing home, and the local Alzheimer's Day Care Center. Truly it is we who receive the greater blessing.

Most gardeners could grow a zinnia patch and become ambassadors of joy to those who could use a bright spot in their day.

Aint God good!

Carl Wayne Hardeman,

Master Gardener

mymaters@yahoo.com

MAMG and Shelby Farms Park Workshops

All Greenline Classes Taught by Master Gardeners at the Learning Hub/Arbor
(Corner of Mullins Station Rd. & Farm Road); \$5 per class per person or child

Pre-registration not required but preferred; Can take individual classes or the Whole Series; Call Shelby Farms (901) 767-7275 for more info

Youth Garden Club: Ages 6 –12; First Saturdays at 10am

MAY 3: Native American “Three Sisters Garden” Learn about and plant a “Three Sisters Garden” and other veggies in our Youth Garden. Take home seeds to make your own “Three Sisters Garden” at home.

JUNE 7: The Beautiful World of Annuals and Perennials Learn the difference between an annual and a perennial. Decorate your own pot and plant a colorful annual to take home. Work in our Youth Garden.

JULY 5: Busy Bees and Beautiful Butterflies Learn about native plants that attract bees, butterflies and hummingbirds. Learn the importance of pollinators. Make a butterfly craft and a native plant seed ball.

AUGUST 2: Plants that Appeal to the Five Senses Learn about a Sensory Garden. Listen, see, taste, smell and taste plants that tickle our senses. Plant a herb to take home. Harvest any available veggies.

SEPTEMBER 6: Our Feathered Friends Learn about our native birds and how they can be beneficial to our gardens and lives. Make a craft ‘for the birds’ to take home for your garden. Plant some cool weather veggies.

OCTOBER 4: Batty for Bats Learn about bats and other wildlife that help us in our yards and gardens. Get directions for making a bat house. Cut tops from pumpkins, clean out seeds and bag seeds to take home to roast.

NOVEMBER 1 (Weather permitting): Lovely Leaves and Fall Colors Create a leaf collage and learn use a tree reference guide. Harvest our cool weather veggies and prepare our garden bed for winter.

The mission of the Youth Garden Club is to provide information to children to support positive lifestyle choices which recognize the importance of healthy eating along with physical activity through hands-on gardening. Children will broaden their interests in gardening, nature and the environment. The workshops have a main theme each month and children will take home projects they have worked on that day. A lot of our time will be spent working in the garden and experiencing the joy of nurturing plants.

Adult Series: Saturdays at 10am

April 19: Starting Seeds and Propagation; TBA

May 17: Building Organic Gardening; Kay McAdams, MG’02

June 21: Water Wise; Ben Townsend, MG’13

Everything You Always Wanted to Know About Soil

One of the first things Master Gardener interns learn in UT Extension classes is the difference between dirt and soil. Dirt is the stuff you sweep off your patio, or Windex off your window panes. Soil is much more complex: as the top layer of the earth's crust, it is the base of our planet's ecosystem. Soil performs four main functions: it supports plant growth; it stores, supplies and purifies water; it modifies the atmosphere; and it is a habitat for organisms that help decompose natural elements.

Soil is an ever-changing mixture of minerals, organic matter, gases, liquids and living organisms. Optimally, about half of the soil components should be solid material. The other half should be pore space; this space allows for infiltration and movement of water and gases.

Solid mineral particles (sand, silt and clay) make up about 45 percent of the soil volume. The smallest particles are clays which form a sticky mass when wet and hard clods when dry. Silt particles are intermediate in size and have a powdery, silky texture when dry. The largest particles are sands which do not stick together and feel gritty when rubbed between the fingers. Most plant nutrients, with the exception of nitrogen, originate from these minerals in the soil.

Organisms found in soil include bacteria, fungi, yeasts, protozoa, nematodes, mites, micro-arthropods and algae. A handful of soil can contain billions of organisms, belonging to thousands of species. These organisms

decompose organic material, increase aeration, aggregate soil and provide food for worms that assist in moving soil components and aerating soil. Microbes also assist plants in taking up nutrients.

Soil contains most of the earth's genetic diversity: ninety percent of all organisms on the seven continents live underground. There is more biodiversity in just the bacterial community of a handful of soil than in all the animals of the Amazon basin. In less than a teaspoon of soil, there can be up to 50,000 species of organisms, and more microbes than there are people on earth.

A largely non-renewable resource, soil is formed by the interaction of climate conditions, topography features such as slope and elevation; living organisms and parent materials (original minerals) acting over periods of time. The making of soil involves numerous physical, chemical and biological processes. Soil scientists estimate that it takes about 1,000 years for a 1-inch thick layer of fertile soil to be formed.

