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The Green Scene

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Green Kyllinga and Nutsedge in Turfgrass

Green kyllinga, *Kyllinga brevifolia*, is a newcomer but increasingly common in turfgrasses around Bakersfield. It is a sedge rather than a broadleaf or grass, and can thrive despite the low mowing heights common in hybrid bermudagrass. Green kyllinga likes wet conditions and full sun, but will thrive in partial shade. Typical irrigation is sufficient for it. The plant can be introduced by mowing equipment, and that's how I think it arrived where I live.

As for other weeds, making turf competitive is key, through proper mowing height, sufficient nitrogen, and sufficient (not too much) irrigation. Green kyllinga spreads through growth of underground stems (rhizomes) as well as through seed head formation, although mowing can reduce the seedhead numbers. Close mowing often leads to invasion of green kyllinga and other weeds, since turf loses its ability to spread and compete.

One reason for the spread of green kyllinga is its resistance to many of the common herbicides used by homeowners. Glyphosate (Roundup™, other tradenames) can limit the spread of kyllinga but will also kill turfgrasses so is not a very good option. Pre-emergents such as oryzalin (Surflan™) or pendimethalin can limit seed germination, but may not be available to homeowners and may not be labeled for turf use. Pre-emergents are not effective against established plants. Removing solitary plants by hand is effective, but it is important to pull out as much of the main stem as possible.

Nutsedge is an upright-growing, grass-like plant often found in landscapes and turf. Control is difficult, and the best management strategy is to avoid introduction!
Although nutsedge is often called nutgrass, it is not a grass but rather is in the sedge family. Its shiny triangular stem is a reliable characteristic for identification. The two principal species, *Cyperus esculentus*, yellow nutsedge, and *C. rotundus*, purple nutsedge, are found in Kern County. The nutlets of yellow nutsedge are globe-shaped, smooth, brown, and found at the ends of rhizomes. They are reported to have an almond-like flavor. The leaves at the base of the flowering stem are as long or longer than the stem. Purple nutsedge can be recognized by that color on the inflorescence, and produces nutlets that are oblong, scaly, reddish, and appear as chains. They are reported to have a bitter flavor. The leaves at the base of the flowering stem are shorter than the stem. Yellow nutsedge is more tolerant of cold conditions than is purple nutsedge, but purple nutsedge is the more drought tolerant and difficult to control.

In the spring, nutsedge plants sprout from tubers (nutlets, nuts) that overwinter in soil and are very resistant to drying and cold. The growing plant develops roots and underground stems (rhizomes) accompanied by tubers, which are thickened stems that act as food reservoirs. Flower clusters develop during the summer on unmowed plants, but seedlings are rarely observed. Rather, tubers that form at the ends of rhizomes are more important in spread of nutsedge as one parent plant gives rise to numerous daughter plants.

Tubers can be spread during soil cultivation, movement of fill earth containing them, in topdressing materials, and in organic amendments. A frequent source of introduction has been the use

of contaminated topdressing materials applied in autumn for overseeded ryegrass, including "weed-free" manure products (a claim California law does not require testing to verify). Many gardeners have switched to other organic matter sources not containing soil, such as forest humus, or establish overseeded grass without mulch materials.

Why is nutsedge so difficult to control? It reproduces rapidly and is adapted to most soil conditions. Because nutsedge is neither a member of the grass family nor is it a broadleaf, it is not affected by most herbicides that are effective against either of these groups. Also, herbicides do not move into the mature tubers, and if the rhizome is killed the tuber remains to begin a new plant. For post-emergent control, MSMA (active ingredient although now difficult to find) can be used, but repeat applications are necessary and MSMA can cause yellowing of turfgrasses at high temperatures or high rates. In recent years, the herbicide halosulfuron (Sedgehammer™, formerly Manage™) has become available. It is more expensive than MSMA, and anecdotal experience suggests more than one application is necessary. Glyphosate (Roundup™, Kleenup™) does not work well for suppressing nutsedge.

To reiterate, the best approach is still to prevent introduction of nutsedge—and green kyllinga. Descriptions of the biology and control, with photos, are available for both green kyllinga and nutsedge on the UC IPM website, http://www.ipm.ucdavis.edu/.

Horticulture for Landscapes, Orchards and Gardens

Fall 2013 Horticulture Classes Offered by UC Cooperative Extension

For more than 25 years we've offered horticulture classes to the community, and we are pleased to do so again this autumn. Upcoming classes can benefit homeowners by conveying knowledge of how to take care of turf and landscape plants as well as how to grow food, including vegetables and fruits, saving time and money. We emphasize water conservation and non-chemical alternatives to pesticides.

The classes have also been attended by many in the turf and landscape industry, since we offer research-based information on how plants grow and up-to-date information on pest management and irrigation practices. Representatives from homeowners associations and real estate professionals may also wish to attend to pick up tips on evaluating landscapes, using appropriate terminology to request work from landscape contractors, and evaluating work that is done.

A Master Gardener I class will be offered Tuesday nights, 5:30-8:30 p.m., beginning August 20, 2012, and extending 16 weeks. Topics will include plant selection, soil science, landscape design principles, and pest management with an emphasis on organic and IPM methods, as well as sessions on vegetable crops, deciduous fruits, and citrus. A syllabus is available.

A Master Gardener IV class is planned for Monday nights, also 5:30-8:30 p.m., beginning August 19, also for 16 weeks. Topics will be additions to those covered in the introductory class.

