Spring (and *Poa Annua*) Is in the Air

BY KARL DANNEBERGER

Spring is the time for turf renewal and rejuvenation. *Poa annua* is part of that spring ritual — often appearing surprisingly out of nowhere and in full bloom. *Poa annua* is the most seductive of all the plants with which we deal. How can you better explain spending one's entire professional life obsessed with either trying to kill it or maintain it — and then endure scorn for your efforts.

Studying *Poa annua* is an engrossing and consuming endeavor, but like spring keeps one scientifically young. There is always something new to be learned and written from studying *Poa annua*. For example, I have always been curious of how a putting green in the fall that is uniformly dense and comprised entirely of creeping bentgrass can appear pockmarked in late winter because of *Poa annua*.

A common explanation is that *Poa annua* germinates in the fall when soil temperatures drop below 70 degrees Fahrenheit — or as more recently reported that the optimum temperature for germination of *Poa annua* is 19 degrees Celsius daytime (66 degrees F) and 10 C (50 degrees F) nighttime (McElroy, et al., 2004) — with the plants not becoming apparent until mid to late winter because of environmental or management disturbances.

What bothers me about the above scenario — given that *Poa annua* is considered a pioneer (one that initially establishes itself in a barren area) or opportunistic weed that requires a disturbance to germinate and colonize an area — is no apparent disturbance has occurred to some of these greens. Disturbance is important because opportunistic weeds do not like competition from other plants. Additionally, weeds that produce small-sized seeds like crabgrass and *Poa annua* need a disturbance so light can penetrate the canopy and trigger germination.

Given conventional thought, the above green must have had a disturbance (ball marks, wear, excessive grooming or management practices) that provided openings for *Poa annua* seeds to receive light-triggering germination. How much disturbance is needed? The answer is rather complex but apparently not much.

APPARENTLY, *POA ANNUA* DOESN'T NEED LIGHT TO GERMINATE

Researchers at Auburn University (McElroy, et al., 2004), besides looking at the optimum temperatures for *Poa annua* germination, investigated the impact of photoperiod. When analyzed across temperature treatments, they reported that *Poa annua* could germinate in complete darkness at a level relatively close to germinations observed under light.

Although most weeds that produce small seed need light to germinate, *Poa annua* apparently does not. While disturbance is still important for *Poa annua* to occur, the ability for it to germinate under a dense turf canopy provides it a competitive advantage.

To continue along the pioneering abilities of *Poa annua*, one of the all-time classic turf lines was coined by Dr. Joseph Vargas who said, "When creeping bentgrass dies, *Poa annua* fills in. And when *Poa annua* dies, what fills in? *Poa annua*." Given that quote, I wonder why another weed or a native turfgrass species does not establish itself.

In a series of field studies, ecologist Joy Bergelson (1990) suggested that the presence of litter produced by *Poa annua* during colonization reduced both the germination and survival of native grasses. When it dies, *Poa annua* "remains" might provide its offspring the opportunity and advantage to germinate and establish with minimal interference from other species.

If we ever get to the point where we think we know everything there is to know about turfgrass management, ecologist will always remind us, "Not quite yet."

Karl Danneberger, Ph.D., Golfdom's science editor and a turfgrass professor from The Ohio State University, can be reached at danneberger.1@osu.