The greatest influence on plant nutrition is soil pH, the relative acidity or alkalinity of the soil. Soil pH is measured on a scale from 1 to 14. The lower the number, the more acidic the soil. pH is important because as soil becomes more alkaline (above 9), it will hold on to nutrients. Most plants do well between 5 and 7.

The Mid-South's Dreaded Clay Soil

How do you know if you have clay soil? One reliable test is to grab a handful of moist (not wet) soil and firmly squeeze it. When you open your hand, if the soil holds its shape well even when poked, you have clay soil. If like some Midsouth homeowners (myself included), your children can mold your soil into discernable shapes and figures, dry it out in the sun, paint it and present it to you as a Christmas present, congratulations, you have won the clay soil lottery!

Clay soil can be a hard solid mass that is readily discernable. When wet, it becomes mucky and sticks to shovels and work boots much more readily than sandy or loamy soils do. Wet clay is pretty much the gardening equivalent of a wad of Bazooka bubble gum.

Clay particles are very small and pack together densely, not allowing voids for water and gases to move about, and for fine roots to grow into. While clay soil can be rich in nutrients, its structure and pH level prevent

(Continued on the next page)

Testing Your Soil

Soil sampling provides information specific to the sample area you send in to the UT Soil Center. The Lab analyzes the soil sample. The test results are used to formulate research-based, cost effective lime and fertilizer recommendations for the type of plant area you specify. Lawns and gardens should be tested every three to five years. Results of each soil test and corresponding recommendations are printed by computer and emailed and/or mailed to the gardener. In addition, a copy of each report is retained by the laboratory, and one copy is sent to the grower's county Extension office. Here are the guidelines for collecting and mailing soil samples to the UT Soil Center Lab in Nashville:

- 1.) Download information sheets and sampling instructions at soilplantandpest.utk.edu/soil/index.htm. Soil sample boxes are available at the Shelby County Extension Office, but the boxes can be inconvenient to mail since they need to be placed in a larger box. Instead, you may want to collect the sample(s) in a quart-size, zip-lock bag and use a sturdy, bubble-wrap-lined envelope for mailing.
- 2.) Remove excess grass clippings, rocks, trash and organic matter from the top of the soil. Use a metal or plastic shovel or trowel to dig a V-shape groove 6 to 8 inches into the soil. Take one sample per 1,000 square feet for a yard; 10 or more samples from a garden or flower bed. Areas devoted to very different kinds of plants — vegetables versus lawn, for example — require separate samples.
- 3.) Place the samples in a plastic or metal bucket, mix them, and take out 1/2 to 1 pint of that soil as your test sample. Place the sample in the zip-lock bag.
- 4.) Mark the zip-lock bag with your name. Assign a unique ID to each sample and write it on the bag. Don't send wet soil; wet samples should be air-dried for best test results.
- 5.) Fill out the Soil and Media Information Sheet. Instructions and tips are listed on the following page.
- 6.) Send the sample(s), Soil and Media Information Sheet, and check (if applicable) to the address listed on the sheet.

Clay Soils (continued)

plants from being able to access those nutrients. Some of the many options for dealing with clay soils are listed below.

Improving clay soil involves adding larger and courser particles to break it up. Work organic matter such as compost, straw, fine wood bark, or peat moss into the top 6- to 12- inches of soil.

Garden expert P. Allen Smith advises to first loosen up the clay in the area where you want to create a bed. Dig down about 12 inches. Once the ground is broken up

add 3 inches of bagged garden soil, 3 inches of compost and 3 inches of ground, decomposed pine bark.

Plant a cover crop. If you have the time and forethought, grow a cover crop, such as clover, in a garden area the year before you plan on planting. Growing repeated cover crops during the growing season and tilling them into the clay adds organic material.

If you have a small garden, it might be easier to build raised beds on top of the clay. Fill the beds with garden soil. Raised beds are easier to work with and the set-up deters stepping on the soil to further compact it.

Cow Manure (continued)

soils are for landscape and garden use, that is, on the ground; potting soils are for containers. Most bagged mixes, regardless of use, are sterilized or heat-treated to kill weeds and pathogens.

Top soil: Although the term “top soil” can refer to the earth’s first layer of rich material where plants grow, bagged top soil is something else entirely. It is a manufactured mixture of sand, silt and clay particles, some quantity of organic matter and perhaps some small rocks and root pieces. Although certain brands of top soil are lighter than others, top soil is best used for filling in holes in your lawn or leveling an area of your yard.

