

Emerald Ash Borer (EAB) Key Points and Recommendations
Nebraska Emerald Ash Borer Working Group
March 2017

Description

- Adult is a metallic green beetle, slender, 1/2 inch long.
- Larva is white, legless, somewhat flattened, up to 1¼ inches long.
- Exit hole in bark is D-shaped, 1/8 inch in diameter.
- In early-stage infestations of healthy trees, EAB may overwinter as a full-grown larva (1-year life cycle) or a young larva (2-year life cycle).
- In older established infestations, EAB usually overwinters as a full-grown larva with a 1-year life cycle.
- Adults are typically present from May through August.

Origin and spread

- EAB is from Asia and was discovered in the US in 2002 in the Detroit area.
- It spreads easily through the movement of larvae and adults in ash wood, such as firewood.
- It can fly up to 6 miles but normally does not fly far from where it emerges.
- **Recommendation: Do not move firewood. Buy and use locally.**

Trees attacked

- **All species of ash (*Fraxinus* spp.) native to North America are susceptible.**
- EAB does not attack other trees except rarely. The only other known host is white fringe tree (*Chionanthus virginicus*).
- Mountain-ash (*Sorbus* spp.) is not a true ash and is not susceptible.

Current locations

- **EAB was discovered in Omaha in June of 2016. Also found about 15 miles east of Lincoln in Greenwood.**
- Currently known to be present in 30 states, including the neighboring states of IA, MO, KS, and CO.
- Map - www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/MultiState.pdf

Quarantine

- **A quarantine is established around five Nebraska counties that restrict the movement of ash and hardwood materials in order to reduce the spread of EAB from known infested area. Everyone who transports ash and certain other hardwood materials in those counties is affected.**
- Counties in the quarantine: Cass, Dodge, Douglas, Sarpy and Washington
- Materials regulated by the quarantine: Ash nursery stock, green lumber of ash and other ash material living, dead, cut or fallen including logs, limbs, stumps, roots, and branches; all hardwood composted and uncomposted chips, bark and mulch; all hardwood firewood and fuelwood
- Guidelines for complying with the quarantine are at www.nda.nebraska.gov/plant/entomology/eab/

Prognosis

- Given enough time, EAB will kill nearly all unprotected native ash trees over most of North America.
- **Within a community, if no action is taken to manage EAB, 10% of ash trees are typically killed in the first 4 years after EAB is discovered; about 70% of ash trees are typically killed in the next 4 years—80% in 8 years.**
- EAB is normally in an area for 3 to 4 years before discovery.
- Eradication of EAB was tried and proven to be unsuccessful.
- A continuous program of insecticide treatments can protect trees, but may not be suitable in most situations. Treatments need to be applied every 1 or 2 years depending on the treatment. Tree life span will likely be shortened because of treatment-induced injury or variability in treatment effectiveness. Also, not all trees are valuable enough to justify the cost of treatment, tree injury, health risks or harmful effects the treatments may have in the environment.
- Nebraska has approximately 44 million ash trees; about 1 million are in communities.
- Ash comprises about 9% of the total number of trees in Nebraska and about 27% of the total number of trees in communities.

Community recommendations

- Gain an understanding of the community ash tree resource: number of trees, locations, sizes, conditions.
- **Develop a management and response plan that includes removal, utilization and replanting of diverse species ([ReTree 17 for 2017: retreenebraska.unl.edu/Documents/17for2017plantingfinal.pdf](http://retreenebraska.unl.edu/Documents/17for2017plantingfinal.pdf)).**
 - Goal of no more than 5% of any one species, no more than 10% from the same genus, and no more than 15% from the same family.
- Consider removing ash trees in advance of EAB arrival, especially those that are in poor health or in poor locations, to spread personnel workload and removal costs over more years.
- After EAB arrives, consider treating a percentage of the trees that are targeted for future removal to delay their mortality, allowing workload and costs to be spread over more years.

Homeowner recommendations

- **Treatment for EAB is recommended sparingly**, because of the cost, tree injury, health risks and harmful environmental impacts of the treatments.
- If EAB is discovered within 15 miles of your home, consider treatments to protect only large trees that are in good condition.
- If treating or removing a tree, hire a certified arborist, especially for large trees (NAA certified arborists: www.nearborists.org, select “Find an Arborist;” ISA certified arborists: www.isa-arbor.com, select “Find an Arborist”).

