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The Plant Diagnostic Clinic is Now Open

As the weather starts to warm up, we start thinking of getting our plants into the ground. Inevitably, some of your plants will get sick. If you have spots on your tomatoes, your petunias are wilting, or any other plant related issue, send your sick plant to the Plant Diagnostic Clinic. The PDC draws upon a network of experts We aim to diagnose your plant related problems and provide accurate, timely answers and management recommendations. Submission forms can be found on-line at our website, plantclinic.missouri.edu.

It is easy to submit a plant sample. Send entire plants with roots intact (dug, not pulled) if possible. When you collect plants or plant parts, make sure a range of the symptoms is represented in your sample. For larger specimens, sample from the transition zone between healthy and symptomatic tissue. For suspected Tree wilts, like Dutch elm disease, oak wilt, or pine wilt nematode, submit live branches 1 to 2-inches in diameter, cut from branches that are beginning to show symptoms. For oak wilt detection, submit branches exhibiting streaking in the sapwood and keep samples cool during shipment by packing with ice packs.

For plant identification, place the sample flat between layers of dry paper. Try to prevent excessive folding of the leaves and place flowers so that you are looking into the center of the flower. Pack the wrapped bundle in plastic, preferably with a piece of cardboard to keep the sample flat. To make packaging easier, fold tall plants once or twice or cut into shorter lengths. For trees and shrubs, collect a terminal or end portion of a leafy branch with at least five leaves or buds.

For insect/ arachnid identification, place leak-proof bottle or box in sturdy shipping container with plenty of packaging material to prevent shipping damage. Preserve soft-bodied insects such as caterpillars, aphids, or mites in a leak-proof bottle with 70% alcohol, rubbing alcohol, or hand sanitizer gel. Do not submit insects in water, formaldehyde or without alcohol as they will readily ferment and decompose. Hard-bodied insects such as butterflies, beetles, or bees should be killed by freezing and cushion specimens in layers of tissue.

It is important to remember that a good diagnosis is dependent upon a good sample, so don't let it go bad in the mail. Wrap samples with a few layers of a dry absorbent material, like paper towels or newspaper. Excess moisture will cause the sample to spoil during shipping. Don't forget to use a sturdy box to send your plant in either. Mail the sample early in the week to ensure that the sample arrives by Friday. If you're in town, feel free to stop by the clinic in person. You can mail samples or visit at 23 Mumford Hall, Columbia, MO 65211.

There is a small fee for general diagnosis, insect/ arachnid identification, and plant/ weed identification of \$15. There is an additional \$10 fee for additional fee for virus testing, bacterial or fungal isolation that is necessary for a diagnosis. Commercial turf and putting green fees are \$25 and \$50, respectively. It's a small fee for a lot of information.

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Onion: A Brief History

“I will not move my army without onions.” This curious message was sent by General Ulysses S. Grant to the War Department in Washington during the Civil War. It reflects the fact that, throughout history, onions were valued as much for their medicinal properties as for their culinary use. While we have more sophisticated ways of treating battle wounds today than using onions, their healthful nature and ability to add culinary interest to bland dishes makes onion the third most important vegetable in the world. March is a good month to plant onions in Missouri and to talk further about this interesting vegetable.

“Onion” is somewhat a generic term that refers to several pungent members of the genus *Allium* (Lilaceae family) including common (bulbous) onion, garlic, leek and others. The word was derived from the Middle English union which, in turn, came from the Latin unio. The latter means “one” or “unity” and refers to the onion’s single bulb consisting of concentric rings. The pungency of onions is due to volatile sulfur compounds (thiosulfinates) which, in turn, are produced from sulfur-containing flavor precursors released when onion cells are ruptured or cut.

Onion is thought to have originated more than 5000 years ago in Central Asia and is one of the most ancient of food sources. Its consumption by humans can be traced back to the Bronze Age. A staple in the diet of many early civilizations, it was especially important in ancient Egypt. In addition to being consumed as a food, Egyptians worshiped onion thinking its concentric rings symbolized eternal life. Indeed, it was often buried along with their dead. Ancient Greek athletes consumed large quantities of them thinking it would “balance” their blood and improve their athletic prowess. Later, after conquering Greece, Romans ate onions regularly and also rubbed it on their gladiators to tone their muscles.

