



UNIVERSITY of CALIFORNIA

## Agriculture & Natural Resources

COOPERATIVE EXTENSION • YOLO COUNTY

70 Cottonwood Street, Woodland, CA 95695 Tel. (530) 666-8143 Fax (530) 666-8736

### WEED MANAGEMENT IN LAWNS AND LANDSCAPES

Weeds occur in every lawn and landscape, but seldom become problems in lawns and landscapes that are well-managed and vigorous. Total eradication of weeds is not realistic or necessary. With good management practices, lawns and landscapes can be practically weed-free without the extensive use of chemicals. Here, we present some common troublesome weeds and methods of controlling them, followed by general strategies for preparing sites so as to minimize weed establishment, and finally, managing weeds in established lawns and landscapes.

*For photographs of the following weeds as well as other weeds in our area, visit the UC IPM website at:*  
[http://www.ipm.ucdavis.edu/PMG/weeds\\_common.html](http://www.ipm.ucdavis.edu/PMG/weeds_common.html)

#### COMMON TROUBLESOME WEEDS

**Crabgrass** is a low-growing, summer annual grass that spreads primarily by seed. Typical conditions favoring this weed are over watering or frequent light watering, or mowing lawns too short.

**Control.** Crabgrass weeds live out their lives in one season. Because crabgrass spreads and reproduces by seed, hand-pulling when the plants are young and before they produce seed will go a long way toward controlling the following year's crop. Other helpful management practices include mulching and hand weeding.

**Bermuda grass** is a perennial grass that is a troublesome weed in many gardens. Common conditions predisposing to Bermuda grass are previous Bermuda grass lawn (seeds), close mowing, sun, and heat. The plant grows rapidly when temperatures are warm and moisture is abundant. Bermuda grass has two types of shoots: those above ground (stolons) and those below ground (rhizomes). The stolons and rhizomes are capable of rooting in the soil, thus creating dense mats of new plants.

**Control.** Bermuda grass is not an easy weed to control, but can be managed nonchemically with a persistent program of removal, or, if possible, by withholding water during the summer to desiccate the stolons and rhizomes. In landscaping, clear plastic mulching (solarization) is effective for eradication of Bermuda grass plants and seed if it is applied during periods of high solar radiation. Control with herbicides requires careful timing and often more than one application.

**Spurges** are low-growing, summer annual plants with very small dark green, opposite leaves that form a dense mat. The plant has a central taproot system capable of extending more than 2 feet into the soil. Spurge does not like competition and depends on its prolific seed production for survival. A single plant is capable of producing several thousand small seeds that can remain dormant in the soil until conditions are suitable for germination. Seeds produced in summer germinate readily whereas those produced in late fall are mostly dormant and won't germinate until spring.

**Control.** The primary method of managing spotted spurge should be prevention—it is very difficult to control this weed once it is established. Infested areas must be constantly monitored to cultivate or hand-pull new plants before they produce seed. One of the best control measures for spotted spurge in turf is to maintain a healthy, competitive stand of grass. Watch for open areas developing in the turf either from stress, disease, insects, or abuse. These areas present conditions that allow spotted spurge to germinate. Once spotted spurge is established, altering cultural practices (mowing height, fertilization or irrigation) will not control it.

**Common knotweed** is a prostrate annual plant with numerous slender, wiry stems that are highly branched to form mats. Knotweed proliferates in turf and landscape areas that are highly compacted, such as walkways, foot paths, athletic fields or any other site that has frequent heavy traffic and sufficient moisture. Knotweed often germinates in the cracks of compacted soil.



University of California and United States Department of Agriculture Cooperating

**Control.** One of the best methods of control is to mitigate the condition under which this weed grows best—compacted soils. Arrange landscapes so that there is less likelihood that pathways or other areas will become compacted. Spread out traffic over a broader area. Do not trample areas soon after irrigation or rainfall. Aerate or loosen the soil to provide better drainage and a better environment for more desirable plant species. Prevent knotweed from producing seed by destroying young plants. This will reduce the amount of seed present in the soil in succeeding years. If areas are compacted, loosen the soil and overseed with a locally adapted grass seed.

**Field bindweed.** In the early 1900s, field bindweed was proclaimed the worst weed in California. A hardy perennial, field bindweed has a complex system of roots and shoots that proliferate downward and laterally, creating an extensive underground network and allowing it to persist in the soil for many years. Its seed has a long dormancy (up to 60 years!) and a climbing habit that allows the plant to grow through mulches. It is also very drought resistant. Field bindweed has sometimes been confused with morning glory, but these two species are easy to distinguish from each other. Morning glory has larger, showier flowers and heart-shaped leaves. Bindweed is a prostrate plant, unless climbing for support.

**Control.** Control of field bindweed is difficult and cannot be achieved with a single treatment or in a single season. The basics of management include a) preventing seed production (purchase clean seed and stock, and soil); b) cultivating or deep tilling (best at about 3 to 4 weeks from germination before buds form, followed by regular cultivation every 2 to 3 weeks); c) planting trees or shrubs that create shade (bindweed is not as competitive under shady conditions); and d) constant vigilance in removing top growth.

