GREEN KYLLINGA

Integrated Pest Management for Home Gardeners and Landscape Professionals

Figure 1. Mature green kyllinga plant showing rhizome, roots, stem, and inflorescence.

Green kyllinga (*Kyllinga brevifolia)* is a weedy sedge that is becoming a major problem in turf and ornamental plantings in California. The genus *Kyllinga* consists of about 40 species that are distributed worldwide in subtropical and warm, temperate regions. Green kyllinga has been reported as a weedy problem from Florida across the southeastern United States into Arizona, California, and Hawaii. In California it occurs from San Diego in the south to the Sacramento Valley in the north. Green kyllinga is believed to have originated in Asia and was reported as a weed in California over 50 years ago. In the last few years, however, it has developed into a major problem for turfgrass and ornamental managers. Green kyllinga is often confused with yellow or purple nutsedge because it is similar in size and in the way it grows. However, the flower of the green kyllinga plant and the absence of underground tubers make it easy to distinguish from nutsedge.

IDENTIFICATION AND LIFE CYCLE

Green kyllinga (Fig. 1) is a perennial plant that grows best in moist or wet areas that receive full sun, but it can survive some shade and drying once established. Kyllinga grows well during the warm weather from April through October. It is dormant in winter but remains green in warm climates where freezing does not occur. When left unmowed, green kyllinga can reach a height of about 15 inches. In areas that are mowed, it grows in a prostrate manner, producing a network of numerous underground stems or rhizomes. It roots and sends out leaves at each stem node. If green kyllinga rhizomes are removed and chopped into pieces, new plants can be produced from each node or stem section.

Leaves are long and narrow, ranging from 1 to more than 5 inches in length. Flowering usually occurs from May to October, but it can occur earlier in warm locations. Flower stalks are triangular in cross section and 2 to 8 inches in length. The stalks terminate in a globular inflorescence (flower) that is green and about 3/8 inch in diameter (Fig. 2). Directly below the flower is a group of three leaves that radiate out from the stalk. There are 30 to 75 spikelets within each flower and each one is capable of producing one seed. A mature plant can produce over 100 flowers within a growing season and up to 5,000 seeds.

The seed of the green kyllinga plant is highly viable. It has an oval shape and is flat in cross section; it is about 1/8 inch long and 1/16 inch wide. Seed germination occurs at or very near the soil surface. Burying seed as little as 1/3 inch below the soil surface reduced germination 12-fold in one Arizona study. The tan-colored seed germinates when soil moisture is adequate and soil temperatures reach about 65°F. Germination continues throughout the summer. Seedling growth is slow initially and plants may require several weeks to become established. Once established, green kyllinga forms a vigorous system of rhizomes. It can survive and even flower and produce seed at mowing heights of 3/4 inch.

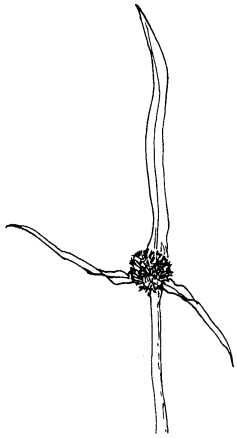

Figure 2. Seed heads of green kyllinga showing three subtending leaves on a short stem.

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IMPACT

Green kyllinga can be a major weed problem for turfgrass and ornamental managers. In turf it forms a weak sod that gives poor footing for athletic fields and golf courses. Although green kyllinga is most often a problem in bermudagrass, it has been found in cool season turf species as well. Green kyllinga has a texture and color that varies from normal turfgrass species and reduces the aesthetic quality of the turf. Also, green kyllinga grows faster than most turfgrass species, which gives infested turfgrass an undulating or irregular surface in as little as 2 days after mowing.

Once a few plants become established in turfgrass or ornamental areas, spread can be rapid. In warm weather, rhizomes can grow by more than 1 inch per day, forming thick mats in just a few weeks. Seed and rhizomes are spread by mowing, foot traffic, and cultivation. This allows the production of new plants and hastens spread.

