

# Missouri Environment & Garden

April 2012

Volume 18, Number 4

## Helping Kids Grow Through Gardening

“Children are one-third of our population, and all of our future.” This quote from the Select Panel on Child Health eloquently expresses the need for the present generation to pass along the knowledge it has gained to children. As we observe National Gardening Month, what better time to talk about the need to teach children about what (unfortunately) is becoming a lost art—gardening. The benefits (both immediate and long-term) of encouraging a child to plant his/her own garden are numerous and long-lived.

Children are curious by nature and love to be active and involved. Gardening is an excellent way for children to explore nature and the plant world through “hands-on” learning. Gardening encourages creativity and self-discipline while leading to a sense of accomplishment and self-worth. Additionally, children who grow their own vegetables in a garden have been found to consume more of them. The result is a healthier diet and more active life style. In short, there is no better way for children to grow than to grow a garden.

When working with children, it is important to establish attainable goals. Therefore don't overdo it when involving them with gardening for the first time. Even a relatively small plot planted with a mix of flowers and vegetables can instill not only an appreciation of nature, but also provide a place for fun learning activities. Although there is a chance that a child's garden might not be as neatly tended as that of their parents, give the choicest garden spot you can to the child. The positive reinforcement that comes with success is important for children and, when growing plants, that begins with good soil.

Lots of sun also will aid in gardening success. A section of the family garden or a separate child's garden next to it can make gardening a family affair. To foster a sense of ownership, it is important to let children help

prepare the garden plot since kids love to play in the “dirt”. Soil can be turned over with a small shovel or trowel, and clumps broken up by hand. Whatever method is used, make sure soil is well-prepared before planting.

Choose easy-to-grow plants and as many different ones as you can get into the small space. Carrots, radishes, lettuces and tomatoes are good vegetable choices. If there is room in the garden for vining crops, consider planting a pumpkin whose fruit can be used at Halloween. This can make the garden experience last a little longer.

When selecting flowers for a child's garden, select annuals that are relatively easy to grow. Be sure to include at least a few that can be used as cut flowers or decorations for the dinner table or for special gifts. Zinnias, marigolds, celosia and sunflower are a few species worth consideration.

City dwellers should not despair if an outdoor garden plot for children is not available. Vegetables and flowers

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## Helping Kids Grow Through Gardening

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can be successfully grown in pots and containers. A container garden on a balcony, patio or deck can produce a lot of flowers and vegetables, and it often makes the task of tending plants simpler. Since the principles of container garden differ from “traditional” gardening, consult books or online resources on the topic.

Children take special pride in having something that is their very own. Consider promoting a sense of ownership and pride by placing a sign in a child’s garden that lists the child’s name (e.g. “Mary’s Garden”). For real personalization, make plant stakes or labels that say “Mary’s beans,” “John’s zinnias,” etc. Individual labeling can also help prevent disputes concerning ownership if more than one child has plants growing in the same garden.

The “miracle” of watching a plant emerge from a seed is a process that fascinates most children. When establishing plants by directly seeding them in the garden, select species with relatively large seeds which are easy to handle (e.g. bean and sunflower). Colorful pictures help children imagine what will eventually grow where the seeds have been sown. The empty seed packet stapled to a stake with the child’s name written on it is a good way to identify the crop and personalize it. Started (bedding) plants usually come with a care tag that can be used for the same purpose.

Children love to play in water and probably will be more than eager to water their garden. The garden hose can be a helpful tool or a destructive device, depending upon how it is used. Remind children that rain usually falls very gently and they should imitate the rain when watering with a hose. A personalized sprinkling can is a good idea for younger children.

Keeping weeds in check is a bit more of a challenge. At first it can be difficult to tell small garden plants from small weeds. Therefore, allow plants a little before showing youngsters the difference between garden plants and weeds. Children might question why any plant (weed

or otherwise) should be eliminated from their garden. Characterizing weeds as “garden bullies” that want to take food and water away from the “good” plants may ease the trauma of pulling out some plants.