Throughout antiquity the medicinal properties of onion were widely avowed. As a result, it was used by ancients to treat a wide array of conditions ranging from irregularity to hair loss. Early Americans used wild onions to treat colds, coughs, asthma and breathing problems. Today, onion is still considered a health food. Its consumption has been associated with a reduced risk of cancer, heart disease and diabetes because of its high level of phenolic and flavonoid compounds with high antioxidant activity. In general, onions with greater pungency have higher antioxidant activity than milder types.

There are three basic groups of onions; all are used more to flavor dishes than as a main course themselves. The common onion (*Allium cepa*) is known only in cultivation and is the most important of the three. This is the type of onion we plant in our gardens in the spring. It produces a single, large bulb that usually matures by mid-summer in our climate. Green onions are simply plants of this species that are pulled before the bulb is well-formed. The common onion is able to produce seed which is its primary means of propagation.

The remaining two groups of onion do not produce seed and normally are vegetatively propagated. The ‘aggregate group’

includes onions (e.g. shallot and multiplier onion) that produce a cluster of bulbs at the soil line. The less common ‘proliferous group’ produces small bulbs in the flower cluster which, in turn, drop to the soil and take root. The latter often are referred to as Egyptian onion, walking onion or winter onion.

Common onion is spring-planted and may be grown from sets, transplants or seeds. In all cases planting should be done as soon as the soil can be worked in the spring. Onion sets are the most common means of planting onions. ‘Sets’ are small bulbs that develop quickly to produce green onions or allowed to mature to produce (dry) bulbs. To produce green onions plant the sets in a well-drained soil about an inch apart. For larger dry bulbs, sets should be placed no closer than two inches apart. Small sets are more desirable than larger sets which tend to flower more easily. If flowering occurs, the flower head should be removed as soon as it is visible. Onions which flower form smaller bulbs which do not store as well as bulbs harvested from non-flowering plants.

Onion transplants represent seedlings which have been started (usually in the South) by a specialist propagator, pulled at an early stage of growth and shipped north for sale as propagules or “starts”. Large, sweet types such as Sweet Spanish and the Bermuda types frequently are grown from transplants. They should be spaced four to five inches apart within rows spaced 12 to 18 inches apart. As a rule, “sweet” onions do not store as well as the more pungent types.

Onion is a cool season crop with a fairly long maturity (95+ days). Consequently those produced from seeds planted directly outdoors normally do not perform well in Missouri because of our hot summers. Instead, when are used, they should be started indoors well in advance of outdoor planting since onion seedlings grow slowly.

Onion also is a photoperiodic plant. Some onion varieties exhibit a short day response and will form bulbs only when the length of day is 12 hours or less. Other varieties are long day in response and form bulbs when day length is at least 15 hours. Varieties grown in Missouri typically are of the latter response group which is another reason why onions seeded directly into the garden do not perform well in our state.

However they are started, onions grow best under cool temperatures (55 to 75 degrees F) in a loose, friable soil. Onions are sensitive to acid soils and soil pH should be kept in the 6.2 to 6.8 range. As with most vegetables, fertilizers should be applied according to soil test recommendations. When called for, a fertilizer low in nitrogen but high in phosphorus and potassium (e.g. 5-10-10) is recommended.

Weed control is important in onion production since they do not compete well with weeds. Mulching (after onions are established) will help to control weeds as well as conserve moisture. Common production problems with onions include insects such as thrips and onion maggots along with fungal diseases such as downy mildew, neck rot, pink root and smut.

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Although onions can be used any time during their production, bulbs destined for storage should be harvested when the “neck” dries and the tops have fallen over. After digging, onions should be cured for several weeks by placing them in a warm location with good air circulation and low humidity. After curing is completed, onions are best stored in relatively cool conditions, dry conditions.

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Onion Trivia

- World onion production is estimated to be about 105 billion pounds each year.
- The United States produces more than 2 million metric tons of onions annually.
- The largest onion ever produced weighed 10 pounds and 14 ounces.
- The average American consumes over 20 pounds of onions each year.
- Men eat 40 percent more onions than do women.
- During the Middle Ages onions were considered so valuable they were used to pay rent.
- Most people tear-up when cutting onions because of sulfur-containing compounds that are released; chilling an onion before cutting it helps to curtail the crying.

Selecting Lawn Care Services

A lawn is not only nice to look at, but can be good for the environment as well. It will enrich the soil, deter erosion, and cool the environment. Also, it will increase the value of your property. Many people choose to have professionals take care of their lawns for them. However, not all lawn care services provide everything you need. This may require you to seek a mowing service as well. Some lawn care services that do not provide mowing can and sometimes do make recommendations for their preferred mowing service. Some thought and work should be done in order to select the best lawn care company for your specific needs.

