

# Missouri Environment & Garden

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## Preparing the Garden for Winter

As fall approaches, it is time to take on the task of garden clean-up. Fall is also a great time to consider planting trees and shrubs, and many perennials thrive by being planted in the fall. The key factor in plant establishment is root growth, and the faster the roots grow into the back-fill area of a newly planted plant, the more successfully the plant will become established. Roots never go completely dormant like the above-ground part of a plant, and soil temperature and moisture are some of the primary factors influencing healthy root growth. In the fall, the soil temperatures stay warm and there is usually ample soil moisture with fall rains. Thus the plant has a great head start on root growth before hitting the stressful summer drought and heat the following year, versus planting in the spring in which the roots have only a short period of time to establish before the summer heat and drought. It is also important that a newly establishing plant have time to put adequate energy into root growth. If planted in the spring, the plant is putting energy into foliage and flowers, and less energy is going into root development. However, if planted in the fall, the foliage is already developed, and the plant can concentrate its energy into root development without competing for leaf and flower development as well.

Another important fall task is preparing to move non-winter hardy plants indoors. For many of us, indoor space is very limited and the decision must be made on which plants to over-winter and which to discard. And many of us have started to use tropical plants in our patio containers, and these plants need bright light to thrive through the winter indoors. In some cases, especially if space and light is limited indoors, it may be best to discard your annuals and purchase new plants the next year.

Cannas are fairly easy to over-winter. After the first frost, dig them and cut back the tops. Do not divide the rhizomes at this point as the fresh cutting may rot through the winter. Then store the rhizomes in peat, vermiculite or sand in a cool, dry location with temperatures around 40 degrees F. In spring, cut the rhizomes into pieces with several growing points each and start them as you would new rhizomes.

Tuberous begonias and caladium are also easy to store over the winter. If the tuberous begonias were grown in containers, these plants can be brought in for winter enjoyment and treated as a houseplant. If the planted into the ground, dig up the tubers carefully after the first light frost and remove the top growth. Leave the soil and roots around the bulb intact and place the bulbs in a cool, dry

area for 2-3 weeks. Then, remove the soil and remaining roots that should be shriveled by this time and pack the bulbs in peat, sand or vermiculite to prevent excess moisture loss. As with cannas, store in a cool 50-55 degrees and be sure the bulb aren't subjected to freezing temperatures.

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## CLINIC UPDATE: SEPTEMBER 2008

Continued wet weather in August and September impacted the disease problems we have been observing in the plant diagnostic clinic. Root rots and leaf spots have been common submissions. Saturated soils and leaf wetness are very conducive to these types of diseases.

Many of our samples recently have come from trees, and a variety of fungal leaf spots have been submitted. Several white and pin oak samples have been submitted with *Tubakia* leaf spot. Another white oak had a *Phyllosticta* leaf spot. A river birch had anthracnose. A buckeye had *Guignardia* leaf blotch. These leaf spots are not expected to seriously impact the health of the tree, especially when they become apparent in late summer. More information can be found at <http://agebb.missouri.edu/pdc/diagnosticreports/leafspot01.htm>.

Some foliar diseases can be more damaging to the tree. Several Christmas tree growers have recently submitted scotch pine samples with brown spot needle blight. This needle blight appears to have been more severe on short needled variety submissions. Although the injury may be most apparent now, it is important to keep in mind that much of the infection is related to weather conditions earlier this year. See [http://www.na.fs.fed.us/spfo/pubs/fidls/br\\_spot\\_pines/brown-spot.htm](http://www.na.fs.fed.us/spfo/pubs/fidls/br_spot_pines/brown-spot.htm). Additional samples also had bagworm and pine tip moth injuries, as described at [http://www.ipm.uiuc.edu/landturf/insects/pine\\_moth/](http://www.ipm.uiuc.edu/landturf/insects/pine_moth/).

Some of the canker and twig blight diseases we have received include sycamore with anthracnose causing cankers girdling small twigs throughout the canopy. *Botryosphaeria* canker was causing similar damage to a littleleaf linden. A boxwood with branch dieback had *Volutella* blight. Twig dieback on a submitted arborvitae sample had *Pestalotiopsis* development. A ninebark sample had severe powdery mildew that appeared to be responsible for the death of new shoots. There are



*Volutella* stem blight on boxwood. Photo courtesy of Simeon Wright.

no chemical controls for many twig blights and cankers especially when caused by opportunistic pathogens. These are managed by keeping the plant in vigorous condition and pruning out affected areas. It can still be useful to have a sample diagnosed, because some twig blights might be managed by fungicide treatments in certain cases and where a tree or shrub is being severely disfigured. Management would be very dependent on exactly what is causing the damage. More information at <http://soilplantlab.missouri.edu/plant/diseases/twigblights.htm>.