“Patience is a virtue,” goes an old saying, and the wait for flowers and vegetables to mature can teach children the rewards of patience. Watching a garden grow may not be easy: children may want to pull up young carrots and radishes to see if they are “ready.” Even if they do pull up a few young plants, they may be far enough along to wash off and give a taste of bigger things to come.

Gardening also provides an ideal time for parents to talk with their children. Of course talking about how plants grow, and other aspects of nature associated with a garden is important. But the privacy and quiet of a garden is also an excellent place to just talk about “things” such as school and friends, hopes and dreams. It is surprising what parents can learn about their child in their garden. The opportunity to hear their child’s thoughts will help parents guide their personal growth as well as their gardening growth.

Whether you are in a city, suburb or rural area, the future of our children is a concern to all. Instilling love, respect and understanding of how nature works by gardening produces results that last a lifetime. Encouraging children to garden is important not only for their future but also for the future of the world at large.

For additional information on establishing a children’s gardening program in your community visit University of Missouri Extension’s Garden ‘n Grow website: <http://plantsci.missouri.edu/gng/>.

*Acknowledgement: Adapted from an article by the National Garden Bureau*

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## The Root-Knot Nematode May Be a Big Problem during This Summer

As we all know this winter has been very mild in Central and Northern Missouri. If the ground froze at all this winter, it would have been at most a few inches only. This could be a problem. Southern Root-Knot nematode (*Meloidogyne incognita*) cannot survive a hard freeze, and this is the reason why it is usually not a problem in Central and Northern Missouri. Without getting a hard freeze down to 12-15 inches like we experienced during

the mild winter last season, eggs of Root-Knot nematode most likely survived, and will hatch after the soil warms.

Since this pest is not commonly found this far north, it is present in gardens only where someone has inadvertently brought it. This nematode can only travel in soil or plant tissue. A tablespoon full of infested soil may contain tens of thousands of microscopic worms or eggs. For

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example, tomato seedlings received from Uncle Joe down south may be an entry point for this disastrous pest. It can also travel on bits of soil left on tillers or garden tools. Even dirty tires and boots can be a source of infection. Compost shared by a neighbor may also be a source, if the compost pile was fed with infested plant tissue and hadn't been properly turned.

We know from a study conducted a few years ago that Root-Knot is present in gardens in central Missouri. In Columbia six of the nine community gardens tested were positive for Root-Knot. We found that community and public gardens were more apt to have the pest than family gardens simply because more people were working these plots, and they were sharing equipment and compost. So the chance of spreading this pest is higher in a community garden.

Once the Root-Knot nematode has found a new home, it will happily feed on the roots of most garden plants. In fact it has over 2000 hosts. There is little you can do to control this nematode in your garden other than waiting for a good hard freeze the next winter. If your garden is free of this pest, the best thing to do is to practice good garden hygiene. Only use plants that come from reputable nurseries, or garden store and be sure that any borrowed garden equipment is cleaned of all dirt before using in your garden. Also make sure that any top soil or compost you use in your garden comes from a clean source.

Most people probably don't know if their garden has Root-Knot or not. Some plant symptoms of this pest are stunting, yellowing, and the tendency for the plant to wilt in the summer heat, even when there is plenty of moisture present. Vegetables yields may be reduced, due to fewer number, smaller size, and poor quality. A good way to determine if these symptoms are caused by the Root-Knot nematode or something else is to sacrifice a plant. Pull up a suspect plant and carefully observe the roots for bumps or galls (knots) that are caused by the nematode. These galls actually contain female nematodes that have swollen into spiracle shapes and laid hundreds of eggs in masses on the surface of the galls. These galls partially block the movement of water and nutrients through the vascular system of the plant, causing the symptoms mentioned above.

If you don't want to sacrifice a plant, simply wait until the end of the growing season. When cleaning up the garden, carefully check the roots of the old plants before discarding. Tomato, pepper, cucumber and most garden plant roots should be smooth. If they have big knots or galls along them, it is likely that your garden has become infested. In this case destroy all root material, and then remove any surface mulch or plant residue from the garden. Fall tillage may help by allowing cold temperatures of winter to penetrate more deeply into the soil, killing any Root-Knot eggs that may be present.