We ask those interested in either class to contact the Cooperative Extension office at cekern@ucdavis.edu or 868-6200, to pre-register to reserve a space and help us track class size. Cost of each 16-week class session will be $70, same price as in recent years. Actual registration will be handled at the first class meeting. (Although we may refer to these locally as Master Gardener classes, we don't sponsor the Master Gardener program with its volunteer component.)

October, 2013, Return to Chernobyl, Ukraine

In September, 2012, I organized a group visit to Chernobyl, site of a nuclear accident in 1986. The two days in the Chernobyl area and the accompanying days in Kiev were fascinating, enough so that I plan to return for one more visit. If you would like to join me, please send me a note (or call) and I'll send you additional information. Chernobyl is a story of response to adversity and ecosystem recovery. The area is safe to visit and our group felt quite comfortable in Ukraine.

Termites and Shade Trees

Do termites feed on landscape trees, causing injury?

Termites are social insects living in colonies, and found wherever the annual temperature is 50°F or above. At least 69 species exist which can be divided into four broad groups, but only the subterranean and drywood termite groups are found in Kern County. Winged ants superficially resemble termites, but the rear wing of a termite is about the same size as the front wing. The waist is not much smaller than the mid-body and the antennae are not elbowed. Ants have a smaller rear wing than front wing, elbowed antennae, and a very narrow waist where the abdomen attaches. Carpenter ants are found in wooded areas and sometimes get into homes, but definitely resemble other ants. They build nests in wood but do not eat wood as termites do. Powder post beetles tunnel in wood, but produce very fine sawdust unlike the coarse pellets of termites.

Subterranean termites must maintain contact with the ground to do damage to wood. Insects can enter directly if wood rests on soil, or tunnels of soil called chimneys can reach from the soil to exposed wood. Subterranean termites are much more destructive than drywood termites, creating an extensive gallery system in wood beams and traveling from board to board. One control strategy is to break the contact with the ground, a standard practice in construction accomplished by a concrete slab foundation. Soil beneath the foundation or in a crawl space could also be treated with an insecticide. It is rare to find subterranean termites in trees, because dead wood on the exterior of the tree in contact with soil would be required.

Drywood termites do not need contact with soil, and can therefore colonize wood well above-ground. They can fly into buildings, often in the autumn, and are often found in wood window frames or other exposed wood. They remain where they first invaded and usually stay in the same board. Bits of sawdust-like frass can be seen around the colonized area approximately three years after colony establishment. Control methods include drilling holes to reach the feeding sites and injecting an insecticide, or in cases of heavy infestation a building can be tented and fumigated. Drywood termites can often be found in shade trees where large pruning cuts afford access to dead tissue in the heart of a tree. Older sapwood (xylem) is no longer alive, and can be a food source for these insects; however, termites feed only on dead wood and do not injure living tissue. Topical chemical treatments are generally ineffective because the chemical is not able to penetrate the dead wood in sufficient concentration to affect the termites. Systemic insecticides cannot move in dead tissue, and are therefore also ineffective against termites living in trees.

Tree Decline

We think of the Bakersfield area as the garden spot of California, and trees are a part of the attraction of our fair city. Unfortunately, most trees do not live to great age in Kern County because the Kern climate often does not resemble where respective shade trees grow naturally. More specifically, stresses caused by warm summer temperatures, low humidity, and alkaline soils, can shorten tree longevity. Perhaps the most obvious example is coast redwood, *Sequoia sempervirens,* remarkably

successful in Bakersfield considering mountain locations of natural stands, but frequently displaying needle discoloration even as young trees.

Trees pass through the circle of life, i.e. growth, maturity, decline and death, and in Kern County they do so more rapidly than in many other locations. The term decline refers to premature, progressive loss of vigor and health. Decline may include slow growth, sparse foliage, dieback and undersized foliage. Decline because of age is common, since trees have life spans and life expectancies. Also, as trees become larger, demand for water increases, and so previously adequate irrigation may become limiting. Trees of the same species and similar ages may simply decline together without a specific infectious agent moving among them.

Decline is an inclusive word where more specific causes of a malady may not be known. Trees exhibiting poor growth often do not have one identifiable cause responsible for their decline. Sometimes the word "pressure" is used to describe the effect on trees of parts of the environment which are not favorable. Insects, fungi and micro-organisms may also contribute to decline.

Decline can be caused by perennial or continual irritation by one factor, e.g., decline of pin oaks due to inadequate uptake of iron. Many trees species can be affected by drought stress or sunburn. Trees weakened by these factors become abnormally susceptible to fungi and insects, especially boring insects.

Decline can be caused by drastic injury plus secondary stress, e.g., the decline of native oaks after root loss as the result of construction of excavation. Although less severe a consequence, sycamore or ash may be affected by defoliation caused by anthracnose. Defoliation is most damaging if the foliage is removed just as leaves become fully expanded. This loss triggers a second flush growth during the same season, and the replacement of growth depletes the stored carbohydrate reserves of the tree and leaves it more susceptible to attack by secondary insects.

Decline can be caused by contributing factors such as girdling roots, restricted rooting space leading to water stress, cankers and water molds, soil compaction, or severe trunk wounds. Trees in parking lot plantings often have very small soil volumes for roots with resulting stress, stunting, and short life.

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