Treatments—general

- **Treat valuable trees in good condition only when EAB is known to be present within 15 miles.**
- Treatments will be needed every 1 or 2 years, depending on the product, through the remaining life of the tree.
- **All treatments have costs beyond financial that should be considered before the treatments are applied, including injury to the tree and potential harm to people, pets, wildlife and other organisms in the environment.**

Treatment options

- Trunk injections, implants, basal trunk sprays, and bark and foliage sprays can protect trees of all sizes.
- Soil drenches and granules are most effective on small trees, generally less than 15 inches in diameter.
- Soil drenches and granules are effective on large trees at higher rates if the label allows it.
- Foliage sprays only improve control and are not recommended to be used alone.
- Trunk injections and dinotefuran basal trunk sprays are applied only by professionals.
- **Average cost of a treatment applied by an arborist to an average-size tree (20-inch DBH) is around \$100 per year.**
- Homeowners can apply soil drenches and granules, bark and foliage sprays, and trunk implants.

Common professional products available in Nebraska (no endorsement is implied; other products may be available)

- Trunk injections: **Emamectin benzoate** (ArborMectin, Boxer, TREE-äge G4) and **imidacloprid** (Imicide, Xytect 10%)
- Soil drenches, granules and systemic basal trunk sprays: **Dinotefuran** (Safari, Transtect, Zylam) and **imidacloprid** (Criterion, Lesco Bandit, Merit, Xytect)
- Residual bark and foliage sprays: **Bifenthrin** (Onyx), **cyfluthrin** (Tempo) and **permethrin** (Astro)

Common homeowner products available in Nebraska (no endorsement is implied; other products may be available)

- Soil drenches and granules: **Dinotefuran** (Green Light Tree & Shrub Insect Control with Safari; Ortho Tree & Shrub Insect Control Granules), and **imidacloprid** (Bayer Advanced 12 Month Tree & Shrub Insect Control; Compare N Save Systemic Tree & Shrub Insect Drench; Merit)
- Residual bark and foliage sprays: **Permethrin** (Hi-Yield 38 Plus Turf, Termite and Ornamental Insect Control) and **spinosad** (Ferti-lome Borer, Bagworm, Tent Caterpillar & Leafminer Spray)
- Trunk implants: **Acephate** (Acephap)

Treatment timing for best results

- Trunk injections and implants should be applied in mid-May through early June.
- Basal trunk sprays with dinotefuran should be applied in mid-May through early June.
- Bark sprays with bifenthrin, cyfluthrin or permethrin should be applied in mid-May.
- Soil drenches with imidacloprid should be applied in April (or fall, but not as effective).
- Soil drenches with dinotefuran should be applied in mid-May through early June.

Ash wood utilization

- State and federal quarantines strictly regulate the movement of hardwood firewood and mulch, ash timber and green waste materials (see quarantine section on page 1).
- Uses for wood:
 - Logs and lumber if the tree is at least 9 inches in diameter; at least 6 feet long; is clear of branches, cracks, other defects; and has been dead for fewer than 12 months. (See the directory of NE primary processors: nfs.unl.edu/primary-processors).
 - Landscape woodchips, mulch and timbers
 - Firewood
 - Donate the wood to local woodworkers, schools, parks or community organizations

Reporting suspected EAB locations and specimens

- Nebraska Department of Agriculture: 402-471-2351
- USDA APHIS, Lincoln office: 402-434-2345
- USDA APHIS, national hotline: 866-322-4512
- Nebraska Forest Service: 402-472-2944

Local contacts for more EAB information

- Nebraska Forest Service district offices: **Chadron** 308-432-3255, **Scottsbluff** 308-633-1173, **North Platte** 308-696-6718, **Ord** 308-728-3221, **Clay Center** 402-762-3536, **Wayne** 402-375-0101, **Omaha** 402-444-7875, **Lincoln** 402-472-2944

Nebraska EAB websites

- Nebraska Forest Service: eabne.info.
 - Publications: Guidelines for Nebraska Homeowners
Readiness Planning for Nebraska Communities
Trunk Injection Options for Professionals
 - Selecting Trees for Emerald Ash Borer Treatments
Ash Tree Identification Guide
Frequently Asked Questions
- Nebraska Dept. of Agriculture: www.nda.nebraska.gov/plant/entomology/eab/