

Rhizome spread is not so manifest as with bluegrass, but most varieties expand well to fill-in scarred sod. Seedheads are produced early in summer, but are seldom much in evidence with plants crowded into a lawn. The grass is a little more fibrous than is bluegrass, and should be mowed with equipment kept sharp and in good adjustment.

It is apparent that fine fescues adapt widely, although their turf quality is not the best in hot-humid climates. They are very tolerant of soils, thriving on everything from peaty bogs to near sands and on infertile, rocky mountain sides. As to fertility, they can take it or leave it. Tests confirm that fescues have a better color and appearance when well fertilized, but seldom is it necessary to use more than two or three pounds elemental nitrogen (N) per 1,000 sq. ft. (M) annually, — considerably less than with most lawn species. As with bluegrass, fertilization is best practiced during the cooler parts of the year. Fine fescues are good insurance in a seed mixture for lawns that cannot be intensively tended; they usually survive where lesser grasses won't, — in sandy, wind-swept spots, for example, or on dry, infertile parts of the lawn. They persist in shade where competition with tree roots is often too much for other grasses. Obviously, fine fescues are excellent, low-maintenance grasses, self-sufficient and recuperative.

Fine fescues are quite tolerant to cold (seedlings, of course, may heave in winter, decimation then being more from desiccation than from low temperature). In northern Michigan, Highlight, Pennlawn and Chewings varieties showed the least winterkill in recent tests, and even so far north as Alaska (where many turfgrasses do suffer winter injury) tolerant fine fescues have been found (Arctared, Table 1, is being tested as a possible commercial introduction).

Growth Pattern

Fine fescues follow essentially the Kentucky bluegrass growth cycle. The grass builds up food during cooler weather, becoming dense through proliferation of new tillers, and spreading to a greater or lesser extent by rhizomes. If fertilized in autumn, fescue turf is essentially resplendent the following spring, beautifully thick, of deep color, and with an elegant texture. During summer, fine fescues may experience thinning and become patchy, especially if the weather is hot and muggy, the soil saturated. Die-out is usually blamed on "disease," but

seems more a reflection of physiological weakening. Nevertheless, fescues are attacked by several diseases, of which leafspot (*Helminthosporium*) is serious as weather warms, and redthread (*Corticium*) and snowmold (*Typhula*, *Fusarium*, etc.) more active in cooler weather and winter. Where summer weather encourages patchiness, fine fescues are usually blended with Kentucky bluegrass. Sparing use of fertilizer during the warm season should also help withstand disease. High mowing (1½ inches or more) aids survival, yet in equable climates such as England fine fescue can be mowed as low as is a bentgrass. Winterseedings of golf greens in the South with mixtures containing fine fescue also survive for the season mowed at one quarter inch.

Maintenance

Maintenance requirements are not onerous with the fine fescues. Rather casual fertilization often suffices, a pound or two of N/M keeping the grass reasonably attractive. Up to 6 lbs. N have been used with spectacular results so far as color and density are concerned, but only in northerly locations where summer problems are not serious. As with any grass, fertilization should be matched to the soil, keeping in mind that by-and-large fine fescue gets by with half or less the amount of fertilizer recommended for elite bluegrasses, bentgrasses and bermudagrasses.

With so drought-tolerant a grass, irrigation is seldom vital, but as for any well-kept turf is needed during periods of drought in order to hold the grass green. Be especially careful with fine fescue not to over-water, something that can prove disastrous on poorly drained soils in warm weather.

Because of their density and tenacity, fine fescues remain relatively free of weeds without much attention. There is even a hint that they inhibit the sprouting of weed seeds; weed seedlings may have difficulty gaining a toehold. When weeds do occur, fine fescue is reasonably tolerant of the conventional herbicides. Phenoxy materials used at recommended rates free fescue from most broadleaf weeds without injury. Fine fescue is a little less tolerant to some pre-emergence crabgrass preventers than is bluegrass, damage having been reported from bandane, benefin and DCPA; on the other hand, if kept on the dry side, and used as shade grass (as often is the case), there will not be much crabgrass

BOOK REVIEWS

THE PLANT KINGDOM by Ian Tribe, The Rowland Co., Inc., 415 Madison Ave., New York, N.Y. 10017.

What is a plant? The answer is not so simple, according to Dan Tribe, author of *Plant Kingdom*, one of the interesting and informative books in the new Grosset & Dunlap series of all-color guides. "It's easy to say that a plant is green, has stems, roots and leaves," he says. But numerous exceptions can be found. Some plants are yellow, brown or red. And roots and leaves do not appear as such in the lower order of plants. The author breaks down the vast membership of some 300,000 recognized members or species into major groupings. Among these are algae, mosses and flowering plants. Next he considers the plant as a living organism which grows and reproduces itself. The amazing solutions to living within the plant kingdom rival in interest and variety anything that can be said about animals, Tribe asserts. The book has 410 color illustrations.

TURF MANAGEMENT HANDBOOK by Howard B. Sprague, former executive secretary of the Agricultural Board of the National Research Council, National Academy of Sciences. Interstate Printers & Publishers, Inc., Danville, Ill. 61832. \$9.25

This book is a practical guide to turf culture, explaining the life processes involved, and describing the specific grasses, materials, equipment and procedures that have been found to produce desirable results with a minimum of effort and expense. Here are the chapter subjects: (1) Basic information; (2) Soil conditions for healthy turf; (3) Soil acidity and liming to correct it; (4) Practical use of fertilizers on turf; (5) Soil humus and grass management; (6) How grasses grow; (7) Characteristics of turf grasses for cooler regions; (8) Characteristics of turf grasses for warmer regions; (9) Planting new turf; (10) Regular care of turf; (11) Special turf problems and renovating poor turf; (12) Controlling weeds; (13) Controlling diseases; (14) Controlling insects and other pests; (15) Seasonal schedules for management of turf areas. The book has 258 pages and numerous illustrations.