Another way to determine if you have this nematode is to take some soil plugs around plants showing symptoms and sending the sample to the University of Missouri Extension Nematology Lab for analysis. This \$20 test will list all the different plant parasitic nematodes present and their numbers and comments. (Submit samples to: Extension Nematology Lab, Rm. 23, Mumford Hall, Columbia, MO 65211 with the sample submission form and the payment due).

Although managing Root-Knot nematode in the garden is extremely difficult, southerners have been dealing with this pest for many years and have developed some strategies. For management information see Missouri Environment & Garden, April 08, Vol. 14, #4, "Be Aware of a Potential Enemy in the Family Garden," or the MU Guide #G6204, "Managing Nematodes in Gardens."

Information on submitting samples to the Extension Nematology labs and sample submission forms can be obtained by visiting the lab's website at URL: <http://soilplantlab.missouri.edu/nematode> or by calling 573-884-9118.

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## Spruce Problems Continue

Over the past several years many spruce trees in Missouri landscapes have been infected by fungal diseases that are disfiguring or fatal. Colorado blue spruce seems most commonly affected, but Norway and white spruce have recently joined the club. In general, spruces are not well adapted to our hot, humid summers.

Until recently, the main problem with Colorado blue spruce has been *Rhizosphaera* needle cast. The fungus causing this disease generally gains a foothold on lower branches and, if left untreated, can work its way all the way to the top. Older needles on affected trees turn purplish and eventually drop off. Infected needles have many tiny black fruiting structures protruding through the epidermis. Fungicides containing chlorothalonil or copper applied to the new growth during spring and early summer can keep the disease from spreading.

Perhaps due to three successive, abnormally wet springs, other fungal diseases appear to have gained a foothold on spruces in Missouri. Although the causal agents are a topic of discussion among pathologists, one “new”

fungal malady is referred to as SNEED (sudden needle drop of spruce). In contrast to *Rhizosphaera*, needles affected by SNEED do not turn purplish and do not exhibit fruiting bodies. Instead the fruiting bodies appear on the stems and twigs. Affected branches are more randomly arranged within the tree than in the case of *Rhizosphaera*. If a tree is just beginning to show symptoms of SNEED, pruning out affected branches (during dry weather) and burning dead branches may help reduce the spore numbers. Spraying with a fungicide containing chlorothalonil or copper to protect the developing needles can also prevent further spread. For further information on SNEED see this link.

<http://na.fs.fed.us/fhp/fhw/csfhw/nov03/sneeddetail.pdf>

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## Issues with Zoysiagrass Lawns

Spring came very early this year and warm-season grasses such as zoysiagrass came out of winter dormancy about one month ahead of schedule. Pat Guinan, MU Extension Climatologist, indicated that March temperatures were 12 to 14 degrees higher than normal and placed this March as the warmest on record. He also commented that if March's temperatures were laid over April of this year, the monthly average for April would still be 5 to 6 degrees above normal.



Power-rakes can be rented locally. Set blade depth to cut through thatch layer.

hardest and it dominates as the number one question about home lawns, “What is wrong with my zoysiagrass lawn? It looks dead.”

We are presently looking at three possible scenarios – large patch, hunting billbug, and chinch bug. If chemical pesticide applications are necessary to combat these problems, it is recommended to use a certified applicator or contact your county extension agent for product selection and use guidelines.

