



# Extension Gardener

NC STATE UNIVERSITY

NORTH CAROLINA COOPERATIVE EXTENSION

Summer 2009

Empowering  
gardeners.  
Providing  
garden  
solutions.

## Gardens of Water: The Basics

**W**ater gardens can be designed to fit almost any landscape, no matter how large or small. When choosing the location of a pond or pool, consider placing it so that it can be appreciated through a window from the house or as a focal point in the landscape.

There are several ways to create a water garden. The most popular is using a plastic liner, which comes in PVC (polyvinyl chloride), butyl rubber or polyethylene materials. These liners are chemically inert and safe for fish and plants. They come in various thicknesses, from 20 – 45 mils, and generally last anywhere from 10 – 20 years. The liner will be the most costly item, with the price based on the size of your water garden and liner type. Fountains and waterfalls add beauty and a focal point to a water garden. Place the focal structure where it will have the most impact.

A pool can be stocked with four types of plants: deep-water plants, bog plants (marginals), oxygenators, and floating plants. A mix of these plant types ensures a thriving, self-sustaining system. Cover 60 – 70% of the pond surface with floating plants, such as water hyacinth, and/or container plants with floating foliage, such as water lilies. Place 1 or 2 bunches of submerged or oxygenating plants per square yard of pond surface area. Many aquatic plants are very aggressive and should be planted in containers to prevent spreading and overcrowd-

ing. Fill the containers with heavy garden soil, and avoid chemicals or fertilizers that can harm aquatic life. Pack the soil tightly in the container and 1 – 2 inches from the container rim. Cover the remaining depth with pea gravel to keep the soil from floating up, and place the container at the correct depth in the pond. Plants should be introduced to the pond during the growing season. In newly constructed pools, place the plants several weeks before introducing fish.

You must wait 24 – 48 hours before stocking the pool with fish and aquatic plants so any chlorine can evaporate. If your water is treated with chloramine or chlorine dioxide, use counteractive chemicals from a water-garden supplier. Various brands are available; many add enzymes, aloe and other ingredients to help keep fish healthy during their transition. Combining fish and aquatic plants creates an ecological balance in the pond. In addition to a filter system, fish and aquatic plants should counteract any algae growth that occurs after construction. It can take anywhere from 6 – 8 weeks to establish a balance.

As with any garden, maintenance is necessary to keep a water garden thriving. Maintain filters, remove debris, and keep fish and plants healthy. For more information, visit [http://www.ces.ncsu.edu/depts/hort/consumer/hortinternet/water\\_gardens.html](http://www.ces.ncsu.edu/depts/hort/consumer/hortinternet/water_gardens.html).

—Craig Mauney

### in this issue

#### MOUNTAIN NEWS

- Rain Barrels
- Side-Dressing
- The Rose Walk
- Vermicomposting

#### STATE NEWS

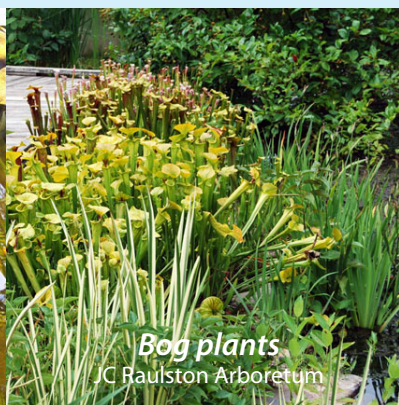
- Gardens of Water
- Knock-Out Red Rose
- Smart Watering
- Straw-Bale Gardening
- Downy Mildew



**Heartleaf pickerelweed**  
JC Raulston Arboretum



**Ecological balance**  
JC Raulston Arboretum



**Bog plants**  
JC Raulston Arboretum



JC Raulston Arboretum

Bloodroot  
(*Sanguinaria canadensis*)

JC Raulston Arboretum

Mayapple  
(*Podophyllum peltatum*)

## Upcoming Events

May 29 – June 1, 2009

### Medicines from the Earth Herb Symposium

Blue Ridge Assembly, Black Mountain

- This annual symposium on herbal medicine is held at the beautiful Blue Ridge Assembly near Asheville. For more information call 1.800.252.0688 or check online: [www.botanicalmedicine.org/conferences/me2009/me2009genl.htm](http://www.botanicalmedicine.org/conferences/me2009/me2009genl.htm)

July 24 – 26, 2009

### Wild Herb Weekend

Valle Crucis Conference Center, Valle Crucis

- If you are into all things herbal and enjoy beautiful places and spending time with incredible people, this is the event for you! For more information and a registration form, visit <http://ncherbassociation.org> (be sure to register early; space is limited).

