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MISSOURI DEPARTMENT OF CONSERVATION CONFIRMS INVASIVE EMERALD ASH BORER IN ELEVEN NEW MISSOURI COUNTIES

Foresters with the Missouri Department of Conservation (MDC), in conjunction with the Missouri and U.S. departments of agriculture, have confirmed the presence of Emerald Ash Borer (EAB) in 11 new counties across Missouri. New detections have been confirmed in Adair, Callaway, Cape Girardeau, Cole, Greene, Jefferson, Lewis, Lincoln, Pike, Polk, and Warren counties. Since EAB was first detected in Missouri in July 2008, the exotic, tree-killing pest has spread to a total of 53 Missouri counties and the City of St. Louis.

EAB is a small, metallic green beetle native to Asia that only attacks ash trees. The adult beetle does very little damage. In its larval stage, however, EAB bores into the vascular layer of ash trees, creating distinct S-shaped galleries that slowly cut off the trees' flow of water and nutrients and eventually cause the trees to die. Unfortunately, EAB kills more than 99 percent of the ash trees it attacks within 3-4 years of infestation.

MDC Forest Entomologist Robbie Doerhoff urges people who own ash trees in areas where EAB has been found to make a plan now to either treat or remove those trees. "If you have a healthy, high-value ash tree in your yard, it can be treated with insecticides that will protect it from EAB. However, these treatments must be applied every year or two to guarantee protection," said Doerhoff. "For some ash trees, especially those that have already lost more than 50 percent of their leaves and branches, the best option is removal, followed by replanting with a different species, such as an oak native to Missouri."

Several insecticide treatment options are available, including some do-it-yourself methods. However, it's important to note that insecticides available at home improvement stores work best on trees smaller than 20-inches in trunk diameter (measured 4.5-feet from the ground). Trees larger than 20-inches in trunk diameter require insecticides available only to licensed applicators in order to provide adequate protection from EAB.

"If you decide to treat your ash tree, make sure you use a pesticide labeled to kill EAB and that you apply it at the right time of year," said Doerhoff. "Chemical treatments are most effective in early spring when a tree's vascular system is better able to take up the insecticide. In late summer, and especially during drought conditions like we're currently experiencing across most of Missouri, treatments may not work properly."

Doerhoff advises that now is a good time to develop a plan, and if appropriate, contact a professional to get on a list for a spring treatment. For large trees that need to be treated by a professional, use a reputable company and get a

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couple of bids. Some neighborhoods receive discounts if several people have ash trees treated by the same company.

Ash trees that are removed should be disposed of locally to prevent the accidental spread of EAB to new locations. EAB can emerge from ash firewood and logs for up to two years after harvest, so don't give EAB a free ride to your favorite camping locations. Buy firewood near where you plan to burn it!

For more information on protecting your ash tree from EAB, download the Emerald Ash Borer Management Guide for Missouri Homeowners at short.mdc.mo.gov/ZSq.

MDC encourages Missourians to learn to identify signs of EAB and report possible infestations in counties where the pest has not yet been confirmed. For a map of EAB's spread across Missouri and detailed information on identification, visit eab.missouri.edu. Report suspected EAB damage in new counties to a local MDC forester, call MDC's Forest Pest Hotline at 866-716-9974, or email forest.health@mdc.mo.gov ([link sends e-mail](#)).



**HAPPY
LABOR
DAY**

DEALING WITH DROUGHT STRESSED TREES PART 1 of 2

Symptoms of drought injury to trees can be sudden or may take up to two years to be revealed. Drought injury symptoms on tree leaves include wilting, curling at the edges, and yellowing. Deciduous leaves may develop scorch, brown outside edges or browning between veins. Evergreen needles may turn yellow, red or purple. They may also turn brown at the tips of the needles and browning may progress through the needle towards the twig. In continued drought, leaves may be smaller than normal, drop prematurely or remain attached to the tree even though brown. Often times, drought stress may not kill a tree outright, but set it up for more serious secondary insect and disease infestations in following years. For more information and pictures of drought symptoms.

A deep watering to a depth of 12" below the soil surface, is recommended. Saturate the soil around the tree within the dripline, the outer edges of the tree's branches, to disperse water down toward the roots. For evergreens, water 3'-5' beyond the dripline on all sides of the tree. The objective is to water slowly, dispersing the flow of water to get the water deep down to the trees roots. Watering for short periods of time only encourages shallow rooting which can lead to more drought damage. Don't dig holes in the ground in an effort to water deeply. This dries out roots even more. A soil needle/deep root feeder attached to a hose is acceptable to insert into the ground if your soil is not too hard and compact. Overhead spraying of tree leaves is inefficient and should be avoided during drought conditions. Watering at ground level to avoid throwing water in the air is more efficient.