First, you need to ask what quality of lawn you want to have and the how much do you wish to spend to get that lawn. If your lawn only needs to be average, the lawn care company will not have to work as much, so it will be cost less. Similarly, a company hired to create and maintain a top quality lawn will not be cheap.

As a homeowner, you must care for your lawn. Proper lawn care includes mowing, fertilizer/pest control, cultivation, irrigation and overseeding. You have the option of doing all these tasks or you may choose to hire any or all of them done.

One benefit of doing so is that you are able to shift some or all of the responsibility to a lawn care service and, in turn, increase your own leisure time.

Lawn care companies provide a service to their customers. The degree of service varies from firm to firm with some offering only fertilizer/pest control and others complete turf maintenance.

Most lawn care companies are more familiar with current developments in fertilizer and pest technology than homeowners. A responsible firm holds in-house training sessions and encourages its employees to attend classes and educational seminars conducted by the University of Missouri Extension and/or a Professional Lawn Care Associations.

When a homeowner chooses a complete lawn care service, a representative from the firm will work on the lawn every week. This normally results in a minimum of problems. A homeowner who selects a program with minimal applications per year can expect insects, diseases and other problems to arise periodically. Various levels of service are available from lawn care companies and each carries with it a certain degree of performance or results.

Lawn care companies cannot perform miracles. Most conflicts between homeowners and companies stem from a miscommunication over services to be provided or unrealistic expectations about the results to be achieved. This is especially true when a homeowner wants a “picture perfect” lawn. We need to instill the fact that there is no such thing as a perfect lawn. An occasional weed here and there should be acceptable.

When a lawn care company is involved, lawn maintenance includes three factors which must work with the others to produce an attractive and functional turf. The homeowner must properly water and mow the turf (if the homeowner chooses to mow). Nature must provide good growing conditions. When temperature, precipitation and humidity fall out of the optimal range, problems may arise. Finally, the lawn care

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Selecting a Tree Service

Trees provide a multitude of benefits to people. They produce oxygen, fix carbon, reduce heating and cooling costs, increase property value, and create a sense of well being. It is not surprising, therefore, when people develop strong emotional attachments to favorite trees. If these old friends begin to show signs of damage or stress, it is natural to seek assistance from individuals or companies offering tree care services. Unfortunately, not all of the individuals offering such services are knowledgeable about currently accepted, science-based tree management practices. It is wise, therefore, to do a little investigating when choosing a service to which to entrust your trees. In many cases, a trained professional will determine that an ailing tree will recover with little or no intervention. By contrast, mindless and poorly timed pruning at the hands of an untrained individual can do far more harm than good.

When selecting a tree care company, it is best to ask some specific questions. First, ask for proof of workman's comp and liability insurance. Tree work is hazardous and even the most careful tree care practitioner can have an accident that may cause property damage or injury to workers. Ask whether the company employs arborists certified by the International Society of Arboriculture. If so, this is evidence that company personnel are well trained and knowledgeable about currently accepted practices. Ask for references or for locations where the company has done recent work similar to that proposed. Don't hesitate to ask previous clients for their opinions or to visit the sites. If the company in question uses spikes to climb trees or practices tree topping, find another (see <http://www.moreleaf.org/pdfs/Kindest%20Cut%2009%2011%202009.pdf>). Consider obtaining several bids for the work. In each case, ask the company to give a specific description for the work included in the bid. You may have to pay for the bids, but it is generally worth the cost in peace of mind. Do not



Figure 1. Never hire a tree service that practices "topping."

automatically select the lowest bid. Pick the one that makes you most comfortable.

Get it in writing. Tree care companies often ask their customers to sign contracts. Again, the contract should describe the work to be done specifically. Ask questions to find out when the work will be done, who will be responsible for cleanup and, if it is determined that more work should be done, what hourly rate will be charged.

The International Society of Arboriculture (ISA) maintains a database of all ISA certified arborists. Visit <http://www.isa-arbor.com/faca/findArborist.aspx>, enter your zip code, and you will see a listing of ISA-certified arborists in your area. Not all of these individuals do tree work, but you can narrow your search to arborists who are "for hire".

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Enhancing Germination with Primed Seed?