## Sustainable Gardening — Vermicomposting

A great sustainable garden practice is composting. Many gardeners compost already but have never done vermicomposting (composting with worms). One of the benefits of vermicomposting is that it can be done year-round, inside or out. Worms don't take up much space, so a small container will be sufficient. A good way to gauge the size of your worm bin is to weigh your kitchen food waste for 1 week. Provide 1 square foot of surface area per pound. Worm bins can be shallow (8 – 12 inches) because the worms feed on the top layers of bedding. Plastic storage containers are handy worm boxes, as are wooden boxes. In cold weather, worm bins can be kept in laundry rooms, under the kitchen sink or in a closet. Drill some holes in the bottom of the bin and place a tray underneath to catch any excess liquid. Worms need the dark so a cover is necessary. A loose burlap sack or a piece of dark plastic works well.

Worms need bedding to help retain moisture. Shredded corrugated cardboard, shredded paper or newsprint, or peat moss is acceptable bedding. Commercial worm bedding is also

available. A worm bin needs to be filled 2/3 full with bedding. Cover the bedding with water, and allow it to stand for 24 hours. Wring out the excess water and place in the bin and fluff.

The worms to use in your vermicomposting project are redworms (*Eisenia foetida*), also called red wigglers, manure worms, red hybrid or tiger worms.

What do you feed the worms? Most kitchen waste is acceptable. Some gritty foods, such as coffee grounds, are helpful to aid in digestion. Start slowly, and wait for worms to become established, then slowly add more scraps. In three to four months, the bin will be filled with rich, black compost.

You will need to remove the castings occasionally. Simply shine a light in to the bin. This makes the worms move deeper. Use a sieve and take out a layer of castings. Shine the light again and repeat the process. Add new bedding when you are finished.

If you would like to learn more about vermicomposting, contact your local Extension center.

—Donna Teasley

## Food Production — Side-dressing vegetables

Many vegetable crops benefit from a side-dressing of fertilizer placed 2 to 4 inches from the base of the plants. Vegetables consume nutrients throughout their lives, so it's important to replenish the soil periodically by reapplying fertilizer. Placing all the fertilizer needed for the life of the plant at once prior to planting would overfeed immature plants and underfeed mature, fruit-bearing plants. And since nitrogen is highly water soluble, it is likely to be leached away before the plant can use it.

Plants can be grouped into three categories for side-dressing. Those that don't need a side dressing, those that need about ½-cup ammonium nitrate per 25 feet of row, and those that need ¾-cup ammonium nitrate per 25 feet of row. When you're using ammonium sulfate, use these same rates on 20 feet of row. Beans, peas and sweet potatoes usually don't need side-dressing. Other crops need about ½-cup ammonium nitrate or equivalent per 25 feet of row. The heavy feeders that need ¾-cup ammonium nitrate per 25 feet of row include Irish

potatoes, sweet corn, cabbage, collards, broccoli and cauliflower.

The time to side-dress varies from vegetable to vegetable. Vine crops are side-dressed once when they begin to run but before fruit has set. Corn is side-dressed when it is about 1 foot tall, then again when it is 3 feet tall. Don't side-dress tomatoes, peppers, eggplants and okra until the first fruits have set; then side-dress every 3 to 4 weeks. A general rule is to side-dress when growth has slowed and plant color has lightened. Side-dressing too often or too heavily can result in no fruit or a burned plant, wastes money and can lead to water pollution from runoff.

When side-dressing, apply fertilizer away from the base of the plant. Wash off any fertilizer touching the stems. When side-dressing plants grown with black plastic mulch, cut small slits in the plastic and apply the fertilizer under the plastic. For more information, contact your county Extension center.

