DEVELOPING CEMETERY TURF - DURABILITY AND BEAUTY

Dr. Roy L. Goss
Agronomist/Extension Agronomist, Washington State University, Western Washington Research and Extension Center, Puyallup, Washington 98371

All of us know by now that beautiful and durable turf doesn't just happen, it is created by people with the tools with which we have to work. These tools include both the arts and sciences. Once the setting for cemetery turf is created by way of the arts, we must employ the scientific knowledge that we know in order to maintain the beauty and durability. Maintenance is a term which embodies all of the science necessary to maintain the beauty intended by design. All beauty created by trees, shrubs and flowers can easily be detracted by a poorly maintained turfgrass area. Tender, Loving Care is one of the most important ingredients for developing and maintaining a turf of lasting beauty. Several of the points that the writer feels to be of importance in developing turf for durability and beauty are briefly described in this paper.

THE SOIL PHASE

Basic to the propagation of any plant is the soil itself. Before establishing any turfgrass, the seedbed should be prepared to perfection. Once the turfgrass has been established, surface imperfections are difficult and costly to correct. Smooth perfect surfaces are essential also for proper mowing maintenance. It is also important to establish turf on soils with good structural characteristics which are permeable to water movement and root development.

Before planting or establishing turf, ask the soil what it needs - by way of accurate soil tests. Correct any nutrient deficiencies whether it be phosphorus, potassium, calcium or minor element deficiencies prior to establishing the turf. Deficiencies may be corrected after turf is established, but these deficiencies are not recognized before the turf expresses visual symptoms and may have lost its attractive appearance.

TURFGRASS SELECTION

Two principle genera of turfgrasses give the most satisfactory performance in northern cool season regions - bluegrasses and fine-leaved fescues. The proper variety of bluegrass or fescue may vary from one geographic area to another based upon indigenous problems such as diseases, insects and weeds. Local turfgrass authorities are the best sources of information regarding the adaptability of turfgrass varieties. Be cautious in considering any turfgrass not recommended for your locality. There are a number of pathogens that affect the persistence, beauty and durability of bluegrass. Problems such as Helminthosporium, stripe smut, Fusarium roseum, and rust can detract from beauty and durability. Perhaps one of the best tools we can employ to combat these problems is to select mixtures of bluegrasses offering the best characteristics for our region. The bluegrass varietal picture is rapidly changing due to recent developments in turfgrass breeding and selection both from domestic and foreign sources. A bluegrass that will offer the maximum in disease resistance, maximum rooting

ability, and slow growing characteristics is probably the best bluegrass type for cemetery purposes. Most of the improved bluegrasses provide adequate durability and beauty from the standpoint of traffic, if properly maintained.

The fine-leaved fescues are particularly well adapted to shaded conditions and blend well with bluegrasses for combination seedings.

TURF MAINTENANCE

A. Turfgrass beauty and durability are highly dependent on good fertility practices. Nitrogen promotes growth and good color assuming no other elements are lacking. Excessive rates of nitrogen can result in excessive clippings, decreased root systems, and susceptibility to diseases such as Helminthosporium and stripe smut. On the other hand, nitrogen is the chief agent that helps Kentucky bluegrass escape from symptoms of rust. Phosphorus and potassium should be maintained in adequate supply to promote root growth and internal metabolic functions within the grass plant. Excessive phosphorus applications can result in increased Poa annua invasion and seed production if this weedy grass is a problem. Sulfur has been somewhat neglected in most nutritional programs, but plays an important role in maintaining healthy turf with good color.

It is difficult to prescribe an exact nutritional program since areas vary so greatly, but it should be pointed out that the improved bluegrasses with good disease resistance respond favorably to nitrogen applications in excess of 300 lbs. per acre annually. Clipping removal will definitely affect fertility practices. If clippings are removed, nutrients should be supplied to the turfgrass area in a ratio of about 3-1-2 or 4-1-2 when considering applications of nitrogen, phosphorus and potassium.

B. Pest control. Weeds are probably one of the most serious problems in cemeteries to detract from beauty. The availability of good herbicides today leaves little excuse for unsightly weeds in cemeteries. The judicious use of pre-emergence herbicides will eliminate crabgrass from managed turfgrass stands. Care must be exercised in the application of herbicides such as Banvel which may leach into the soil and affect susceptible trees or from the use of volatile materials such as Silvex whose vapors may cause leaf burn or more severe injury to susceptible trees, shrubs and flowers.

Disease control is essential in many areas to maintain beautiful turf at all seasons of the year. The best safeguards against disease outbreaks is to use resistant varieties wherever available. Fungicidal programs on large areas are extremely expensive, but frequently necessary to maintain quality. Consult your local authorities for recommended fungicidal or management programs to help control turfgrass diseases. For example, benomyl fungicide is quite effective for treating stripe smut. Winter snow mold problems can be effectively prevented with the aid of fungicides applied at the proper time to prevent infection.

Diazinon, Sevin, chlordane, and other insecticides are available on the market for effective control for most insects that affect our turfgrasses. Light insect infestations in turfgrass may only reduce the vigor and general appearance of the turf while heavier populations can inundate large turfgrass areas and can be prevented with timely applications of insecticides.

C. Aerification. Soil compaction results in reduced total porosity, reduced aeration, reduced infiltration rates of water, accumulation of carbon dioxide in the soil, reduced root and top growth, and in general, increased water use. All traffic increases compaction whether it be vehicular, from turfgrass maintenance, or foot traffic. Caution should be exercised in over-irrigating turf on heavy textured soils and in the use of machinery immediately following heavy rainfall or irrigation. These practices can result in the loss of soil structure and increased compaction. One of the best means for preventing compaction is to produce a dense turfgrass stand. Thin or weak turf will allow greater soil compaction which is frequently encountered in pathways and heavily used areas.

Mechanical aerification with hollow tined aerifiers is probably the most effective tool available for prevention and elimination of compaction. In cemetery operations this can be a slow and somewhat tedious operation and also results in unsightly grass plugs and soil cores on the surface unless removed from the area. Aerification can also be practiced with machines such as the Turf Quaker which produces continuous aerification with a minimum of surface litter left following aerification.

D. Thatch Control. At the present time mechanical removal of thatch is probably the most practical solution. Thatch is the accumulation of undecomposed stems, roots and other vegetation that accumulates faster than the environment will allow decay. Proper irrigation practices during the growing season along with a good nutritional program will aid in thatch control. Turf that is alternately wet and dry will produce more thatch than a turf whose thatch layer is continuously moist but not overwet.

E. Irrigation. Theories vary in regard to proper irrigation methods for turf. Turfgrasses have the most desirable appearance and perform best when soil moisture is at or near field capacity, the point at which all gravitational water has drained away and the pore spaces are filled with air. It is difficult to maintain this condition for any period of time without rather frequent irrigation due to the evapotranspiration factor. Turfgrasses may use in excess of 3/10 inch of water per day depending upon the factors of temperature, humidity and wind. The best safeguard to follow is to observe weather data to determine local daily evaporation and to examine the soil frequently to determine soil moisture content. Soil tensionmeters have not proven themselves to be highly useful under practical or normal conditions due to soil variability, methods of placement, etc.

It is obvious from the foregoing discussion that one must practice diligent maintenance to produce a durable and beautiful turf. When in doubt consult your local Cooperative Extension Service or research workers for the best advice and be careful of misleading advertisement.