Several samples had root and crown rots that appeared to be responsible for a sudden wilt and death of plants, or in other cases a slow decline identified by poor vigor, chlorosis (yellowing) and a slow, progressive dieback. Most of these samples were described as coming from areas with poor drainage, or flooded conditions. Some samples include a spruce with *Phytophthora* root rot, liriope with *Rhizoctonia* root and crown rot, Chinese cabbage and *Chrysanthemum* with *Pythium* root rot, as well as some trees that had been dead too long for a determination to be

made. A *Rudbeckia* sample had what initially appeared to be similar damage, however after dissecting the crown, we were able to find evidence of extensive root-weevil feeding. Consequently, an accurate diagnosis can certainly help in management, and it is also important to remember that after the plant dies, it can become difficult to identify exactly what caused the death. See <http://wihort.uwex.edu/gardenfacts/XHT1072.pdf>.

Some additional tree problems included *Mimosa* with *Fusarium* wilt, pin oak with obscure scale, and several additional white oak samples with lacebug damage. Additional oak samples have tested positive for oak wilt. This summer we have had 4 in Boone, 2 in St Louis, 1 each in Audrain, Clay, Johnson, and Pike Counties.

Some additional vegetable submissions have included anthracnose on several cucurbits, bacterial leaf spot on squash, severe squash bug infestations, and powdery mildew on pumpkin. Tomato samples had *Septoria* leaf spot, early blight, anthracnose, and spider mites. We had a pepper submission with severe thrips injury

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# Fall Planting

Fall is the perfect time to plant spring-flowering bulbs. Spring flowering bulbs are some of the easiest plants to grow and some of the most rewarding. Most bulbs bloom in early spring and provide a nice succession of color before the summer-flowering shrubs and perennials reach their peak bloom. There is nothing quite like the pleasure I derive from the garden when the crocus and daffodils start to bloom, many times right through the late season snowfalls.

Planting spring-flowering bulbs in the fall is crucial to giving the bulbs an adequate long period of cool temperatures to induce spring flowering. Many bulbs must have a certain number of days below a particular temperature that is needed to induce flowering. There are hundreds of bulb varieties from which to choose with the most popular being narcissus (daffodils), crocus, hyacinths and tulips. Tulips are by far the most

precious spring-flowering bulbs with a tremendous range of colors and styles. However, they are also the most unreliable in Missouri as repeat bloomers in successive seasons. Tulips struggle with heavy, wet soils and are very susceptible to bulb rots and slug damage. Many gardeners in Missouri have given up the struggle and consider tulips annuals, however gardeners have had more success with varieties labeled as “great for naturalizing” or “perennial” in their description. Location is also crucial to the success of tulips and good drainage greatly improves their durability. Also, foliage should be allowed to grow as long as possible after flowering to improve chances of repeat performance. Tulips can be planted up until the ground freezes and should be planted at a depth of 7-8 inches deep.

Bulbs that do very well in Missouri are daffodils, grape hyacinths, reticulated iris, scillas, and snowdrops. In Missouri,

it is hard to surpass the daffodil for repeat blooming and dependability. Daffodil bulbs are not attractive as food for small animals through the winter, whereas tulips are very attractive food and may be devoured through the winter. As with tulips, daffodils prefer good drainage and are best planted before the end of October. Daffodils should be planted at a depth of 7-8 inches deep. Most small bulbs such as crocus, reticulated iris, snowdrops and hyacinths can be planted at a depth of 3-4 inches and are best planted by the end of October as well. Bulbs planted in clumps or groups of three or more provide for a more pleasing display that is not quite so rigid. Bulbs may be planted in full sun or partial shade and do well under deciduous trees as they bloom before the trees leaf out.

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damaging fruit. A celery sample had a bacterial soft rot destroying the crown.

Sample submission can provide you with an accurate diagnosis to allow you to manage your plant problems, as well as allow us to provide comprehensive updates in the newsletter. Please refer to the sample submission section of our Website <http://soilplantlab.missouri.edu/plant/index.htm> or contact us for more information on sample submission.

