

Preparing the Course for Winter



The placing of a snow fence around greens and tees is an accepted practice in many areas.

by **LEE RECORD**, Director, Mid-Continent Region, USGA Green Section

Turfgrass management practices performed during the growing season are indirectly involved in preparing the golf course for winter. The condition of grass plants going into the winter cannot be overemphasized.

To "harden off" grass plants, restricted nitrogen feeding must begin in late summer. Nitrogen sources must be looked at closely within each management program. Kentucky bluegrass, for example, should have a 2 to 1 or 3 to 1 ratio of nitrogen to potassium for survival.

Potassium increases in plant tissue as fall and winter approaches if an adequate amount is introduced into the soil during the growing season. Potassium deficiency has been associated with increased winter injury. It takes 16 elements to produce a healthy plant. Carbon, hydrogen and oxygen will take care of themselves. Soil analysis should therefore be taken at random each year to see if minor elements are needed to help prevent excessive winter injury.

Timing of nitrogen applications is important to winter hardiness of the grass plant as it relates to disease. Nitrogen applications applied in autumn will encourage spring snowmold. Early fall fungicide applications on fairways, collars, approaches, tees and greens, however, have reduced or prevented *Fusarium* sp. and *Typhula* sp. organisms.

Reports of excessive use of arsenical compounds, cadmium and mercury fungicides and various herbicides encourage winter injury especially under anerobic conditions. Caution must be taken when using these materials, especially if toxic levels are being reached.

Topdressing greens in late fall, with up to three cubic yards of material per normal green size (5,000 sq. ft.) in split applications, has become common practice. This is done in effect to reduce or prevent winter injury. Two distinct advantages are gained through topdressing greens in late fall: 1) A buffer zone of soil between turf and ice accumulation is formed; 2) A buffer zone between turf and drying winds has been established, which obviously helps to prevent desiccation in late winter and early spring.

Placing brush or a snow fence around greens and tees is an accepted practice in many areas. A snow fence is normally placed around exposed, non-protected greens, while brush is placed on protected greens and tees. Snow fence and brush have aided the hunter, skier, sled rider, etc., to keep warm by having an available wood supply. However, snow fence and brush have kept damage at a minimum in spite of winter traffic, especially with the use of snowmobiles.

Late fall renovation by thatching or deep vertical mowing is dangerous if an early fall or early winter is eminent. One month prior to a killing frost is reasonable time to have all renovation completed. July and August renovation may assure protection against severe winter injury.

Temperature relationships of well drained and poorly drained soils have a direct influence on winter injury to turfgrass. Greens with poor surface drainage normally are a problem because of excessive water and ice accumulation. A poorly drained soil may be expected to have a temperature range of 6 to 12 degrees Fahrenheit lower in the surface layer than a well drained soil. We know that heat passes from soil to water approximately 150 times faster than from soil to air. As water is added to the soil, air is decreased. When air is decreased by moisture in the soil, heat conductivity is increased. Because of these conditions, a well drained soil would tend to bring temperatures within optimum growth earlier in the spring.

When renovation of problem areas cannot



A sod cutter is used for aiding surface drainage on greens.

be completed before winter, a sod cutter can be a quick and very satisfactory method of aiding surface drainage on greens. Cut a two-inch in depth sod strip running the length of the problem area off the green. Water runoff is improved during thawing periods of the winter, thus overwetness of low areas is reduced. Sod strips are placed in bunkers for "overwintering" and then replaced on the green the following spring. Chain saw slit trenches have also given satisfactory results in improving problem drainage areas.

In summary, we come to these conclusions: Nitrogen and minor elements have a direct bearing on winter hardiness of the grass plant. Disease may be eliminated with the proper timing of fertilizer and fungicide applications. Topdressing, the placing of brush and snow fence on and around greens is a sound management program. Perhaps the most important requisite of preparing the golf course for winter is that of drainage.