Tree Growth Regulator Treatments

Suppression of Bacterial Leaf Scorch and Treatment of Declining Trees

Bacterial leaf scorch (BLS), caused by Xylella fastidiosa is a destructive disease that affects a number of economically important tree species in the eastern, southern and mid-west United States. Oaks, elms, sycamores, maples, sweet gum and mulberries are among the tree species that this disease affects. Symptoms can first be noticed in early summer, but usually increase and intensify throughout the growing season and can be more pronounced in moisture limiting conditions. Most trees with BLS usually display decreased vigor and slowly decline over a number of years. Paclobutrazol, formulated as Cambistat® is a soil-applied tree growth regulator that is currently being used in the arborist industry to reduce tree growth and provide pre-stress conditioning therapy for trees in stressful sites. Studies have demonstrated that Cambistat enhance rooting, increase tree tolerance to drought and reduce the incidence of certain diseases.

Bartlett Tree Research Laboratories has been conducting ongoing research on the use of paclobutrazol for suppression of BLS. Treatments were applied to four red oaks (Quercus rubra) located in Charlotte, North Carolina in March of 2000 and to four additional red oaks in October of 2000. A number of red oaks were left untreated to serve as control trees. In 2001, 2002 and 2003 all red oaks treated with paclobutrazol exhibited suppression of BLS symptoms when rated each fall. In addition, eight London plane (Platanus x acerfolia) trees were treated in the fall of 2001. Suppression of BLS symptoms did not occur on any of the eight London Plane trees.

In the spring of 2003 Bartlett Tree Research Laboratories in collaboration with the New Jersey Forest Service, Rutgers University and Rainbow TreeCare Scientific Advancements initiated an additional study to evaluate the efficacy of Cambistat and oxytetracycline treatments on the development of BLS symptoms on red and pin oaks (Q. rubra and Q. ellipsoidallis). Results from this study will provide additional information on the efficacy of Cambistat for treatment of BLS.

Prior to treatment

2nd year after treatment

Research and Photographs courtesy of Bartlett Tree Research Labs

Tree Decline

The benefits of tree growth regulation have also been reported on trees with mild decline. Branch dieback indicates the root system is unable to support the canopy at its existing size, so practices that will restore the equilibrium and prevent further canopy loss are needed. Cambistat reduces the amount of energy spent on shoot growth and may stimulate fine root development. With a single application, this treatment may begin stabilizing a declining tree over a period of several years.

Keep in mind some important aspects about tree growth regulation and decline. Applications of Cambistat often show the first visible results in the season following treatment. This means rapidly declining trees are not good candidates for this type of treatment. Additionally, there are many reasons why a tree may show symptoms of decline, including soil compaction, irrigation/drainage problems, herbicide damage, grade changes, etc. If the cause of the decline is not addressed then treatment with Cambistat is unlikely to have the effect you are seeking. Cambistat should be used in conjunction with other arboricultural practices to have the best chance for success. Some of these practices include radial trenching, vertical mulching, fertilization to correct mineral deficiencies, and others. For assistance on this topic contact your Fisher & Son representative.

Cambistat® is a soil-applied tree growth regulator (active ingredient paclobutrazol) that reduces tree growth 40% to 60% over a three year period.

treated 1989 1994 2001

In this series of photographs, this white oak was treated with Paclobutrazol. This tree had been slowly declining for many years.

Research and Photographs courtesy of Dr Gary Watson, Morton Arboretum, Chicago