...Injury Symptoms

Continued from page 3

Hydraulic Fluid. Initially, the turf appears shiny and water-soaked, but begins to dry rapidly. A definite drying of the turf occurs within 30 minutes, as evidenced by a darkening and rolling of the leaf blades. Severe leaf rolling occurs after about 1 hour, and the shoots begin to turn brown and die. A dark-brown color develops after about 16 hours, with some shoots that may remain green.

Motor Oil. The turf is shiny, with a distinct oily appearance. No visible change occurs during the first hour. The turf remains oily and shiny in appearance after about 16 hours, with a small amount of leaf rolling evident. Leaf browning becomes apparent after about 20 hours, with the turf retaining the lubricious appearance. At the end of 48 hours, approximately 50% of the shoots may be killed, and the shiny-oily appearance persists.

Grease. A layer of grease may be readily visible on the leaves, due to the viscosity of the petroleum product. No distinct injury symptoms are evident during the first 16 hours. The shoots are dead after about 48 hours, and the grease may still be present on many of the leaves.

Vegetative Planting Rates for Perennial Turfgrasses

James B Beard

The September–October 1998 issue of Turfax addressed the subject of seeding rates for turfgrasses, based on cultivar variability. A summary table provided an updated status. In the case of seeding rates there is a specific number of seeds per square inch for each turfgrass species that results in the most rapid rate of mature turf formation. Furthermore, as the seeding rate is increased or decreased from this optimum level, the time required to establish a mature turf is increased.

In the case of vegetative planting rates, this establishment profile does not exist. Rather, **as the planting rate of the vegetative material is increased, the more rapidly a mature turf is established.** For example, at sufficiently high planting rates a vegetative planting on a golf course putting green can result in a playable surface within 5 to 6 weeks, if sufficient fertilization and irrigation are provided.

The accompanying table shows the suggested planting rates for ten perennial turfgrasses. The planting methods for which rates are provided include broadcast sprigging or stolonizing, row sprigging, and plugging. A sprig is a lateral stem, which can be either a rhizome or stolon. Preferably, **a sprig should include a minimum of two nodes with attached internodes per sprig.**

One should note that the broadcast application rate is expressed in bushels. **In specifying the broadcast application rate one should identify the bushel as to whether it is to be an (a) official U.S. bushel of 1.24 ft^3 or (b) a Georgia bushel, which is used by some growers and has only 0.4 ft^3.** Note that the U.S. bushel rate is utilized in this table. It also should be noted that the quantity of actual live meristematic nodes within a bushel can vary depending on whether the soil and/or peat materials have been removed, and according to the conditions under which the stolons were grown. Harvesting from turfs maintained at very high cutting heights or even nonmowed areas results in elongated internodes, and thus fewer nodes per unit length of lateral stem.

When either manual or mechanical stolonizing is practiced, it is typically followed by topdressing and rolling. In contrast, both manual and mechanical broadcast sprigging are more commonly followed by press rolling, which is a combination of vertical blades that push the sprigs into the soil, followed by a roller, both mounted on the same mechanical attachment. Row sprigging machines operate with a rolling coulter, which opens up a vertical slice in the soil into which individual sprigs are dropped. **Depending on the particular mechanical sprigger design, some can plant at a rather close spacing between rows, while others are not able to do this.** Plug planting can be done either manually or by a mechanical machine.

In many cases the particular mechanical planter and/or pressed roller used has been designed and constructed by the company or contractor that has contracted for the planting operation. There are only a few models of commercial planters on the market, with many of the best contractors using their own modified machines. **Some mechanical planters operate best on sandy to loamy soils but not on clay soils; others function well on a wide range of soil textures.**

Guidelines for Vegetative Planting of Ten Perennial Turfgrasses

Turfgrass Common Name	Greens and Collars		Tees		Sports Fields, Fairways, and Primary Roughs				
					Row Sprigging		Machine Broadcast Sprigging (U.S. bu/ac)	Plugging	
	Planting Method	Rate in U.S. Bushels* (per 1000 ft²)	Planting Method	Rate in U.S. Bushels* (per 1000 ft²)	Row Spacing (in.)	Sprig Spacing** (in.)		Plug Size (in.)	Plug Spacing (in.)
bentgrasses	stolonizing	8 to 12	stolonizing	6 to 10					
bermudagrasses	broadcast sprigging	8 to 15	broadcast sprigging	7 to 12	4 to 6	2 to 4	200 300		
buffalograss, American								4 to 6	8 to 16
carpetgrass,								4 to 6	8 to 16
centipedegrass								4	10 to 20
kikuyugrass			broadcast	8 to 14	4 to 7	3 to 6	250 350	2 to 4	10 to 14
paspalum,	broadcast	8 to 15	broadcast	7 to 12	4 to 6	2 to 4	200 300		
St. Augustinegrass							175 300	4	12 to 24
zoysiagrass, Japanese	broadcast	14 to 18	broadcast sprigging	9 to 16	2 to 4	2 to 3	300 400	2 to 4	8 to 16

*A U.S. bushel = 1.24 ft³ (0.035 m³), but a Georgia bushel is only 0.4 ft³ = 0.32 U.S. bushel; **Sprig spacing in a row; Use only in areas already infested; Diameter of turfed plug.

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