Top soil is also sold in bulk cubic yards; delivered to your driveway by dump truck. Bulk top soil is sometimes just soil from local construction sites.

Potting Mix: Most potting mixes are “soil-less” and contain three basic ingredients: sphagnum peat moss, pine bark, and either perlite or vermiculite. Potting mixes, also known as container mixes, are specifically blended for container gardening with a good ratio of water-holding capacity and air space. Manufacturers often add starter or slow-release fertilizer to their large bagged flower mixes; they generally provide nutrition for about 2 months. After that time, plants will need to be fed approximately every 2 weeks with a water-soluble fertilizer.

Pine Bark is manufactured at wood mills. It provides some moisture and fertilizer retention, and additional air space.

Perlite and vermiculite are both volcanic glasses which have been heated under pressure. They are added into mixes to provide additional air space and prevent soil compaction. They look like little Styrofoam beads. Perlite will sometimes rise to the



surface of the mixture. Moist perlite can also be used to successfully root plant cuttings.

Sphagnum peat moss has great moisture retaining qualities – it holds about 30 times its weight. Peat is the partially decomposed remains of plants, most commonly sphagnum moss. It forms over many millennia in bogs, marshes, and swamps—known as peat bogs. The first picture below shows sphagnum moss — the living top layer of a sphagnum bog, while the picture on the following page is sphagnum peat moss — the dead residue beneath this live layer which is what is added to potting mix. Most of the commercially available peat comes from the peat bogs of Canada. The use of peat increasingly controversial as it is a



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Cow Manure (continued, again!)



largely non-renewable carbon-rich resource. Its mining releases the material's stored carbon into the atmosphere, where it contributes to the problem of global climate change. Some mixes use coconut fiber or coco peat as an alternative to peat.

Garden soil, also known as planting mix, is essentially potting mix with a lot of other heavier and cheaper additives like compost, sand, clay and an assortment of other things depending on the manufacturer. As its name implies, garden soil is used for enriching garden areas. It is not recommended for containers because it is heavy, and apt to dry out quickly.

How about soil amendments?

Potting mixes are formulated to provide an excellent growing medium so soil amendments aren't necessary. However, with the intense summer heat we have here in the Midsouth, adding water gel crystals to your containers while planting is almost always a good idea. The gel contained in the crystals absorbs moisture and expands every time you water. It slowly releases the water over time, keeping the soil moist longer and requiring you to water less.

If you are thinking of adding manure or mulch to your containers, you might want to reconsider.

Manure products are great for outside garden areas since they are rich in nitrogen, but not so good for pots since all that nitrogen tends to burn up your flowers instead of fertilizing them.

Mulch is usually a raw wood product (bark, wood chunks, shredded wood, etc.) meant to be used on the surface of the soil in landscaping and gardens to help keep water from evaporating, and keep annual weeds from growing. Don't put mulch in your containers -- wood products suck up all the available nitrogen from the soil as they break down and make your plants look starved and yellow-green because they can't get enough food to grow. Straw is also used for mulch in garden area; again, not container friendly.

One last thing. Those pots you bought are awfully big and the cost of bags of potting mix adds up quickly. A money saving tip: recycle non-water soluble packing peanuts in the bottom of your containers. Cover them with landscape material, then fill your pot with potting mix. If your containers don't have a hole in the bottom, hunt around for your drill and use it to make a few fairly good-sized holes. This is a must: plants need good drainage to thrive.

Barbara Culligan
Master Gardener

Photo Credits: Gardeningoncloud9.com; Extension.iastate.edu; Goodtogrow.wordpress.com; Innovationtrail.org

**The sun was warm but the wind was chill.
You know how it is with an April day.
~Robert Frost**



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MAMG Website:

<http://memphisareamastergardeners.org>

Need a MAMG Speaker?

Master Gardeners love to talk, especially about all things garden related! We have specialists in just about anything horticultural! Every month, Master Gardeners speak to hundreds of people at gardening clubs, seminars, educational events, schools

and meetings. If you need a speaker, please send an email to the address below and include your name, contact information, group name, date, time and location of the meeting and the number of attendees.

Check out our website for more info! speakersbureau@memphisareamastergardeners.org



Have you Checked out our Blog?

Blogger Suzanne Allen stays abreast of not only everything Master Gardener related, but everything gardening related! Be sure to check out the pictures of the fabulous veggies that PAR at Davies grows for the Woman’s Shelter.

<http://mamgmusings.blogspot.com/>