*Simeon Wright, Darren Trout*



*Pepper fruit with injury from previous thrips feeding. Photo courtesy of Simeon Wright*

## Garden Asters

Few things are as depressing to the avid gardener as the end of the growing season. The shorter days and cooler temperatures of September tends to remind us that the first killing frost is not too far in the distance. However, autumn is the time of year when some ornamental plants are just coming into their full glory and garden aster is one of those plants. They bear petite, daisy-like flowers that are one to two inches in diameter and come in a wide array of vibrant colors including some of the truest blues to be found anywhere in the plant world. At a time when many gardeners are making one last trip to the local nursery for hardy chrysanthemums, garden asters should be considered also. They share many of the same cultural requirements with mums making them an ideal companion plant in the fall garden.

Aster actually is a genus of plants containing 250 species. Garden aster, along with the likes of zinnia, marigold, dahlia, chrysanthemum and many, many other useful garden species, is a member of the Asteraceae (formerly Compositae) family. The word Aster is derived from a Greek word meaning

“star” and refers to the star-like shape of the flower. Garden aster (as well as all members of the Asteraceae family) bears a compound flower known as a head consisting of disc florets that comprise the center or eye, and ray florets that radiate from the eye to form what most people erroneously refer to as the petals.

Most garden asters belong to one of two different species: *Aster novi-belgii* (New York Aster) or *A. novae-angliae* (New England Aster); both are native to North America and hardy to zone 4. Important related species include *A. tongolensis* (East Indies Aster) and *A. lateriflorus* ‘Horizontalis’ (Calico Aster). Plant breeders have succeeded in improving the wild aster when selecting for compact plant habit and different flower colors. Garden aster often goes by the common name of Michaelmas Daisy; the latter taken from the fact aster blooms around Michaelmas Day (or the feast of St. Michael the Archangel) which is observed on September 29th.

As previously mentioned, the culture of aster is very similar to that of chrysanthemum. Like chrysanthemum,

aster is a short-day plant meaning that it requires a long, uninterrupted period of darkness in order to bloom. The long days of spring and early summer promote vegetative growth in aster; the shorter days of late summer trigger flowering to occur. Aster enjoys a full-sun exposure in a well-drained soil of average fertility. The addition of well-decomposed organic matter can help to loosen tight soils. Garden asters purchased in bloom growing in containers need only to be watered; those established in a perennial garden should be given only modest amounts of fertilizer during the growing season since excess fertility leads to tall, “floppy” plants. Garden asters are relatively insect-free but do suffer from several troublesome diseases including aster wilt (yellows) and powdery mildew. Several new cultivars have been developed that are more tolerant of mildew than some of the older, more familiar cultivars.

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# Asian Lady Beetles

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It is that time of year again when the Asian lady beetles will start looking for a nice warm location to hold up for the winter. I receive many calls regarding hundreds of these in people's homes, and the fact that they're beneficial seems to be irrelevant. The Asian lady beetle was introduced into the United States in the late 1970's as a predator. They are beneficial because both the immature larval and adult stages feed on aphids, mealybugs, scales, and other soft-bodied insects. Adults can live up to three years. However, as winter approaches the adults seek out protection and cluster at these locations to hibernate. Asian lady beetles overwinter in cliffs in their native habitat, thus seek out vertical surfaces such as the walls of homes that are light colored and have a south or southwest exposure. The beetles then enter homes through

window screens and doors, cracks in the walls, or vents. They then congregate in undisturbed areas of the home such as attics and spaces within walls until the temperatures become warmer and days longer in March and April. At this time the beetles then move outside to search for food and become the most active in the house.

Asian lady beetles do not feed on wood, clothing or human food, and they do not reproduce indoors during the winter. However, many homeowners can get irritated due to the large numbers than can be present in the home. The use of a vacuum cleaner is the best method of collecting the beetles. They can also be swept up in a dustpan and relocated outside in a sheltered spot a good distance from the home. If you use a vacuum for the beetles, it is recommended that you

change the bag soon afterward as the beetles will die and leave a permanent odor in the vacuum bag. The beetles are extremely beneficial as predators on other insects, thus emptying the vacuum cleaner bag outdoors allows the insect to live. It is important to try to prevent the beetles from getting into the home by sealing outside cracks around doors, windows and siding. Window screens should fit snugly and not have any tears or holes and screening should be installed over attic and exhaust vents.

For more information on Asian lady beetles, refer to MU Extension Guide G7369 (<http://muextension.missouri.edu/xplor/agguides/pests/g07369.htm>).

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# Trunk Cracking on Landscape Trees

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Extension offices around the state have received a number calls this summer describing development of large vertical cracks in trunks of landscape trees. Trees most commonly affected have been maples and crabapples. In some cases, cracks have spread two inches wide and extend several feet up the trunks of affected trees. Homeowners are understandably concerned and puzzled about this damage.

