# Managing *Poa annua* for non-overseeded bermudagrass in the transition zone

ANNUAL BLUEGRASS is a winter annual grassy weed with a bunch-type growth habit (Figure 1) that often forms distinct patches or clumps in established turf. Annual bluegrass has many identifying characteristics including: (1) leaves that are folded in the bud, often partially wrinkled, and end in a boat-shaped tip (Figure 2); (2) a long, membranous, slightly pointed ligule; and (3) a panicletype seedhead that is triangular in shape with spikelets bunched toward the end of the inflorescence (Figure 3).

Annual bluegrass seed will begin to germinate in autumn when soil temperatures fall below 70 degrees F. In the transition zone, this can be as early as August. At the same time that annual bluegrass seed is germinating, bermudagrass growth in the transition zone begins to decrease, resulting in less competition against weed encroachment. Dormant bermudagrass turf is often overseeded with cool-season species, like perennial ryegrass, to improve playability and aesthetics throughout the winter months, and to provide competition against various winter annual weed species. On golf courses, Velocity (bispyrabic-sodium) can be used to con-

Below: Figure 1

trol annual bluegrass in overseeded bermudagrass turf; however, this is not a suitable option for sports turf managers as *this product is not labeled for use on athletic fields*. Thus, annual bluegrass control programs for bermudagrass athletic fields should be implemented when an overseeded turf species is not present.

#### **Options for control**

Cultural Control. The best defense against any type of weed invasion is to maintain a dense, vigorous turfgrass stand. Cultural practices that maximize bermudagrass quality will allow the field to be competitive against potential weed invasions. These practices include things like mowing regularly at an appropriate height of cut, aerating regularly to provide soil conditions favoring root growth, and providing the field with adequate amounts of fertilizer and irrigation water.

Herbicidal Control (preemergence). Numerous preemergence herbicides are available for controlling annual bluegrass on non-overseeded bermudagrass athletic fields. Research conducted at Tennessee has shown that these materials perform similarly when applied under the same environmental conditions.

## Major points

 Numerous preemergence and postemergence options exist for control of annual bluegrass on non-overseeded bermudagrass athletic fields.

• Make sure bermudagrass is totally dormant when using non-selective herbicides for annual bluegrass control.

• Rotate herbicide modes of action whenever possible to decrease the potential for developing annual bluegrass herbicide resistance.

• An application of glyphosate tankmixed with a preemergence herbicide in early spring can provide preemergence crabgrass control as well as postemergence control of annual bluegrass.

Preemergence herbicides must be applied before seed germination in order to work effectively. These materials do not stop seeds from germinating; rather, they prevent seedlings from maturing into full grown plants. Thus, preemergence herbicides must be applied before seed germination in order to work effectively.

Annual bluegrass will germinate when



soil temperatures fall below 70 degrees F, which in Tennessee is usually sometime in early September. However, temperatures can occasionally decrease during the month of August causing annual bluegrass to germinate earlier than normal. This "early germination" is often the reason that preemergence herbicide applications fail to control annual bluegrass. In the transition zone, target preemergence herbicide applications for mid to late August.

Preemergence herbicides should NOT be applied if there is any consideration of overseeding the field with a cool-season turfgrass species like perennial ryegrass (unless otherwise stated on the product label).

Herbicidal Control (postemergence). There are multiple postemergence herbicides that provide effective annual bluegrass control on non-overseeded bermudagrass athletic fields. Postemergence applications can be made any time after annual bluegrass seed has germinated. Caution should be used when applying postemergence herbicides close to the end of bermudagrass winter dormancy. Some herbicides can delay spring green-up when applied close to the break of dormancy.

Herbicidal Control (non-selective). Glyphosate can be applied to dormant bermudagrass to provide postemergence control of annual bluegrass. Keep in mind that injury can occur to the bermudagrass if it is not totally dormant. Anytime an application of a non-selective herbicide, like glyphosate, is used for weed control it is integral that the bermudagrass turf is totally dormant (Figure 3). If the bermudagrass is transitioning into or out of dormancy serious injury can occur.

Herbicidal Control (by tank-mixes). Combining pre- and postemergence materials will increase the weed control spectrum of a single herbicide application. For example, should temperatures drop in the fall to the point where annual bluegrass seed begins to germinate, tank-mixes of pre- and postemergence herbicides can be applied to control annual bluegrass plants that have recently emerged and those that have not yet germinated from seed.

If a glyphosate plus preemergence herbicide tankmix is applied in late winter (February to early March in Tennessee), it can also provide preemergence control of crabgrass the following spring. Tank-mixes of pre-

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## **FieldScience**

Figure 3

emergence herbicides and glyphosate have performed well in research trials conducted at the University of Tennessee.

Annual bluegrass has been found to be resistant to certain herbicides. For example, incidences of prodiamine resistant annual bluegrass have been reported in Tennessee. Any herbicide program should use a rotation of herbicides, each with different modes of action, to decrease the likelihood of developing herbicide-resistant biotypes.

#### Have a plan

Sports field managers should always have a plan for controlling annual bluegrass on their fields. The control strategy selected (preemergence, postemergence, non-selective, or a combination of these) will in part be influenced by the schedule of field use. If fields are used heavily at one particular time of year there may literally not be enough time to apply an herbicide. Additionally, the heavy foot traffic from these athletic events could also reduce herbicide efficacy.

If the majority of play is during the spring for soccer, then preemergence herbicides applied in the fall may be the most effective option for annual bluegrass control. On the other hand, if the field is used heavily during the fall for football, then postemergence or non-selective control in the early spring may be a better option.

Multiple preemergence and postemergence herbicides are available for controlling annual bluegrass on non-overseeded bermudagrass athletic fields in the transition zone. Applying tank mixes of both preemergence and postemergence herbicides can help extend control throughout the winter and potentially into the spring.

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