

Effluent Water for Turfgrass Irrigation

Report on the Clavey Road Project

prepared by

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The use of potable (drinking quality) water for the irrigation of turfgrass stands may be limited in the future because of the increased demands for water by all segments of society. Turfgrass irrigation generally has a low priority or is not even on the list of priorities for distribution of the water supply. To better prepare for the possibility of a reduced water supply, the turfgrass manager must be aware of management practices that will help conserve water and also be aware of effects on the turfgrass stand when using poorer quality water as an irrigation source. The purpose of this research project was to evaluate the effects of irrigation with effluent water from a wastewater treatment plant on the quality of Kentucky bluegrass, annual bluegrass, and creeping bentgrass turfs.

This research was conducted at the North Shore Sanitary District sewage treatment plant on Clavey Road in Deerfield, Illinois. Plots of Kentucky bluegrass, annual bluegrass, and creeping bentgrass were irrigated with either potable water, secondary treated effluent water or final effluent water from the sewage treatment plant. These sources of water differ in the amount of salts, nutrients, and heavy metals that they contain. The potable source is the highest quality of the three while the secondary treated water is the lowest quality. The final effluent water from the Clavey Road treatment plant is normally dumped into the Skokie Canal. If the decision is made to construct some type of distribution system, the final effluent water will be distributed to golf courses for either direct irrigation or for storage in retention ponds for future use in irrigation.

During the course of the study, we monitored turfgrass quality and have tested the soil for various nutrients and heavy metals. We have also metered the amount of water being used to irrigate the turfgrass plots.

No differences in turfgrass quality due to the use of either the secondary or final effluent water for irrigation were observed during the three years of the study. The total amount of water applied to the plots was approximately 55 inches. No adverse effects related to the use of the final effluent water for turfgrass irrigation were found. Minor problems that might occur included the clogging of irrigation heads due to the hardness of the water and potential salt problems in poorly drained areas. The clogging problem can be overcome by routine maintenance of the irrigation system. The salt problem should not occur in most years because rainfall will leach the salts out of the soil profile. In dry years, on areas with poor drainage, applications of gypsum may be necessary to correct the salt problem. Gypsum is fairly inexpensive and is used in a manner similar to any fertilizer.

The Clavey Road Research Project which has been sponsored by the Chicago District Golf Foundation, the University of Illinois, the North Shore Sanitary District, the Chicagoland Golf Course Superintendents Association and the Midwest Association of Golf Course Superintendents has broken ground for an alternative water source for turfgrass irrigation in our area. Although most of us today have not been faced with a water crisis, let's face it, our day is coming.

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Controlling Borers on White Birch Trees

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Borers have destroyed many beautiful white birch trees. The bronze birch borer is a common insect pest across the midwest. Early symptoms of borer activity include yellowing of leaves at the top of the tree, then die back at the top and eventually the entire tree may die. Eggs are laid in bark crevices by a slender, 3/8" long, bronze beetle in May of each year. Eggs hatch and the legless, white flattened grub tunnels beneath the thin bark. The tunneling about under the bark loosens it and also girdles the limb or trunk being fed upon.

Control alternatives include planting birch species not commonly attacked by bronze birch borer. These include river birch, a bronze-bark birch, or a white bark species called Whitespire, which appears to be resistant to borers. Fertilizing and watering to prevent drought stress appear to reduce borer activity, but many birches grown in the open are under stress during mid summer.

Insecticide application is another alternative. Since 1970, entomologists at the University of Illinois have suggested the use of Cygon 2E as a spray applied in late May or early June and repeated 3 weeks later. This year we also suggest Dursban as an alternative insecticide spray.

Another technique which has been tried and evaluated since 1977 is the use of Cygon 2E applied as a band or collar on the trunk of white birch in late May or early June. The results for the past seven years have been favorable. The method is to simply apply Cygon 2E as a concentrate out of the original container in a 5 or 6 inch band around the trunk below the lower limb. Apply it with either a paint brush or if there are many trees to treat, use a small, low-pressure sprayer. As with spraying a dilute spray, apply on a drying day when the concentrate will dry rapidly. It will be translocated into the tree and kill hatching borers.

Cygon will leave a slight yellow stain on the trunk but will disappear before fall. Do not come in contact with the Cygon concentrate when applying. Do not apply a band wider than six inches. Banding is not an improved method over spraying the birch tree but is easier and can be used where spraying would be difficult. Neither spraying nor banding will save a severely borer damaged birch tree. Also, do not band non birch trees suspected of being infested with borers as Cygon may injure or kill other trees.