Lawn and Turfgrass Weeds: False Green Kyllinga (Kyllinga gracillima Miq.)

False green kyllinga, sometimes called pasture spikesedge and other common names, is a warm-season, non-native weed species found in golf course turf, lawns, and athletic fields. This species thrives in moist, poorly drained soils and can persist in full sun and moderate shade. False green kyllinga (Kyllinga gracillima Miq.) is an aggressive weed that spreads via underground stems called rhizomes and seed produced from small, globe-shaped seedheads. Turf managers and homeowners find its somewhat coarse texture and tendency to form off-color patches in turf objectionable. This weed species has spread as far north as southern New England in recent years and is becoming more prevalent in Pennsylvania, with most infestations occurring in the southeastern portion of the state.

Life cycle: False green kyllinga is a member of the sedge family (Cyperaceae) and has a perennial life cycle. This species reproduces by seed and nodes on rhizomes. It does not produce tubers like some other sedge species. Roots, stems, and leaves of false green kyllinga emerge from seed or nodes on rhizomes in late spring/early summer, and plants grow rapidly, forming dense patches during warm, humid weather in summer. The foliage of false green kyllinga dies back in fall following frost events. Rhizomes serve as vegetative overwintering structures.
Identification: False green kyllinga is easily distinguished from cool-season turfgrasses by its light green, somewhat coarse, shiny foliage. Leaves of false green kyllinga are typically narrower and slightly darker green than yellow nutsedge, a closely related weed species. Also, false green kyllinga plants usually form more tillers than nutsedge. As with other members of the sedge family, false green kyllinga has angular, three-sided stems, which can be detected by holding and turning the stem base between your thumb and index finger. Making a cross-section cut of the stem with a sharp knife reveals the triangular shape of the stem. Stem bases typically show a reddish hue when outer leaf sheaths are stripped away. Seedheads of false green kyllinga are not usually visible in turf mowed below 2 inches but can be observed in mid to late summer in turf maintained under high mowing heights or in non-mowed areas (flower beds and infrequently mowed naturalized grass stands on golf courses) and can be used as an identifying feature of this weed. Seedheads are globe-shaped, approximately ¼ to ½ inch in diameter when fully developed, and break apart into multiple spikelets when mature or after they fall to the ground. Seedheads are typically subtended by three leaf-like bracts radiating more or less horizontally from the supporting seedhead stalk (culm).
Management and Control

Cultural management

False green kyllinga can be introduced into turf stands through transfer of seed and/or rhizomes from infested sites. Transfer of seed can occur through attachment to shoes or maintenance equipment, and rhizomes and seed can be introduced to new turf via soil. Using soil for new establishments from sites with no previous history of false green kyllinga infestation can lessen the chances of contamination. Because this species is well adapted to persistently moist or wet turfgrass sites, draining these areas will create a more favorable environment for turfgrass and reduce the competitive advantage of false green kyllinga.

If only a few false green kyllinga plants are observed infesting turf, they can be removed by digging out entire plants (leaves, stems, roots, and rhizomes) before large patches form later in the growing season. Be sure to remove all the below-ground portions of plants, as broken bits of rhizomes can give rise to new plants. Improving turf density through fertilization, regular mowing, and the use of turfgrasses well-adapted to site conditions will help to slow the spread of false green kyllinga but may not provide effective suppression once it becomes established.

Chemical control

The most effective control of established false green kyllinga is with postemergence herbicides during late spring and/or early summer when foliage is green and actively growing. Preemergence applications are rarely effective as a control measure once false green kyllinga plants become established in turf because seedheads are not typically produced under mowing heights used for lawns, athletic fields, and golf turf. However, preemergence applications can be effective in suppressing seedling emergence in situations where false green kyllinga seeds from non-mowed areas are introduced into turf stands. Because this weed has strong potential for regrowth after the first postemergence herbicide treatment, follow-up application(s) 4 to 6 weeks after the preceding application may be needed for adequate control. Postemergence herbicides are typically most effective when mowing is curtailed for 2 to 3 days before and after application.

Some common postemergence herbicides labeled for control or suppression of false green kyllinga in cool-season turf include imazosulfuron (Celero); halosulfuron-methyl (Sedgehammer, Prosedge, and Sedgemaster); sulfentrazone and sulfentrazone-containing products (Dismiss, Surepyc, Dismiss NXT, Solitare, Solitare WSL, and Echelon 4SC); and pyrimisulfan (Vexis). Imazosulfuron: Celero herbicide contains the active ingredient imazosulfuron, which belongs to the sulfonylurea herbicide class and has systemic activity in susceptible weed plants. This product is labeled for use on most cool-season turfgrasses and controls different sedge species (including false green kyllinga) as well as some broadleaf weeds. A non-ionic surfactant must be added to the spray solution for optimum control. More than one application may be needed for effective control.