Seed priming is a simple way to jumpstart garden plants. It is a treatment that hydrates seeds so that the germination process begins, but radical emergence does not occur. Priming can be as simple as soaking seeds in water overnight or a more complicated procedure using various treatment conditions to enhance germination of agronomic, vegetable, or ornamental crops. Primed seed usually has faster seedling emergence with greater uniformity than non-primed seed, especially under adverse soil conditions. For example, in some parts of the United States, producers use primed lettuce seed during the hottest part of the growing season, when lettuce does

not typically germinate well due to the extreme heat. When temperatures are cooler, growers switch back to non-primed seed. Primed pansy seed is also used in summer plug production in greenhouses to overcome thermodormancy.

While not a new technique, priming can be beneficial. As early as the 4th century B.C., Theophrastus observed that cucumber seeds soaked in water before planting hastened seedling emergence. Later in 1600, Oliver de Serres discovered that soaking wheat, rye, or barley grains for two days in manure water and then drying them before planting prevented

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grains from “being eaten away by soil pests”. Charles Darwin also experimented with a form of osmotic priming when he submerged cress and lettuce seeds in salty sea water in 1855. He not only demonstrated that seeds survived the cold, salty water for several weeks, but they also germinated more quickly after reaching land. The significance of these early observations was not realized until 1963 when J.E. Ellis treated tomato seed with a nutrient solution to enhance germination and early seedling growth. In 1973, polyethylene glycol was used as a priming treatment, resulting in a commercial practice used today by the seed industry.

Currently, various osmotic seed priming treatments are used by seed companies. Such compounds as polyethylene glycol, mannitol, potassium nitrate, potassium chloride, gibberellic acid, or hydrogen peroxide can be used for osmopriming triploid watermelon, cucurbit seeds, etc. However, the concentration of the osmotic solution, temperature, and treatment duration varies among the type of seed. After osmopriming, seeds are washed and dried using forced air or fluidized beds. Similarly, these solutions can be applied to vermiculite, diatomaceous silica, or calcined clay to hydrate large seeds by the method of matrix priming. While primed seed is more expensive, it is advantageous when planting new seed varieties that are available in limited quantities. Because triploid (seedless) watermelon seed is expensive to produce, it is often purchased as primed seed to enable producers to plant earlier in the growing season when soils are cool.

Drum priming or hydropriming is also used by commercial seed companies. In this method, a limited amount of water is sprayed onto seed as they slowly rotate in a drum. Alternatively, humid air is added to seed in the drum under computer control to achieve the desired level of hydration. Hydropriming is often used for field crops of grains and beans.

While any of these primed treatments can be used, these types of commercial seed treatments can reduce the storage life of the seed. Also, seed stored at high temperature and humidity will lose viability more rapidly than that stored under optimal conditions. Thus, primed seed obtained from commercial sources may have low germination when stored for more than one season. When using stored seed for home use, it is helpful to soak seed in water for a limited time and plant it in a small flat for germination. Later, when seedlings are small they can be transplanted into larger containers to avoid wasted space in the garden.

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View IPM Publications on the web <http://ppp.missouri.edu/ipm/pubs.htm>

When Choosing a Lawn Care Company, Consider the Following Guidelines

- Know what lawn or landscape care services you want provided. Ask several companies what services they offer and ask friends and neighbors for recommendations.
- Select a company that is willing to listen to your concerns about your lawn or landscape and can provide effective and acceptable solutions to your problems. Ask how much training and experience the company's consulting employees have with lawns in your area.
- Obtain a written service agreement. Ask if the service is automatically renewed each year (if so, request an annual written confirmation), and ask if there are any penalties if you decide to cancel your service agreement.
- Ask a company representative to visit your property to determine problems, level of maintenance, and pricing. Do not simply accept service over the telephone without other contact with the company.
- Ask if the company is licensed and insured. Do not be afraid to ask for proof. IN MISSOURI, PERSONS OR FIRMS THAT APPLY PESTICIDES FOR HIRE MUST HAVE A VALID PESTICIDE APPLICATORS LICENSE, ISSUED BY THE MISSOURI DEPARTMENT OF AGRICULTURE - Bureau of Pesticide Control. They must also have proof of insurance on file with the state office.
- Be sure the person applying the pesticides has been trained in the proper use of pesticides. Ask if the person(s) applying the pesticides to your lawn will be a Certified Pesticide Applicator(s). In Missouri, ALL PERSONS who use pesticides for HIRE are considered commercial applicators and, as such, must be certified as either a Commercial Applicator or a Certified Technician.
- Ask if the company is a member of a trade association. This is an indication of the company's dedication and of being informed of the latest technical information.
- Ask the company to tell you what lawn care products it plans to apply and why.
- Be sure the company always provides advance notice of chemical applications in case anything needs to be moved before the treatment. The company should also tell you how long to stay off the lawn after the treatment.
- Ask if the company puts up notification signs for the chemical applications.
- Ask the company for detailed instructions on the maintenance you will need to perform (mowing, irrigation, etc.).
- Check on the company throughout the entire time service is provided. Let them know of any compliments as well as complaints.
- Check with the Better Business Bureau to see what types of complaints, if any, have been filed against the company. Ask the company for references from local customers.

company must properly apply fertilizer, diagnose insect and disease problems and control weeds.

