



Tree treatment goes bio

A treatment program consisting primarily of bio-stimulants was the knockout punch for verticillium wilt

of vascular disease. Samples were taken and forwarded to the plant lab at The Ohio State University, where positive results came back for verticillium wilt.

The verticillium wilt was brought about by one of the following things (or possibly a combination of all): improper installation; disease was already at the site and the stressed trees couldn't resist it; or contaminated trees were brought to the site.

Seeking a solution

Webber felt there were a few options available to solve the problem. They were:

- **Removal of the trees** — Verticillium wilt is a highly infectious, soil borne disease. Root grafting, mechanical transfer and other means can transmit it. If this option was used, another species not susceptible to the disease, such as oak, would be planted as a replacement.
- **Health treatments** — Many species of trees, including the genus *Acer*, can section off infected tissue by compartmentalization. But for this process to work, the plant should be in good vigor and be conducting all plant processes at optimum perfection prior to an infection.
- **Bark injections** — One means of controlling verticillium wilt is the Mauget fungicide microinjection system. When applied correctly, it controls the active verticillium pathogen in

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In September of 1997, a client of Mark Webber's Landscaping Company was concerned that 49 Norway Maples (*Acer platanoides*) lining his driveway had verticillium wilt.

When Mark Webber arrived at the property with the intention of gathering information for field analysis and laboratory testing, he saw that the long, tree-lined driveway led to a home built back into the woods. When the trees were installed four years ago, they were 3-in. caliper. Now, they were 18 to 19-ft. tall.

Many of the trees exhibited complete branch die back and cankers with a blackish brown substance oozing out and running down the stem tissue. Closer inspection showed a pattern of heavy decline in certain portions of the plantings, while other areas appeared to have lesser degrees of decline. Significant decline seemed to be in trees located nearest the roadway entrance and wooded entry of the drive.

To inspect the branches and stems, Webber made longitudinal cuts along the plant stems and discovered varying degrees of discoloration that appeared to be a form

The treatment schedule

- ▶ **October 1997** — Vertimulching started with Webster® vertimulcher.
- ▶ **November 1997** — Mulch rings increased from 2' radius to 4.5' radius with 2-2.5" of double process mulch applied to the beds.
- ▶ **March 1998** — Dormant oil applied to trees to reduce overwintering pests.
- ▶ **March-December 1998** — System of scouting started.
- ▶ **June 1998** — Trees showing significant loss of limbs and infection selectively pruned. Pruning equipment was sterilized between each cut with 1 part bleach to 8 parts water. All pruning was then burned.
- ▶ **July-August 1998** — Trees watered due to drought conditions.
- ▶ **November 1998** — Trees vertimulched. Webber uses the ROOTSinc® product, mycorrhizaROOTS™, which provides much needed cold tolerant endomycorrhiza and provides a quality biostimulant.
- ▶ **November 1998** — Maples not responding to the treatments were removed. Swamp white oaks (*Quercus bicolor*) were installed. Fifteen trees were replaced. Transplant 1-Step™ was used to help the trees establish themselves.
- ▶ **Summer 1999** — Another round of deep-root feeding using mycorrhiza-ROOTS®. "Maples are big endo-users," Webber said, "and the Oaks use ecto- . Supplying both kinds of mycorrhiza in a quality biostimulant will lead to an increase in water and nutrient uptake."
- ▶ **Fall 1999** — Vertimulching with the Webster deep root feeder. This time, the amendment used was the newly introduced M-ROOTS™ — a combination of dryROOTS® and affordable mycorrhiza.
- ▶ **Spring 2000** — Dormant oil and deep root feeding applied, using mycorrhiza-ROOTS®. Each time the feeding extended beyond the current drip line. Root primodial, measured on every visit, showed that this pro-health approach has progressively payed off. Shoot growth has been consistent, showing another 4-5" over last year. Scouting, as recent as May, has shown a 10-13" average shooting longation.

Webber began his attack on verticillium wilt with a vertimulcher.



By using a caliper, Webber found the trees had grown greatly since they were first installed.

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plants' vascular systems. A concern with this approach is that the injections could cause further wounds, offering pathogens an entry point to attack the plant.

• **Leave the trees alone** — The last option would be to let nature run its course, then install resistant cultivars to replace the dead trees as time passes.

After meeting with the client to discuss these options, Webber decided to pursue a combination of the first three options with an emphasis on corrective measures to better the trees' health. Part of the reasoning behind this approach was because the trees were still relatively young.

He decided that the "below ground" landscape issues could be corrected by an aggressive program that consisted of vertical mulching, deep root feeding, IPM monitoring, selective pruning, bark injections with fungisol and corrective mulching and bed practices.

Webber's program (see sidebar) is still ongoing, but the verticillium wilt has gone away. "There has not been any wilt since the first year," Webber said. "Fungisol injection killed it off. Keeping trees and roots young and vigorous will keep the wilt at bay." **LJM**

— *Mark Webber is a certified arborist and owner of Mark Webber's Landscaping Company, Dayton, OH. In business for over four years, Webber's company has 11 employees, three of whom are ISA certified arborists.*