Halosulfuron-methyl: Sedgehammer, Prosedge, and Sedgemaster are herbicide products that contain the active ingredient halosulfuron-methyl, a sulfonylurea herbicide with systemic activity. These products are labeled for use on most cool-season turfgrasses. Product labels suggest adding a non-ionic surfactant to the spray solution for optimum control of false green kyllinga. More than one application may be needed for effective control.

Sulfentrazone and sulfentrazone-containing products: Dismiss and Surepyc are contact herbicides labeled for control of false green kyllinga and contain 39.6% sulfentrazone as the active ingredient. Sulfentrazone is classified as a protox inhibitor, a group of herbicides characterized by their disruptive effects on plant membrane function. In contrast to most systemic herbicides, Dismiss and Surepyc are very fast acting but do not translocate to growing points below the soil surface; hence, a single application rarely provides effective long-term control. Both products are labeled for use on most turfgrasses grown in Pennsylvania but can cause foliar injury to some cultivars of fine fescues. Neither product is labeled for use on putting greens.

Dismiss NXT contains sulfentrazone (31.77%) and a small amount of carfentrazone-ethyl (3.53%) and is labeled for control or suppression of false green kyllinga, other sedges, and some broadleaf weeds. Solitare and Solitare WSL (sulfentrazone and quinclorac) are labeled for control or suppression of false green kyllinga, other sedges, and broadleaf weeds in most cool-season turfgrasses. Echelon 4SC (sulfentrazone and prodiamine) is also labeled for postemergence control or suppression of false green kyllinga in turf and preemergence control prior to seed germination in bare ground areas. Users should be aware of extended seeding restriction intervals after using Echelon 4SC due to the preemergence herbicide activity of prodiamine.

Pyrimisulfan: Vexis (pyrimisulfan) is a postemergence herbicide labeled for control of kyllinga species, yellow nutsedge, rush species, as well as some broadleaf weeds. This herbicide differs from the previously mentioned products in that it is available only as a granular formulation. Vexis is labeled for use on established cool-season and warm-season turfgrasses on residential and commercial turf, sports turf, and golf courses. Bentgrasses maintained at mowing heights of 1/2 inch or less should not be treated with Vexis. For optimum results, Vexis granules should be watered into the turf within 48 hours of application and before treated areas are mowed.

Dimethenamid-P: Tower herbicide is strictly a preemergence herbicide that is labeled for the control of sedges and certain annual broadleaf and grass weeds. The active ingredient of Tower is dimethenamid-P, a mitosis inhibitor that affects shoots of germinating seeds before they emerge from the soil. Tower is labeled only for use on golf courses for cool-season turfgrasses.
Summary table of some herbicide products labeled for control or suppression of false green kyllinga.

<table>
<thead>
<tr>
<th>Active ingredients</th>
<th>Activity</th>
<th>Product name(s)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imazosulfuron</td>
<td>Systemic, postemergence</td>
<td>Celero</td>
</tr>
<tr>
<td>Halosulfuron-methyl</td>
<td>Systemic, postemergence</td>
<td>Sedgehammer, Prosedge, Sedgemaster</td>
</tr>
<tr>
<td>Sulfentrazone</td>
<td>Contact, postemergence</td>
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<tr>
<td>Sulfentrazone and carfentrazno-ethyl</td>
<td>Contact, postemergence</td>
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<tr>
<td>Quinclorac and sulfentrazone</td>
<td>Contact, postemergence</td>
<td>Solitare, Solitare WSL</td>
</tr>
<tr>
<td>Prodimine and sulfentrazone</td>
<td>Contact, postemergence, some preemergence</td>
<td>Echelon 4SC</td>
</tr>
<tr>
<td>Pyrimisulfan</td>
<td>Systemic, postemergence</td>
<td>Vexis</td>
</tr>
<tr>
<td>Dimethenamid-P</td>
<td>Preemergence only</td>
<td>Tower (golf course use only)</td>
</tr>
</tbody>
</table>

*Follow label precautionary statements, restrictions, and directions regarding tolerant turfgrass species, rates, and timing of applications.

References

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