**Large patch** is the number one biotic problem that affects zoysiagrass on an annual basis. It is indiscriminate

With this early spring, zoysiagrass began to green-up and the questions began to roll in about the fate of zoysiagrass. Zoysiagrass lawns are not looking well. It seems the St. Louis area has been hit

in its occurrence, and will damage lawns or golf courses with similar voracity. The disease is caused by the fungal pathogen, *Rhizoctonia solani*, and is a close relative to the identically named pathogen that causes brown patch on tall fescue. Large patch symptoms can occur in the fall but are most severe now in the spring, when zoysiagrass is slow growing due to cool temperatures and is coming out of winter dormancy (i.e. hibernation). Actual infection of the fungal pathogen, however, occurs in the early fall when the fungus dives down to the base of the plant inside the leaf sheaths. In active outbreaks, leaves on the outer margins of patches will “fire” and turn a brilliant orange color that is most vivid in the morning or after a rain event. As the name implies, large patch symptoms can be quite grand in nature, with patches ranging from 6 inches to many, many feet in diameter. Some extreme outbreaks can even be observed with satellite imagery!

Large patch is not easy to control, and researchers are still learning important aspects of the disease cycle in order to develop more effective management practices. It is critical that timing of fertilization and agronomic practices is done in accordance with when



De-thatching can be more damaging to a lawn; however it will remove thatch more quickly in a severe thatch problem.

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Thatch is the organic layer above the soil line and should not exceed 1/2 inch.

zoysiagrass is actively growing. Nitrogen fertilization in the fall or spring when zoysia growth is slow, tips the scales squarely in favor of the large patch pathogen and will result in severe outbreaks. Similarly, aeration and thatch removal practices should be limited to the hot summer months. So, in other words, don't do anything to zoysia unless you are actively sweating while doing it. Because the pathogen depends on leaf moisture, over-irrigation and poor drainage will also result in more severe large patch outbreaks.

Chemical control of large patch should be limited to areas that have a history of the disease. If fungicide control is necessary, the application must be timed preventively when infection is taking place not when symptoms occur. Because of this, fungicide applications should be made in the fall and recent research suggests earlier may be better with early to mid September when soil temperatures dip to below 70°F. To minimize fungicide use, it is possible to map out the diseased areas on lawns now, and only specifically apply fungicide to these areas this fall. Fungicide applications made to lawns now in the spring will protect your healthy grass from large patch expansion, but will not magically cure zoysia that has already been infected.

**Chinch bug** and **hunting billbug** outbreaks were also noted on several lawns in the St. Louis and Jefferson City area in the last two years.

**Chinch bugs** (*Blissus* spp.) are the most damaging insect pest in zoysiagrass. Unlike large patch, chinch bug damage occurs in the hot, dry summer months and most closely resembles drought damage. Affected areas are solid, not patchy, and will usually start on one side of the lawn and progress throughout as the chinch bug population builds and moves. Damage is most severe along lawn boundaries, particularly concrete driveways and sidewalks. The easiest method to detect chinch bug damage is to pull up damaged zoysia along these boundaries and look for the scattering fast, small 3/16-inch black bugs. If chinch bugs are occurring,



Fig. A. Chinch Bug.

Fig.B. Chinch bug damage on zoysia

there is no recourse but the use of a curative insecticide to eliminate the problem. Because occurrence is sporadic from year to year, preventive insecticide applications targeted for chinch bugs are not recommended in this area.

**Hunting billbugs** (*Sphenophorus venatus vestitus*) have been also been found sporadically in Missouri over the last two years. Unlike chinch bugs, hunting billbugs are more anonymous and elusive. Because of this little is known of hunting billbug biology. Adults are reddish brown-black, 1/2-inch long, have a curved snout, and are most active during the night and early morning hours. Billbugs are thought to overwinter as adults, and lay eggs in grass stems/leaf sheaths in mid-late spring. Billbug larvae, which unlike annual white grubs are legless, hatch and feed by boring into lower leaf stems. Larvae become larger and also feed on stolons, which are left characteristically hollowed out in early summer. At this point, zoysia will easily pull away from the soil, and symptoms will occur as yellow areas that eventually brown and die out, resembling drought damage. Monitoring both adult and larval hunting billbug activity is difficult. The most effective method for detection of adult activity (which should be occurring soon) is creating several pitfall traps in the lawn by digging a few holes and placing plastic cups level to the soil surface. Adults will fall into the cup overnight and can be counted over a few days period. Early larval stages are small and difficult to detect, but larger larvae in July can be observed by pulling zoysia away from the soil. In areas where hunting billbug damage has been identified, a preventive long lasting insecticide application should be applied in late May – early June (same time frame for annual white grubs) to target both adults and larvae.

