FEATURE ARTICLE

Poa annua Terminology Clarified

James B Beard

The terminology related to the common names of the *Poa annua* group has been confusing. This is because **there is great variation within the *Poa annua* species in terms of numerous key plant characteristics,** as shown in the accompanying table.

The comparative summary between the annual and perennial *Poa annua* biotypes shown in the table really is not that straightforward in nature. Actually **there are numerous intermediate biotypes between these two extremes—the annual and perennial—that evolve in naturalized populations under field conditions.** The scientific name implies the species is an annual, but in fact there are numerous biotypes, some of which are distinctly perennial. This situation has been accentuated by their culture as turfs, in which the perennial types increase and may become dominant within 5 years on fairways and sports fields that are mowed at a close height, fertilized with high nitrogen levels, and intensely irrigated.

However, **for the first time we now have a perennial cultivar of *Poa annua,* released by the Minnesota AES under the name of DW-184,** which is described as forming a dense, erect, dark-green turf that sustains this green color under low nitrogen nutritional levels. Furthermore, DW-184 produces few seedheads and only for a short time in the spring, and has improved resistance to a number of diseases.

To avoid confusion, ***Poa annua* var. *reptans* types have been assigned the common name creeping bluegrass, while the *Poa annua* type will continue to be called annual bluegrass.** Hopefully, this distinction between the two extreme types will reduce the confusion from a common name terminology standpoint.

Plant Characteristics	Annual Bluegrass (*Poa annua*)	Creeping Bentgrass (*Poa annua* var. *reptans*)
life cycle	annual	perennial
growth habit	erect, bunch-type	creeping, stolon-type
rooting	few adventitious	many adventitious
seedhead formation	many	few
seed dormancy	significant	minimal
herbicide tolerance	less	greater

Petroleum Spill Injury Symptoms

James B Beard

There are occasions when injury occurs to a turf which is attributed to a petroleum spill that is of an unknown source or is due to vandalism. In this case, the injury symptoms are important clues in diagnosing the particular type of petroleum spill. With this information one can then implement the appropriate corrective treatment, including the possible need for turf reestablishment.

With symptoms related to petroleum spills, there is always **the variable relating to the actual volume of the spill involved.** If there is penetration of the petroleum spill into the root zone, in addition to turf kill, then removal of the contaminated soil may be required. The lighter volume spills may affect only the turfgrass canopy, and can be more easily and sometimes quickly corrected. In addition, **the temperature of the petroleum fluid at the time of the spill** can affect the speed and extent of injury to the associated turfgrass. Based on these qualifying principles the typical symptoms of five types of petroleum spills are described as follows.

Brake Fluid. Initially, the leaves have a shiny, wet appearance, plus a distinctive brake fluid odor. The leaf blades retain the shiny appearance for about 30 minutes, but then begin to darken and dry, with some longitudinal leaf rolling evident. There may be no change after about 1 hour. The turf has a pale grayish-green color after about 16 hours, with extensive leaf rolling apparent. All shoots may be dead after 48 hours, with a distinct light-yellow color.

Gasoline. The turf is shiny, with a slight oily appearance. The most distinguishing initial feature of a gasoline spill is the pungent odor emitted from the turf. Within 30 minutes the turf is drying rapidly, as evidenced by its darker color and longitudinal leaf rolling. Severe leaf rolling occurs after 1 hour. The turf is completely brown after about 16 hours, with a faint smell of gasoline still lingering. Then, 40 hours after spillage, the turf is yellow to yellowish-brown in color.

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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.**