With lawn care services, as with most things in life, you get what you pay for. This does not necessarily mean that the most expensive firm is the best, but you must consider that quality materials and trained employees do not come without expense. If a quoted price sounds too good to be true, it probably is.

The average "do-it yourself" homeowner spends \$100-\$150 per year on basic lawn maintenance products (i.e. fertilizer and pest control products). This figure doesn't include the cost of a lawn mower, fertilizer spreader, watering equipment or the labor to service the lawn. A reasonable price for lawn care would range between \$300 and \$500 a year, depending on size of lawn, the level of service provided (i.e. is grub control included, number of applications etc.), and the expectations of

the homeowner. This estimate is based on product applications only and does not include other services such as mowing or snow removal.

Pesticides used properly, when needed, can help protect you and the environment—especially surface and ground waters. The correct balance of cultural practices (such as proper mowing, watering, fertilization, and aeration) with lawn care products will promote healthy, attractive lawns. Make an informed choice if you decide to use a lawn care service, or if you choose to apply lawn care chemicals yourself be sure to read the labels and follow the directions exactly.

Look to the information below as you evaluate mowing practices provided by a lawn care service or mowing service. Be sure they follow the highlighted guidelines. Mowing is the

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most frequent cultural practice we provide in lawn maintenance. It can make or break a lawn in a single season.

Mowing Guidelines:

Turfgrass plants mowed shorter than their optimal height of cut are, in general, under more stress and more susceptible to weeds, diseases and insects. **Optimal cutting heights for cool-season grasses, such as blends of turf-type tall fescues, should range from 3.0 to 4.0 inches. Warm-season grasses, like zoysia, can range between 2 and 3 inches.**

Seasonal variation in mowing height was once thought to be highly beneficial and is still considered beneficial by some. We know that mowing cool-season grasses a little taller in the summer months can have benefits through summer stress periods (deeper roots, better cooling effect). Taller grasses will also conserve moisture, giving some reduction in irrigation requirements. We also know that cool-season grasses mowed a little taller in the spring and fall compete more successfully against weeds (up to 80% control of annual weeds). **Therefore, select the tallest, acceptable mowing height for your species of grass and maintain that height during the entire season.** This provides benefits throughout the season—competition against weeds as well as reduced summer stress.

Clippings should be uniformly distributed rather than deposited in clumps. Mowing the lawn **when the grass is dry** and using a properly sharpened mower blade will spread clippings evenly. If some areas produce excess clippings, simply mulch those in with a second passing of the mower.

Mowing creates wounds through which fungi can enter the plant and infect it. **Leaf cuts made by a sharp mower blade are cleaner and heal faster** than the tearing and shredding caused by a dull mower blade. A dull mower blade inflicts more and bigger wounds that increase potential for infection by turfgrass diseases. Having a sharp, spare mower blade allows you to switch blades when needed and prevents delays in mowing when getting your mower blade sharpened.

Observe leaf tips or grass clippings collected on your mower deck immediately after a mowing to determine the quality of cut. Use this as an indicator of when to sharpen mower blades.

During hot summer months it is best to mow later in the day to minimize additional stresses on your grass.

It is also best to change directions of mowing each time you mow.

Frequency of cut should be determined by the “one-third rule” of mowing. You should make sure that no more than one-third of the leaf growth is removed during a single mowing. During the spring and fall, cool-season grasses can be mowed every 5 to 6 days when properly fertilized.

Many homeowners believe grass clippings need to be removed to have a healthy, vigorous lawn. By following the steps in the “Don’t Bag It” lawn care program, you can have a beautiful lawn without collecting your grass clippings (MU Guide G6959 – “Don’t Bag It” Lawn Care: How to Recycle Your Grass Clippings, Leaves and Branches). Returning grass

clippings can return as much as 30 percent nitrogen and 50 percent potassium. Grass clippings also contribute to the organic matter levels of your soil improving the water and nutrient holding capacity of the soil.

