

Controlled Irrigation and Deep Soil Aeration Help "Old Turf," Report Says

Deep soil aeration and controlled irrigation can significantly improve old golf greens and other fine turf areas, making them tough but tender and springy, according to a recent report from the University of California (Riverside) Agricultural Extension Service.

Attempts to increase turf vigor and resilience have increased longstanding problems of diseases, poor root systems, and low water penetration rates. Increased irrigation to soften a putting green surface, for example, may leave water on greens, seriously reduce the air available to roots, scald foliage in the summer, and increase soil compaction.

The Arrowhead Country Club in San Bernardino, during the winter of 1961, requested assistance in their program to replace and repair putting greens. Of immediate concern were two 35-year-old greens with typical characteristics of old-green maladies: surface soil stratification, compaction, impaired root penetration, unhealthy root system, and an anaerobic soil condition sufficiently severe to develop a strong odor after exposure of plugs to air for 20 to 30 minutes. University of California farm advisors Chester Hemstreet and Fred Dorman agreed to help with the program.

The researchers tried a number of turf rejuvenation methods on Green Number 4 at the club. Two-thirds of the length of the green was reserved for "deep aeration" treatment; the other third, about 21 feet, was used as a control. The west portion was treated by placing 3/4-inch diameter holes on 2-inch centers to a 6-inch depth. Similar holes in the east portion were placed on 4-inch spacings.

Aerifier holes were filled (vertically mulched) by Hemstreet and Dorman with a sandy top-dressing mixture containing 25% redwood sawdust, plus all major and minor nutrients. The green was irrigated twice and then

given a light top dressing of fine sand, then "squeegeed" smooth.

Next the entire green was aerified with rotary spoon-type equipment. The holes were left open to facilitate movement of irrigation water into the areas between the "deep aerified" holes.

A striking increase in resilience of this putting green was detected by the experimenters immediately after the hand-aeration holes were completed. Heavy irrigations were no longer necessary to supply injured roots with adequate moisture and increase green surface resilience.

Water infiltration tests indicated a considerable increase over the pretreatment rates. Prior to deep aeration treatments, there was excessive water accumulation on the surface after approximately 1/4-inch of water was applied—a 20 to 30 minute irrigation. For periods up to 5 hours, the soil surface would yield water when walked on after 1/2-inch of water was applied. After treatment, casual or excessive water accumulation appeared only in the control or untreated area and on a 3 or 4 sq. ft. area where slope was a problem.

Hemstreet and Dorman feel that the long period of minimum water application increased the air in the soil and allowed the layers of partially decomposed organic matter (old buried thatch) to decompose.

Dorman reported that large-diameter deep-aerifier holes placed through the surface of an old bentgrass green successfully provided adequate drainage.

This deep aeration or vertical mulch procedure, plus irrigation water application control, increased root activity at deeper soil depths and decreased root density at the shallower depths.

The deeper root system and possibly the hardening of the turf from reduced water application, resulted in less turf injury when the interval between irrigations was lengthened, thus reducing the total amount of water applied and time spent in application, it was concluded.

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Drives English Style



I have been receiving your magazine for over a year now and have found many articles of great interest. I look forward to each publication.

Being involved in weed and brush control work on state and county roads, I thought your readers might be interested in steps we have taken towards doing a better job, easier and safer.

By going to righthand-drive equipment (see photo above) we have put the applicator "on top of his work." Leaning towards one-man-operated rigs for spot work and shoulder applications, time is saved and possibilities of damages from drift are greatly reduced. The cost of this equipment, factory ordered, is only slightly above standard models, some \$90.00 for our one-ton rig. Anyone working on roadways, I am sure, will find this type of equipment beneficial to his program.

M. R. Hubbell

Supervisor
Jackson County Weed Control
Medford, Oregon.

May Pix Were VPI's!

We would like to request several copies of your May issue. In the article, "Brush Up on Brush Control," pages 12 and 13, pictures which were taken here at the Virginia Agricultural Experiment Station were used, and we would like very much to have several extra copies for our files.

Dr. W. E. Chappell

Professor of Plant Physiology
Virginia Polytechnic Institute
Blacksburg

Somehow we failed to credit Dr. Chappell for his kindness in supplying us some of the photographs used in the brush control article. Readers who perform brush control work are all aware of Dr. Chappell's work at VPI, which has been helpful to many applicators around the country. Ed.