During a drought, trees must be given top watering priority over your lawn. However, caring for trees requires different watering methods than your lawn. During water restrictions, irrigation systems designed to water turf do not sufficiently water your trees. Lawns can be replaced in a matter of months whereas a 20 year old tree will take 20 years to replace.

How much water your tree should receive depends upon the tree size. **A general rule of thumb is to use approximately 10 gallons of water per inch of trunk diameter for each watering.** Measure trunk diameter at knee height. *General formula:* Tree Diameter x 5 minutes = Total Watering Time. Example: When you hand water using a hose at medium pressure, it will take approximately 5 minutes to produce 10 gallons of water. If you have a 4" diameter tree, it should receive 40 gallons of water - multiply by 5 minutes to equal total watering time of 20 minutes.

Most people do not understand what their trees' root system looks like. Tree root systems consist of large perennial roots and smaller, short-lived, adsorbing roots. The large, woody tree roots and their primary branches increase in size and grow horizontally. At least 90% are located in the top 12" inches of the soil. Root functions include water and mineral conduction, food and water storage, and anchorage. In contrast, adsorbing roots, although averaging only 1/16 inch in diameter, constitute the major portion of the root system's surface area. These smaller roots grow outward and predominantly upward from the large roots near the soil surface, where minerals, water and oxygen are relatively abundant. The major function of adsorbing roots is the absorption of water and minerals. Large roots and small adsorbing roots occupy a large area under ground. Typically, the root system of a tree extends outward well past the dripline, up to two to four times the height of the tree.

FALL CARE OF A LAWN

Fall is the best time of the year to work on a cool season lawn to improve its performance and appearance. Fall brings cooler temperatures and additional moisture which are beneficial for the establishment or renovation of your lawn. Still, there are also special procedures that will help you obtain that attractive lawn.



First and foremost, get a soil test done at the nearest MU Extension Center. It's never too late to test your lawn soil if it has been at least three years since you have had a soil test done. Test results will allow a prescription plan to be developed to allow you to correct any nutrient deficiencies that would restrict your lawn performance.

Another positive step is to core aerate the lawn. A core aerator may be the lawn's best friend. A core aerator can be rented at nearly any rental company. The machine is self powered and it will remove one-half inch diameter plugs that are three to four inches deep (depending how hard or rocky your soil may be). Following core aeration it is recommended to fertilize and do an over seeding if needed.

Homeowners have a wide variety of fertilizers available for fall fertilization. Both organic and inorganic fertilizers may be used. However, there are more inorganic type fertilizers available to homeowners. Find fertilizers with a good balance of N-P-K with a ratio somewhere around 3-1-2. Also, look at the ingredient label on the bag and find a product with at least 30 to 70 percent slow-release nitrogen. Slow release nitrogen will allow your grass to more efficiently utilize plant nutrients. Applications in early September followed by another in late October are suggested.



Soil test results indicating high to very high amounts of phosphorus and potassium may require applications of fertilizers with nitrogen alone. To thicken the lawn, overseed with a good seed mix of the same grass species currently growing in your lawn. A fescue blend works well for lawns in the northern part of Missouri. Tall fescue or turf type tall fescue should be overseeded at the lower rate of about five pounds per 1000 square feet.

MU EXTENSION HOLDS SECOND SPIRITS INDUSTRY TOUR

Openings remain for the second annual University of Missouri Extension White Oak, Whiskey and Wine Tour on Saturday, Oct. 13. The all-day tour toasts the state's unique contributions to the wine and whiskey industries. MU Extension forester Hank Stelzer and MU Extension viticulturist Dean Volenberg lead the mid-Missouri tour, which starts in a white oak forest. Missouri's white oak is used in more than 1.5 million barrels each year. These barrels go to some of the most prestigious wineries and distilleries in America and abroad, says Stelzer, who will talk about Missouri's white oak forests and how to sustainably manage them.

Volenberg will tell of Missouri's growing grape and wine industry. Missouri wineries produce 7 percent of the country's wine on 1,700 acres of grapes. The \$1.76 billion Missouri wine industry employs nearly 15,000 people, according to the Missouri Wine and Grape Board.

The tour by coach bus highlights two cooperages in the Randolph County town of Higbee. Attendees will see how white oak logs are made ready for the cooper. The Oak Cooperage, owned by Silver Oaks Cellars of Oakville, Calif., produces barrels for the company's Napa Valley winery. Barrel 53 Cooperage produces barrels for distilleries across the region. Lunch is provided at The Oak Cooperage.