Beyond the winter woes and pest problems, zoysiagrass maintenance can be very simple. However, one practice that is often over-looked and contributes to the



Chinch Bug damage on zoysia.



Hunting Billbug.



Hunting Billbug damage on zoysia.

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*Core aeration reduces compaction and helps maintain thatch on an annual basis.*

pest problems mentioned above is thatch control. Thatch is a layer of decomposed and partially decomposed roots, stems, stolons and rhizomes. Thatch appears as a distinct horizontal layer of brown spongy or felt-like material just above the soil surface. Zoysiagrass is prone to thatch accumulation because of its rapid growth and thick network of stolons and rhizomes. Clippings from infrequent mowing will not decompose properly resulting in some initial thatch build-up. In time, thatch can build to depths greater than 1 ½ inches. Use a hand trowel to cut a plug from the lawn at least 4 inches deep. Thatch layers can usually be seen in the profile of that plug. Lawns having a thatch layer exceeding ½ inch should be de-thatched. Maintaining thatch in a zoysiagrass lawn will reduce your potential for pest issues like Large Patch disease and insects. Power-rakes or vertical mowers can be rented locally and will accomplish this task.



*Large patch affects zoysiagrass lawns in spring and fall. Inset: Leaves along large patch margins "fire" and turn orange when the disease is active.*

If thatch is greater than one inch, do not attempt complete removal in one year. Instead, remove the thatch over a period of two or three years. Intensive coring should also be considered since this causes much less damage to the turf than does power raking or vertical mowing. Coring can be achieved with walk-behind units that are rented locally as well. Soil plugs are removed from the root-zone and placed on the surface of the lawn. Soil from core plugs will eventually melt away spreading soil and soil microbes into the thatch layer. Core aeration, done annually, can help maintain thatch with less damage.

Thatch buildup can be minimized through good cultural practices, including the following:

- **Fertilize** moderately to maintain turf density without excessive growth.
- **Mow** grass regularly at the recommended height to

maintain vigor and to avoid shock.

- **Water** deeply and only as needed.
- Core aeration helps to reduce thatch build-up. Aeration also reduces soil compaction and improves movement of fertilizers, air and water into the root-zone.

**NOTE:** Avoid core aeration with the presence of active Large Patch disease. Aeration will promote the spreading of this disease.

### Fertilizing

Established zoysiagrass requires less fertilizer than many other species for healthy, attractive turf. Seasonal totals of 2 pounds of nitrogen per 1,000 square feet are ample. Excessive or untimely fertilizer applications can lead to problems such as fewer roots, more thatch, diseases, and more top growth that requires increased mowing.

For best results, soil testing is recommended before fertilizing. Soil test will indicate any major nutrient deficiencies and the acidity or alkalinity (pH) of the soil. Slightly acidic soil pH (6.0-6.5) is best. Lime should be applied only if the pH is less than 6.0.

Established zoysiagrass should be fertilized from May through August. Early spring (March/April) fertilization benefits weeds and promotes premature top growth before root development begins. Late fertilization (September or later) may interfere with the natural hardening (reducing cell moisture) process before winter.

For routine maintenance where soil tests indicate no major deficiencies, use a lawn fertilizer with approximate nitrogen (N):phosphorus (P):potassium (K) ratios of 3:1:1, 4:1:1 or 4:1:2. A 16-4-8 fertilizer has a 4:1:2 N:P:K ratio.

Where soil test indicates low phosphorus or potassium levels use a fertilizer with a ratio that more closely approximates a 1:1:1 or 2:1:1.