There is some debate among tree experts as to the causes of trunk cracking. The general consensus is that there are several contributing factors. First, bark damage of some kind may cause weakness in the affected area. For example, the Easter freeze of 2007 caused considerable damage to the bark of trees, some of which is not apparent from the surface. Our unusually high precipitation in 2008 may have also played a role. With relatively cool

weather over most of the summer and ample soil moisture, many trees have grown rapidly. When this happens, radial trunk growth can put stress on the bark, leading to splitting at weak spots. A short dry spell, followed by excessive rainfall can intensify the splitting.

There is also debate about what, if anything can be done to help trees recover from trunk cracking. Bark is a terrific protective cover and any kind of bark damage to it provides access for diseases and insects to the inner bark and wood of the trunk. However, most tree experts agree that treating the cracks with a wound dressing of some kind has no significant effect on recovery and provides no real protection from insects and fungal pathogens. In most cases, the bark at the edges of cracks will begin producing callus tissue quickly and, if the trees are reasonably vigorous, they will be able

to produce barrier layers under the wounds to prevent decay from moving into the trunk.

So, the best thing that one can do to help a tree recover is to maintain vigor. Mulching, watering during drought and moderate fertilization will help with this. If nearby turf is regularly fertilized, a tree may not need fertilizer application. If not, two to three pounds of actual nitrogen per 1000 square feet over an area 1.5 times the drip line diameter should be adequate. Avoid application of broadleaf weed killers to turf areas near recovering trees. Be particularly careful not to allow herbicide to leach downhill into the mulch over tree roots. Given a little TLC, most trees with trunk cracks will recover nicely and the damage will not be noticeable five years from now.

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# October Gardening Calendar

## Ornamentals

- Continue watering, especially if evergreens if soils are dry.
- **Weeks 1-4:** Nuts or seeds of woody plants usually require exposure to 3 months cold before sprouting. This may be provided by outdoor planting in fall or "stratifying" in an unsealed bag of damp peat moss placed in the refrigerator.
- **Weeks 1-4:** Container grown and B & B trees and shrubs can be planted. Loosen the soil in an area 5 times the diameter of the root ball before planting. Mulch well after watering.
- **Weeks 1-4:** Plant spring bulbs among hostas, ferns, daylilies or ground covers.
- **Weeks 1-2:** For best bloom later this winter, Christmas cactus, potted azaleas and kalanchoe may be left outdoors until night temperatures drop to about 40 degrees Fahrenheit.
- **Weeks 2-4:** Spring bulbs for forcing can be potted up now and stored in a cool, frost-free place until it is time to bring indoors, usually 12 to 15 weeks.
- **Weeks 2-3:** Cannas and dahlias can be dug when frost nips their foliage. Allow the plants to dry under cover in an airy, frost-free place before storage.
- **Weeks 3-4:** Transplant deciduous trees once they have dropped their leaves.
- **Week 4:** Plant tulips now.
- **Week 4:** Trees may be fertilized now. This is best done following soil test guidelines.

## Lawns

- **Weeks 1-2:** Seeding should be finished by October 15.
- **Weeks 2-3:** Broadleaf herbicides can be applied now to control cool season weeds such as chickweed and dandelion.
- **Weeks 3-4:** Keep leaves raked off lawns to prevent smothering grass.
- **Weeks 3-4:** Now is a good time to apply lime if soil tests indicate the need.
- **Week 4:** Winterize lawn mowers before storage.

## Vegetables

- **Weeks 1-4:** Sow cover crops such as winter rye after crops are harvested.
- **Week 1-2:** Harvest winter squash and pumpkins before frost. For best storage quality, leave an inch or two of stem on each fruit.
- **Weeks 1-2:** Gourds should be harvested when their shells become hard or when their color changes from green to brown.
- **Week 2:** The average first frost usually arrives about October 15-20. A few degrees of protection may be gained by covering tender plants with sheets or light-weight fabric row covers.

## Fruits

- **Weeks 1-4:** Store apples in a cool basement in old plastic sacks that have been perforated for good air circulation.
- **Weeks 2-4:** Persimmons start to ripen, especially after frost.
- **Weeks 3-4:** Monitor fruit plantings for mouse activity and take steps for their control if present.
- **Week 4:** Place wire guards around trunks of young fruit trees for protection against mice and rabbits.

## Miscellaneous

- **Weeks 1-4:** Enjoy Fall peak color beginning in maple, hickory and oak trees.