



MANAGING EMERALD ASH BORER IN TREE BELTS

South Dakota Division of Resource Conservation and Forestry

The emerald ash borer is a tree-boring beetle that was accidentally introduced into the Detroit Michigan region from China sometime during the 1990s. Since that time, it has spread to 33 states including Minnesota, Iowa, and Nebraska and three Canadian provinces including Manitoba. It was confirmed in Sioux Falls in 2018. The insect feeds just beneath the bark in the larval (worm) stage, severing the connection between the leaves and the roots killing the tree within three to five years of the initial attack.

What tree species does emerald ash borer attack?

Green ash is one of the most common trees in South Dakota windbreaks and tree belts and is also the most susceptible to attack by the emerald ash borer. Black and white ash trees, two ash species planted as shade trees, and their cultivars are also susceptible to attack. Manchurian ash, a species native to Asia, is very tolerant of attacks by the emerald ash borer but its inability to tolerate droughts and susceptibility to our native clearwing ash borer will limit its use. Emerald ash borer does not attack mountain-ash.

How long till my ash trees are attacked?

Landowners need to assume that emerald ash borer will eventually arrive in their tree plantings and will kill all their ash trees. An entire ash row can be killed within five years after the initial attack. However, while the insect will eventually be found throughout the state, this process will likely take at least a decade or two. Since the insect moves long distances (greater than 15 miles) via infested ash logs or firewood, county quarantines can help slow the spread from county to county. The insect can fly five to 15 miles in search of new ash to infest so once it is confirmed in your county the spread will be much faster, perhaps only three to five years before all the trees are infested.



An ash belt killed by emerald ash borer.

What to do with existing ash rows in a tree belt?

If a landowner has a windbreak or tree belt of ash less than 2 to 4 inches in diameter (measured at 4.5 feet above the ground) the best option is to remove the trees as soon as possible and replant with another species. Ideally the trees are completely removed, major roots and top, so that sprouting is not an issue. However, if this is impractical, cut the trees flush with the ground in late summer (August) and immediately treat the edge around each stump with a 50:50 mix of glyphosate and water. Trees cut in late summer do not sprout as vigorously as those cut in the dormant season and an application of glyphosate made at this time on the fresh stump will kill the stump. Do not use other brush herbicides such as picloram (Tordon) as these can contaminate the surrounding soil and kill nearby desirable trees.

The following growing season should be spent controlling herbaceous weeds and killing the perennial sod in the row. A new row of trees can be planted the following spring, and these new trees should be able to catch up in growth to the other young trees in adjacent rows.

Removal of larger trees may also be a good option as eventually the emerald ash borer will arrive and infest them. However, more care will need to be taken to remove these trees without destroying trees in adjacent rows. These ash trees should also be removed in late summer and the stumps treated to prevent sprouting. There is also the need to find a tree species to plant that can tolerate the competition of the surrounding rows of mature trees. The adjacent tree rows will shade the new plantings as well as have roots that compete for water and nutrients. Common tree species of similar mature size to ash that are most tolerant of surviving in shaded sites are basswood (American linden), bur oak, European alder, and hackberry.



The mature ash row in a belt must be removed carefully.

The season following the removal of the larger ash row should also be spent controlling herbaceous weeds and killing any perennial sod. The adjacent rows should be root pruned by running a sharp blade into the soil to a depth of 1 foot at least 8 feet out from the base of these trees. This should be done during the summer following the removal. Root pruning provides only a temporary release from competition, usually only two or three years, but long enough for the new stock to become established.

The following spring the new stock can be planted using fabric though hand-planting may be necessary due to the extensive roots and stumps. The new trees should be watered at least twice a week for the first growing season with each tree receiving at about 1 to 2 quarts at each watering.

Is it possible to protect an existing ash row with an insecticide?

The most effective treatments for mature trees, those more than 6 inches in diameter, are treatments applied with restricted use insecticides available to private and commercial applicators. The most common treatment is injection. This is impractical method for a row more than 10 to 12 trees as the insecticide cost will be about \$30 to \$90 a tree plus the equipment to inject the product that can be anywhere from \$500 to \$2,500 depending on the injection system used.

If landowners decide to treat their ash row, the most practical means may be trunk sprays with an insecticide labeled for this use such as dinotefuran (Safari). The spray is only applied to the lower 6 to 8 feet of the trunk so it is easy to do without specialized injection equipment. However, this method is only effective on trees less than 16-inches in diameter (at 4.5 feet above the ground) and must be applied annually. No treatments should begin until the insect has been confirmed in your county or within 15-miles of your location.

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