The tour ends at the Les Bourgeois Vineyards and Winery near Rocheport. There, attendees will see the barreling of wine and learn how the white oak barrel imparts its unique traits to a wine's character. Distillers from Wood Hat Spirits of New Florence will tell how to create unique distilled spirits using Missouri products.

The tour begins 8:30 a.m. Saturday, Oct. 13, at Hilton Garden Inn in Columbia next to Bass Pro Shop and returns to the hotel around 4:30 p.m. Cost is \$75 per person or \$125 per couple and includes transportation, lunch and wine and spirits tasting for those of legal age. Registration deadline is Sept. 30. Cancellations will be accepted until Sept. 30 less a \$25 nonrefundable fee.

A block of rooms has been reserved until Sept. 21 at the Hilton Garden Inn. Call the hotel at 573-814-5464 to reserve a room. Seating is limited to 56 people. To register, go to extension2.missouri.edu/events/white-oak-whiskey-and-wine-tour.

GARDENING TIPS FOR SEPTEMBER

ORNAMENTALS

- Plant evergreens now.
- Take cuttings of annuals to have vigorous plants for over-wintering.
- Plant spring bulbs except for tulips as soon as they are available. Keep tulips in a cool, dark place and plant in late October.
- Divide perennials, especially spring bloomers. Enrich the soil with peat moss or compost before replanting.
- Divide peonies now. Replant in a sunny site and avoid planting deeply.
- Lift gladiolus when their leaves yellow. Cure in an airy place until dry before husking.
- Begin forcing poinsettias to bloom at the end of the month. Place plants in a cool, dark room or closet from 5 p.m. until 8 a.m. for about 8 weeks or until top leaves turn red.

VEGETABLES

- Sowing seeds of radish, lettuce, spinach, and other greens in a cold frame will prolong fall harvests.
- Pinch out the top of brussel sprout plants to plump out the developing sprouts.
- Keep broccoli picked regularly to encourage additional production of side shoots.

FRUIT

- Pick pears before they are fully mature. Store in a cool, dark basement to ripen.
- Discard any spoiled or fallen fruits.
- Paw paws ripen in the woods now.
- Check along peach tree trunks to just below the soil line for gummy masses caused by borers. Probe holes with thin wire to puncture borers.

TURFGRASS

- Begin fall seeding or sodding of cool season grasses. Seedbeds should be raked, det-hatched, core-aerified, fertilized, and seeded. Keep newly planted lawn areas moist, but do not wet.
- If soils become dry, established lawns should be watered thoroughly to a depth of 4-6 inches.
- Cool season lawns are best fertilized in fall. Make up to 3 applications between now and December. Do not exceed rates recommended by fertilizer manufacturer.
- It is not uncommon to see puff balls in lawn areas at this time.
- Newly seeded lawns should not be cut until they are at least 2-3 inches tall.

MISCELLANEOUS

- Fall is a good time to add manure, compost, or leaf mold to garden soils for increasing organic matter content.
- Monitor plants for spider mite activity. Reduce their numbers by hosing off with a forceful spray of water.
- Seasonal loss of inner needles on conifers is normal at this time. It may be especially noticeable on pines.

-Missouri Botanical Garden-

UPCOMING EVENTS

Sept. 4-Nov. 13: Master Gardener training, Mexico, MO., 1-4 pm. For more info or to register call Max Glover at 573-633-2640.

September 6: Tomato Fest at Bradford Research & Extension Center, Columbia. 4-7 pm. Cost \$5. Taste 220 varieties of tomatoes, peppers and tomatillos.

Sept. 11-Dec. 11: Master Gardener training, 6-9 pm, Boone County Extension Center, Columbia. For info contact: 573-445-9792 or booneco@missouri.edu

Sept. 12-Dec. 12: Master Gardener training, 1-4 pm, Adair County Extension Center. Registration forms available at <http://extension.missouri.edu/adair> or call 660-665-9866.

September 28-30: State Master Gardener Conference, Chateau on the Lake, Branson, MO. Register at <https://mg.missouri.edu/>.

October 5: Adair County Women In Agriculture workshop, MDC Northeast Regional Office, Kirksville. Topics may include: trees, invasive species, critters you may encounter on your farm, farming/gardening apps for iPads and smartphones, and fall flower arranging. To register, call the SWCD office at 660-665-9866.

October 13: White Oak, Whiskey and Wine Tour. See article.

Nov. 30-Dec. 1: Missouri Livestock Symposium. Info at missourilivestock.com

UNIVERSITY OF MISSOURI
 **Extension Garden Talk!**

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