When is it OK to bag clippings? 1) When delayed in mowing due to rain; 2) When you wish to make compost (Refer to: MU Guide G6956 – Making and Using Compost & G6958 – Grass Clippings, Compost and Mulch: Questions and Answers); and 3) When preparing for aeration and over-seeding in late summer to early fall. Avoid using grass clippings in compost when chemically treated

A word of caution about weed-eating: Weed-eaters typically scalp turfgrasses when edging along sidewalks, curbs, and driveways. This promotes weeds! Best edging practices include a power edger or weed-eater (rotated) with a vertical blade preventing any scalping of turfgrasses.

Most problems or disputes between the homeowner and the lawn care company can be prevented by each party fulfilling their responsibility and understanding the role that nature plays in producing a satisfactory turfgrass.

When problems arise, contact the service manager of the lawn care company. State the problem as clearly as possible and ask how soon a technical representative can investigate the situation.

Ultimately, you are responsible for the maintenance of your lawn. Lawn care companies can perform some of the necessary tasks but you shouldn’t expect miracles from companies. Good communication between the homeowner and the company is essential for proper turf management.

Acknowledgements go to the University of Nebraska and Virginia Tech University for some of the information provided within this newsletter.

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April Gardening Calendar

Ornamentals

- **Weeks 1-4:** Study your landscape for gaps that could be nicely filled with bulbs. Mark these spots carefully and make a note to order bulbs next August.
- **Weeks 1-3:** Fertilize established roses once new growth is 2 inches long. Use a balanced formulation. Begin spraying to control black spot disease.
- **Weeks 1-2:** Examine shrubs for winter injury. Prune all dead and weakened wood.
- **Week 1:** Shrubs and trees best planted or transplanted in spring, rather than fall include butterfly bush, dogwood, Rose of Sharon, Black gum (*Nyssa*), vitex, red bud, magnolia, tulip poplar, birch, ginkgo, hawthorn and most oaks.

Lawns

- **Weeks 1-4:** Start mowing cool season grasses at recommended heights. For complete details, refer to University Extension Guide #6705, Cool Season Grasses.
- **Weeks 1-2:** Topdress low spots and finish over seeding thin or bare patches.
- **Weeks 1-2:** Aerate turf if thatch is heavy or if soil is compacted.
- **Weeks 1-2:** Apply crabgrass preventers before April 15. Do not apply to areas that will be seeded.

Vegetables

- **Weeks 1-3:** Finish transplanting broccoli, Brussels sprouts, cabbage, and cauliflower plants into the garden. High phosphorous fertilizers help get transplants off to a quick start.
- **Weeks 1-2:** Plants started indoors should be hardened off outdoors in cold frames before being transplanted into the garden.
- **Weeks 1-2:** Start cucumber, cantaloupe, summer squash, and watermelon seeds indoors in peat pots.
- **Weeks 1-2:** Asparagus and rhubarb harvests begin.
- **Weeks 2-4:** Try an early sowing of warm-season crops such as green beans, summer squash, sweet corn, New Zealand spinach and cucumbers.
- **Weeks 2-3:** Thin out crowded seedlings from early plantings of cool season crops such as beets, carrots, lettuce, onions and radish.

Fruits

- **Weeks 1-4:** Blemish-free fruits unmarred by insect or disease injury can rarely be produced without relying on regular applications of insecticides and fungicides. For special information, consult University Extension Guide Sheet #G6010, Home Fruit Spray Schedule.
- **Weeks 1-2:** Wooden clothespins make useful spreaders for training young fruits limbs. Place pins between the trunk and branch to force limbs outward at a 60 degree angle from the trunk.
- **Weeks 2-4:** Protect bees and other pollinating insects. Do not spray insecticides on fruit trees that are blooming.
- **Weeks 3-4:** Orange, jelly-like galls on cedar trees spread rust diseases to apples, crabapples and hawthorns.

Miscellaneous

- **Weeks 1-2:** Look for morel mushrooms when lilacs bloom and the forest floor turns green.
- **Week 1:** Mount a rain gauge on a post near the garden to keep track of precipitation so you can tell when to water. Most gardens need about 1 inch of rain per week between April and September.
- **Week 4:** Soaker hoses and drip irrigation systems help you save water and money.
- **Week 4:** Hummingbirds return from their winter home in Central America.
- **Week 4:** Wasp and hornet queens begin nesting.

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)