—Diane Turner



## Garden Spot — *The Rose Walk at Lake Junaluska*

The Rose Walk at the Lake Junaluska Conference and Retreat Center is nestled in the serenity of the Smoky Mountains in west-



More than 240 rose bushes line the Rose Walk at Lake Junaluska in the Smoky Mountains. (Photo courtesy [www.lakejunaluska.com](http://www.lakejunaluska.com))

ern North Carolina. This .20-mile walk was created in the early 1970s by Dr. Lee Tuttle, president of the World Methodist Council. When the roses are in bloom, this garden spot is a popular treasure for locals and visitors in Haywood County. Known for displaying over 240 stunning rose bushes, the Rose Walk contains mostly hybrid teas with some popular new varieties, such as ‘Country Music’, ‘Gypsy Carnival’, ‘Princesse de Monaco’ and ‘Duet’. Heavy bloom is common from early May to the first good frost in October. Come visit this rose lover’s paradise, which is loved by many and maintained by the Junaluskans and the Junaluska Associates. For more information about the Rose Walk, visit [www.lakejunaluska.com](http://www.lakejunaluska.com) or email [info@lakejunaluska.com](mailto:info@lakejunaluska.com)

—Diane Turner



## Environmental Stewardship — *Rain barrels*

Rain barrels are becoming very popular. You can find them in big-box stores, catalogs and everywhere in between, and they are usually sold in sizes between 50 and 80 gallons. What should you look for when purchasing a rain barrel? For starters, you want a rain barrel that is dark in color, such as hunter green, so that algae are discouraged from growing inside it. Make sure that you have a screen over the hole where the rainwater enters the barrel to keep out debris from the roof and guttering. This will also prevent mosquitoes from gaining access to the inside of the barrel and depositing eggs. You also want to ensure that you have an overflow valve that can be attached to other barrels to collect as much rainwater as possible.

Uses of rainwater are many, such as washing your car, watering your vegetable and flower

gardens and watering your lawn. Do not use collected water for drinking, cooking or bathing. Also, keep the lid secure so children or animals cannot fall into the barrel. The placement of your rain barrel should be higher than ground level to use gravity. Use bricks or cinder blocks to raise the rain barrel. Then measure and cut off part of the downspout, connect it to the rain barrel, and you are ready for rain.

How much water can be collected? If your roof’s area is 1,200 square feet (30 x 40 feet), then 1 inch of rain equals more than 700 gallons! You can harvest this rainwater which otherwise would be lost to runoff. Here’s to a wet spring and hopefully a wet summer. Enjoy your rain barrel, and happy gardening.

—Elizabeth Ayers

# Tips & Tasks

## Avoid Common Landscape Mistakes

### Planting depth

- Often shrubs and trees are planted way too deep. The deepest a plant should be planted would be the soil line in the pot/container it comes in. I prefer to leave around 25% of the root ball above ground and then mulch around the plant with a good layer of wood or bark mulch. This allows more oxygen to reach the roots and prevents the plant from drowning if over-watered.

### Mulching

- Mulch helps to hold moisture and suppresses weeds. It can have a negative side. One common mistake is using green mulch (a freshly ground tree or plant), which can harm or kill plants. Mulch should be allowed to decompose. Do not pile mulch around the tree trunks. This can damage the trunk.

### Lawn care

- Mow fescue lawns at a height of 3 to 4 inches. Many people use the lowest setting on their lawnmower, but 3 to 4 inches is better. The “weed and feed” materials to control lawn weeds work great. Remember that along with applying a herbicide, you are also applying fertilizer. Don’t use a “weed and feed” if you have already spread fertilizer. Doing so overloads the lawn with nutrients, which causes summer diseases. Read the bag to see exactly what you are applying and how much you should apply to a given area.

—Daniel Shires





JC Haulistion - Aboretum

## Showstopper — Knock-Out® Red Rose

For years disease-resistant roses have been on the market only to disappoint Southern gardeners. Well, look no further because the Knock-Out® Red Rose (*Rosa hybrida* 'Radrazz' – PP #11836) has the grit to withstand our hot, humid Carolina weather. This exciting rose cultivar is a shrub rose that grows about 3 feet tall and wide. As the weather warms, 3-inch diameter cherry-red blooms appear as terminal clusters of single flowers. As long as the plants continue to grow through spring, summer and fall, this rose will continue to flower. Like nearly all roses, Knock-Out® Red Rose performs best in full sun with fertile, well-drained soil. Prune during the growing season on an “as-needed” basis to control plant size. Water during periods of drought to maintain a continual supply of flowers.

Chosen in 2000 as an All-America Rose Award winner, this 2009 Showstopper Plant is **truly** a knock-out!