**NOTE:** All fertilizer containing nitrogen should be avoided with the presence of active Large Patch disease.

### Mowing

Zoysiagrass is mowed at a shorter cutting heights (1 ½ - 2 inches) than Kentucky bluegrass or tall fescue (3 - 4 inches). In spring, zoysiagrass may be mowed at the lowest setting on your mower to remove dead leaf tissue. This increases the green-up rate and allows easier and more uniform mowing during the growing season. The mowing height should be raised in September by 1/2 to 1 inch in preparation for fall.

When mowing, never remove more than one-third of the leaf blade at any one time. Clippings need not be collected if they do not remain as clumps on the lawn surface. Remove excessive clippings that accumulate if mowing is delayed.

**NOTE:** Maintaining sharp mower blades improve the

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quality of cut (color) and reduce your potential for disease infection.

### Watering

Zoysiagrass is a drought-tolerant lawn grass that requires less water than Kentucky bluegrass or tall fescue to remain green and actively growing during the summer months. Watering usually is not necessary except during prolonged dry periods. However, keep in mind that Missouri soils are heavy with clay and shallow. Root development in spring may be limited; therefore creating situations where zoysiagrass can be very drought susceptible incurring damage.

Other cultural practices mentioned above, such as thatch control, fertilization, and mowing can go a long way toward building a drought-tolerant lawn. When watering, follow these simple rules:

- Water in early morning to reduce evaporative losses, provide better distribution of your irrigation and reduce

disease incidence by removing heavy dew.

- Water deeply, wetting the soil to a depth of 4 to 6 inches. Only apply as much irrigation as the soil can absorb. Many Missouri soils have infiltration rates between 0.25 and 0.50 inches per hour. Always avoid puddles and runoff.

**NOTE:** Excessive irrigation leads to increased disease incidence.

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## Spring Rain-A Blessing or a Curse for Fruit Growers?

Spring rainfall is a mixed blessing for many. While plants require the sunshine and warm spring temperatures for growth, water is also necessary. Following droughty growing seasons, spring rains are needed to replenish moisture in the soil profile. Granular fertilizer is also applied to the soil to replace nutrients lost during the previous growing season from leaf removal, pruning, or harvesting of a crop. Rainfall soon after nitrogen fertilization helps dissolve the granules and moves the nutrient into the soil where plant roots absorb and utilize it for growth.

However, rain also promotes disease infection and interferes with spring chores, such as pruning and mowing, and the application of pesticides. Rainfall soon after a spraying can also affect the performance of the pesticide. Some of the factors that influence the "rainfastness" of an insecticide are the capacity of the chemical to penetrate the plant tissue, the inherent toxicity of the product, the target plant tissue, and the amount of rainfall.

Researchers from Michigan State University found that the total amount of rainfall is more important than the duration. Also, insecticides tend to be more rainfast on apple foliage than on fruit when there is less than a half inch of precipitation. However, as the amount of precipitation increases to two inches, both types of apple tissues tend to become more susceptible to pesticide wash-off so reapplication is necessary sooner to protect the crop. Organophosphate-type insecticides, such as Guthion and Malathion, are very susceptible to wash-off from rain because they do not readily penetrate cuticle layers on plant tissues. However, because Guthion is highly toxic, it does not require reapplication after precipitation as soon as some of the other insecticides. Pyrethroid, carbamate (such as Sevin), and insect growth

regulator insecticides are generally moderately susceptible to wash-off. Once a neonicotinoid product is absorbed by the plant, it is systemic, and therefore very rainfast, even though the surface residues can wash off. Diamide and spinosyn-type insecticides (e.g., Spinosad) are also very rainfast.

For apple trees, early sprays are generally applied every 7 to 10 days and summer cover sprays are applied every 10 to 14 days. However, when one or two inches of rainfall occur, reapplication of Guthion is necessary to control codling moth larvae on apples seven days after the first application. In contrast, Assail should be reapplied after 7 days when only one-half inch of precipitation occurs. For grapes and blueberries, most of the insecticides used on these crops must be reapplied after 7 days when a half-inch of rainfall occurs. For more specific examples see: [http://news.msue.msu.edu/news/article/rainfast\\_characteristics\\_of\\_insecticides](http://news.msue.msu.edu/news/article/rainfast_characteristics_of_insecticides). Also, product labels usually contain information regarding the minimum time required for pesticide absorption before rainfall.