MANAGEMENT

The primary method of control is to prevent new infestations. Thoroughly clean mowers and cultivation equipment before moving from infested to weed-free areas. If solitary plants of green kyllinga are found, they should be grubbed out (i.e., remove the entire plant, roots and all) and the area monitored for several months to make sure that removal was complete. When green kyllinga infests ornamental plantings it forms a dense mat that crowds out desirable species and reduces the vigor of those plants that survive. Because of the extensive rhizome system in established stands, hand-pulling or hoeing to remove green kyllinga is usually futile unless done repeatedly over a long period of time. Thus control by this means is very expensive and not always successful. Areas with infestations should be isolated until control can be accomplished. Turfgrass and ornamental areas should be well maintained to promote maximum vigor. This will aid in making these plantings as competitive as possible to slow invasion of the weed. Dense turfgrass and ornamentals will shade the soil surface making the establishment of green kyllinga seedlings difficult.

Turfgrass

No single control procedure has been successful in controlling green kyllinga in turfgrass.

Early grubbing of solitary infestations has been successful when practiced diligently. Spot-spraying isolated plants with glyphosate can be helpful, but the turfgrass is also killed, leaving open areas and making kyllinga reestablishment easier. The open spots should be overseeded to establish a vigorous turf.

Preemergent herbicides have been successful in limiting germination of green kyllinga seeds. These herbicides could be applied in spring before soil temperatures reach 60°F to limit germination in late spring and early summer. Preemergent materials that can be used by home gardeners include pendimethalin, bensulide, and benefin. Commercial applicators may also use prodiamine and dithiopyr.

Postemergent herbicides can limit growth of green kyllinga. For commercial applicators, best control has been obtained when halosulfuron has been applied in two applications spaced about 2 weeks apart. Multiple applications of MSMA will reduce infestations (at least three applications at 7- to 10-day intervals are needed). Bentazon has reduced green kyllinga growth when two applications were made about 2 weeks apart. Both MSMA and bentazon can be applied only by licensed pesticide applicators.

Ornamentals

There are few options for the control of green kyllinga in ornamental plantings. Prevention is very important. Hand-removal or spot-spraying of solitary plants will save time and money in the long run. Cultivation or hand-hoeing, although possible under some circumstances, is generally not useful and may be detrimental. Hoeing may break rhizomes into smaller pieces and "transplant" them to new areas. This is particularly true if irrigation follows hoeing. Geotextile mulches combined with hand-removal should provide adequate control in home gardens.

Mulching with landscape fabrics (geotextile mulches) can be effective if fabrics are overlapped and no light is allowed to penetrate to the soil. Use a polypropylene or polyester fabric or black polyethylene (plastic tarp) to block all plant growth. Wood chips or bark may be placed on top. Organic mulches alone may not effectively control kyllinga because it will probably grow through the mulch.

Preemergent herbicides such as oryzalin and pendimethalin can be used to limit seedling germination in sites where their use is permitted. Make applications in April before soil temperatures reach 60°F. Preemergent herbicides will be of little benefit if established kyllinga plants are already present.

Few postemergent herbicides are registered for use in established ornamental plantings. Spot treatment with glyphosate can reduce green kyllinga growth, but do not let the spray come in contact with desirable plants or injury will result.

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For more information contact the University of California Cooperative Extension or agricultural commissioner's office in your county. See your phone book for addresses and phone numbers.

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WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits and/or vegetables ready to be picked.

Dispose of empty containers carefully. Follow label instructions for disposal. Never reuse the containers. Make sure empty containers are not accessible to children or animals. Never dispose of containers where they may contaminate water supplies or natural waterways. Do not pour down sink or toilet. Consult your county agricultural commissioner for correct ways of disposing of excess pesticides. Never burn pesticide containers.