—John Vining

## Incredible Edibles

Straw-bale gardening saves space but requires more attention to watering and nutrients than traditional gardening. Vegetables that grow well in bales include lettuce, tomatoes, cucumbers, squash and eggplants. Condition straw bales 10 days before planting. Place each bale at its growing location in full sun and on edge to keep the string from touching soil. Soak the entire bale for 3 days by slowly watering it. Over the next 5 days, add a high nitrogen fertilizer (such as 33-0-0) at 1 tablespoon per day and slowly wash it in. On day 9, add a complete fertilizer (17-17-17, 10-10-10 or 19-19-19) and water again. Plant on day 10 and water again. One bale can hold 2 tomato plants, 6 cucumbers or 2 to 3 squash. A soaker hose will save time. Wilting indicates the need for watering.

—Don Breedlove



[www.ces.ncsu.edu](http://www.ces.ncsu.edu)

**Extension Gardener** provides timely, research-based horticultural information. We publish 4 issues per year. Send comments about **Extension Gardener** to Editor and Team Leader **Lucy Bradley, Ph.D.**, Extension Specialist, Urban Horticulture, Box 7609, NC State University, Raleigh, NC 27695-7609

Managing Editor **Will Strader**  
 Content Editor **David Goforth**  
 Regional Editors  
 Coastal Plain **Anne Edwards, Charlotte Glenn**  
 Piedmont **Carl Matyac, Mark Blevins**  
 Mountains **Donna Teasley, Dianne Turner**  
 Production Editor **Barbara Scott**  
 Designer **Karl Larson**

*The use of brand names does not imply endorsement by N.C. Cooperative Extension nor discrimination against similar products or services not mentioned.*

Distributed in furtherance of the acts of Congress of May 8 and June 30, 1914. North Carolina State University and North Carolina A&T State University commit themselves to positive action to secure equal opportunity regardless of race, color, creed, national origin, religion, sex, age, veteran status, or disability. In addition, the two Universities welcome all persons without regard to sexual orientation. North Carolina State University, North Carolina A&T State University, U.S. Department of Agriculture, and local governments cooperating.

©North Carolina Cooperative Extension **Extension Gardener** may not be reproduced without written permission. Any news media using sections of the newsletter should credit "Extension Gardener, N.C. Cooperative Extension."

<http://extensiongardener.ncsu.edu>

## Sustainability

### Practice Smart Watering

Watering plants in the landscape too much or too little causes many plant problems. Over-watering causes more damage than under-watering. To have healthy plants, save money on water bills and conserve precious drinking water, use these tips. Water plants deeply, but infrequently, so that the soil dries between watering. Wait until grass turns gray or leaves fold before watering lawns. Let annuals, perennials, herbs and vegetables wilt slightly before watering. To make every drop count, build garden areas with compost and use mulch to conserve water. Choose low-water-use trees and shrubs that can thrive on rainfall alone once established. Use soaker hoses or drip irrigation. You should water in early morning to reduce water loss from evaporation. Finally, use rain barrels and rain gardens to reduce drinking-water use and hold water on site.

—Danny Lauderdale

## Pest Alert — Downy mildew

In late summer agents start to receive samples of downy mildew on muskmelon and cucumbers. This disease can cause a lot of damage quickly. Cucumber and muskmelon are the cucurbits most susceptible to downy mildew, but it may also attack melons, squash, pumpkins, gourds, and other members of the Cucurbitaceae family.

Symptoms first appear as small, angular, yellow lesions on the upper side of the leaf. A white to purplish mildew may be observed on the lower side of the leaf during humid weather. As the lesions expand, their centers turn brown. Often the margins of the diseased leaves curl upward. During favorable weather leaf lesions coalesce, killing large areas of the leaf surface. This results in a stunting of the plant and a failure of the fruit to mature properly. Even fruit

that reach maturity may have an off-flavor. In severe cases, the entire plant will die.

The fungus requires extended periods of wet weather and leaf wetness for the infection. Several cucumber varieties are resistant to downy mildew, but watermelon and muskmelon varieties are not. Control of downy mildew depends on cultural practices, early detection and timely applications of fungicides. Early detection is essential for the proper control of foliar pathogens. If weather conditions become favorable for the development of downy mildew, begin protective fungicide applications and continue on a 4- to 7-day interval. Look for fungicides containing the active ingredients mancozeb or chlorothalonil.

—Karen Neill



**Downy mildew on a cucumber leaf** (Photo courtesy ©G.C. Holmes, NCSU)