Thirty year monthly averages for central Missouri are 4.5 inches of rainfall in April and June and 5 inches of precipitation for May. Therefore, spring showers bring not only flowers, but also headaches when it comes to protecting fruit trees from pests!

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# May Gardening Calendar

## Ornamentals

- **Weeks 1-4:** Apples, crabapples and hawthorns susceptible to rust disease should have protective fungicidal sprays applied beginning when these trees bloom.
- **Weeks 1-4:** Pinch azaleas and rhododendron blossoms as they fade. Double flowered azaleas need no pinching.
- **Weeks 1-4:** Fertilize azaleas after bloom. Use a formulation which has an acid reaction.
- **Week 1-2:** Don't remove spring bulb foliage prematurely or next year's flower production will decline.
- **Week 1:** Continue monitoring pines, especially scotch and mugo, for sawfly activity on new shoots.
- **Week 1:** Begin planting gladiolus bulbs as the ground warms. Continue at 2-week intervals.
- **Week 1:** Plant hardy water lilies in tubs or garden pools.

## Lawns

- **Weeks 2-4:** Apply post-emergence broadleaf weed controls now if needed.
- **Weeks 3-4:** Zoysia lawns may be fertilized now. Apply no more than 1 pound of actual nitrogen per 1,000 square feet.
- **Week 4:** Watch for sod webworms emerging now.

## Vegetables

- **Weeks 1-4:** Place cutworm collars around young transplants. Collars are easily made from cardboard strips.
- **Weeks 1-4:** Growing lettuce under screening materials will slow bolting and extend harvests into hot weather.
- **Weeks 1-4:** Slugs will hide during the daytime beneath a board placed over damp ground. Check each morning and destroy any slugs that have gathered on the underside of the board.
- **Weeks 1-2:** Plant dill to use when making pickles.
- **Weeks 1-2:** Keep asparagus harvested for continued spear production. Control asparagus beetles as needed.
- **Weeks 1-2:** Begin planting sweet corn as soon as white oak leaves are as big as squirrel ears.
- **Week 1:** Isolate sweet, super sweet and popcorn varieties of corn to prevent crossing.
- **Week 1:** Thin plantings of carrots and beets to avoid overcrowding.
- **Week 1:** Control caterpillars on broccoli and cabbage plants by handpicking or use biological sprays such as B.T.
- **Week 1:** Set out tomato plants as soils warm. Place support stakes alongside at planting time.

## Fruits

- **Weeks 1-4:** Mulch blueberries with pine needles or sawdust.
- **Week 1:** Don't spray any fruits while in bloom. Refer to local Extension publications for fruit spray schedule.
- **Weeks 2-4:** Protect bees and other pollinating insects. Do not spray insecticides on fruit trees that are blooming.
- **Week 4:** Prune unwanted shoots as they appear on fruit trees.

## Miscellaneous

- **Weeks 1-4:** Birds eat many insect pests. Attract them to your garden by providing good nesting habitats.
- **Weeks 2-4:** Herbs planted in average soils need no extra fertilizer. Too much may reduce flavor and pungency at harvest.
- **Weeks 3-4:** Take houseplants outdoors when nights will remain above 50 degrees. Most prefer only direct morning sun.
- **Weeks 3-4:** Watch for fireflies on warm nights. Both adults and larvae are important predators. Collecting may reduce this benefit.
- **Weeks 3-4:** Sink houseplants up to their rims in soil or mulch to conserve moisture. Fertilize regularly.

*Gardening Calendar supplied by the staff of the William T. Kemper Center for Home Gardening located at the Missouri Botanical Garden in St. Louis, Missouri. ([www.GardeningHelp.org](http://www.GardeningHelp.org))*