

South Dakota State University
**Open PRAIRIE: Open Public Research Access Institutional
Repository and Information Exchange**

Extension Extra

SDSU Extension

8-1-1992

Bronze Birch Borer Management in South Dakota

John Ball
South Dakota State University

Murdick McLeod
South Dakota State University

David Graper
South Dakota State University

Follow this and additional works at: http://openprairie.sdstate.edu/extension_extra

Recommended Citation

Ball, John; McLeod, Murdick; and Graper, David, "Bronze Birch Borer Management in South Dakota" (1992). *Extension Extra*. Paper 210.
http://openprairie.sdstate.edu/extension_extra/210

This Other is brought to you for free and open access by the SDSU Extension at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Extension Extra by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.



extension extra

South Dakota State University • U.S. Department of Agriculture

Bronze Birch Borer Management in South Dakota

by Dr. John Ball, assistant professor, Horticulture, Forestry, Landscape, and Parks Department
Dr. Murdick McLeod, Extension entomologist, and
Dr. David Graper, Extension horticulturist

The bronze birch borer (*Agrilus anxius*) is a serious pest of birch trees throughout the United States. It is prevalent in South Dakota where birches occur naturally -- in the Black Hills and in Roberts County -- and also is found wherever birch trees have been planted in the state.

Birch species affected

The most preferred host in South Dakota is the **cutleaf European white birch**. This tree has deeply cut, triangular-shaped leaves and a weeping habit. Borers generally attack this tree when it is only 10 years old. Most are killed before they reach the age of 15 or 20.

European white birch also is extremely susceptible to attack by the bronze birch borer. This tree is similar in appearance to the cutleaf birch, except the triangular-shaped leaves are not deeply cut. Many of these birches are killed before they reach the age of 20.

Native paper birch is not as susceptible to bronze birch borers as the above trees, and it is the one white birch recommended for planting. It still can be attacked by borers, however, so do not expect the tree to live more than 25 to 35 years.

A number of Asian birches are reported to be borer resistant including the **Whitespire birch**. While some of these trees appear to be resistant in parts of the northern and eastern United States, these same birch varieties are being attacked in the warmer, drier climate of southern Minnesota and South Dakota.

Damage caused

The larvae of the bronze birch borer kills the tree by girdling the trunk and large branches. The larvae feed just beneath the bark in the living phloem tissue, the tissue which carries food from the leaves to the roots. When this connection is severed, the roots die, and as they do, the crown dies from lack of water.

Symptoms

Look for these signs of bronze birch borer infestation:

- Leaves on a few branches in the upper crown turn yellow by midsummer. This usually is the first visible indication that borers have attacked. Generally, the leaves turn brown by early August and remain on the tree during the winter.
- Several branches in the upper crown die. If the borer is not controlled, symptoms usually progress to this stage.
- Bumps begin to appear along several branches and the main trunk of the tree. The bumps develop as the borer constructs galleries (feeding tunnels) beneath the bark.
- D-shaped holes appear on several branches and the main trunk. These holes are where the adult borer emerged from the tree, not where they entered. Once the tree has weakened to the point where the borer is able to complete its development to this stage and emerge, it rarely recovers, even with the best of care.

The bronze birch borer usually attacks one trunk in a clump birch at a time. The symptoms identified above generally occur on one trunk; when it dies, the symptoms will begin occurring on another trunk in the clump.

Borer's life cycle

Bronze birch borers overwinter as larvae in the phloem or outer xylem tissue of a birch. The larvae are about 1/2 inch long, white, and legless. In the spring, the larvae resume feeding in the new phloem as it develops. By May, the larvae have completed their development and pupate just beneath the bark.

After about 30 days, the adults emerge from the pupal stage and chew their way out of the tree by cutting D-shaped holes through the bark. The emergence starts about the beginning of June (when ninebarks and mockoranges begin to bloom). The adults are small (1/3 inch) and dark metallic bronze. They can be seen landing on susceptible birch trees during warm, sunny days. The adults live for a few weeks during which time they lay their eggs on susceptible trees.

The eggs are white and too small to be seen. They hatch in about a week and the young larvae immediately burrow into the phloem where they remain until spring.

Controlling bronze birch borers

Keep your birch trees healthy. Bronze birch borers will not attack a healthy tree. They can only complete their development in a weakened host. Follow these guidelines:

- First, and most important, water birch trees throughout the long, hot summer. Birches need at least one inch of rain a week to remain vigorous. If your area has not received rain for a week or two, be sure to thoroughly soak the area beneath the tree to as far out as the tree is tall.
- Regularly fertilize birches in the fall after the first hard frost.

- Provide a light mulch (2-3 inches) beneath the tree. Mulch is better than grass; grass competes with the tree for nutrients and also keeps the soil too warm.
- Do not prune birches during June and July. The female borer is attracted to pruning cuts and will even attack healthy trees if they have been pruned recently. Painting the cuts will not discourage the borer.

Preventative measures

Treat the main birch trunks and primary branches with Turcam or Dycarb insecticide. It is important to spray the trunk and branches -- not the leaves -- with the insecticide. Spray at the beginning of June, make a second application three weeks later, and spray a third time about two weeks after that.

Both these insecticides must be applied by a professional applicator and are not available to homeowners. If you wish to treat a birch tree yourself, use Lindane and follow the same timetable.

Therapeutic treatment

A birch tree can be injected with Bidrin to kill an existing infestation of borers. The injection is done in midsummer after the larvae have hatched and entered the vascular tissue of the tree. Bidrin is injected into the tree and kills the larvae as they feed.

Bidrin is a restricted-use pesticide and must be applied by a professional applicator. It can not be applied by homeowners.

Bidrin injection is not recommended as a preventative measure since repeated injections can damage a tree's vascular tissue.

The information provided here is for educational purposes only. References to commercial products or trade names does not imply discrimination or endorsement by the South Dakota Cooperative Extension Service.

Always read and follow label instructions.



Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the USDA. Mylo A. Heltickson, Director of CES, SDSU, Brookings. Educational programs and materials offered without regard to age, race, color, religion, sex, handicap, or national origin. An Equal Opportunity Employer.

150 copies printed by CES at a cost of 5.5 cents each. Revised August 1992.