Other particularly prolific and troublesome weeds in lawns and landscapes are mallow (cheeseweed), nutsedge, and purslane. Details on identifying and managing these and other troublesome lawn and landscape weed species may be found at the UC Statewide IPM Program listed in References.

#### **WEED PREVENTION: PROPER PREPARATION OF YOUR SITE**

Proper site preparation and turfgrass selection are important factors in avoiding weed infestations in new lawns or landscape areas. Once lawns and landscapes are established, proper irrigation, fertilization, mowing and periodic hand weeding will maintain vigor and control most weed invasions. Most soils need to be amended with organic matter or nutrients. Amendments improve drainage in tightly compacted clay soils or improve the water-holding capacity in sandy soils. The ability of soils to drain water and simultaneously hold enough water is extremely important in establishing healthy lawns and landscapes. Covering the soil with clear polyethylene plastic for a period of time during spring and summer—soil solarization—can be effective in controlling many weed species prior to planting and is ideal for gardeners who want to avoid herbicide use. For more details on proper methods of solarization, see *Soil Solarization* listed in References.

**Healthy lawns begin with a properly prepared site.** Before planting, remove existing vegetation and prepare the bed. If you expect annual weeds to be a problem, irrigate the site and allow weeds to germinate. Follow up with a shallow cultivation or an application of a nonselective herbicide such as glyphosate. Repeat this process if necessary. For perennials, dig out and remove as many weeds and other vegetation as possible. Cultivate the soil to bring up buried propagules (stems, rhizomes, and tubers). It is best to do this when conditions are warm and dry so that the propagules will desiccate on the soil surface. A few species such as field bindweed and purple nutsedge cannot be controlled in this manner. A nonselective herbicide such as glyphosate, applied when weeds are actively growing, can also be used to kill many difficult-to-control perennials.

Choose a heat hardy and vigorous species of turfgrass that is appropriate for our area. In the Yolo and Sacramento County, tall fescue is often recommended. Detailed information on characteristics of various turfgrass species is available on Pest Notes #74113 listed in References below.

**For larger landscape areas,** begin your weed management plan before planting by adopting a multi-faceted, integrated approach. First assess the site for weeds before preparing the soil. Identify the types of weeds in your area so as to predict how to control them later, should they appear. Assess the existing soil, aspect, and slope of the site to determine which kinds of weeds might be favored and what you can do to minimize them (e.g., solarization, mulches, etc.). If weeds are present, control them before grading and site development. When beginning site development, be sure not to introduce weeds through soil or amendments brought onto the site. Choose plants that will be competitive with weeds. Woody plants will

give more weed control options than a landscape of only herbaceous annuals or perennials. Encourage rapid establishment of desired plants to out-compete weeds.

## **WEED MANAGEMENT: STRATEGIES FOR ESTABLISHED LAWNS AND LANDSCAPES**

Weed control options in lawns and landscapes include maintaining a healthy site, mulching, mowing, hand-weeding and cultivation, and chemical controls. Typically, all these methods are used at one time or another and in various combinations, depending on the landscape.

**Irrigation.** Many lawns are watered incorrectly. Poor irrigation practices can weaken turfgrass growth, allowing weeds to invade. Watering lightly and frequently creates a shallow-rooted lawn and can allow shallow rooted weeds such as crabgrass to gain a competitive edge. In general, deep, infrequent irrigation will encourage healthy turfgrass root growth. Water requirements vary, depending on turfgrass species and climate; typically, warm-season grasses need to be watered only once or twice a week. For specifics on watering, see *Lawn Watering Guide for California* in References.

**Fertilization.** To maintain a healthy lawn, follow fertilizing guidelines carefully. In general, lawns need to be fertilized about four times a year with no more than 1 pound of actual nitrogen per 1,000 square feet per application. See *Practical Lawn Fertilization* in References for requirements for specific turfgrass species.

**Mulching.** Mulch is any material placed on the soil to cover and protect it. Mulches suppress annual weeds by limiting light required for weed establishment. Both organic and inorganic mulches are available for landscapes. Organic mulches, such as bark chips, sawdust, yard waste, will eventually decompose and enrich the soil. However, they also can allow weeds to penetrate. Inorganic mulches, such as gravel, landscape fabric, or black plastic, do not add to the soil but are more stable than organic mulches and provide a longer lasting barrier against weeds. Black plastic provides excellent control of weeds, but lacks porosity and restricts air and water movement. A landscape fabric under mulch results in greater weed control than mulch alone. For best control, use coarse-textured mulch with a low water-holding capacity.

**Mowing.** Each turfgrass species has specific mowing height requirements. Mowing too short can weaken the grass, while mowing too high can cause a thick thatch layer to build up or can encourage weed flower and seed formation. A standard mowing guide is to remove no more than one-third of the leaf blade at each mowing. Avoid mowing when the soil is wet, as this can cause soil compaction, which gives weeds a competitive edge. See *The UC Guide to Healthy Lawns* listed in References for information on mowing requirements for common turfgrass species in both lawn and landscapes.

**Aeration.** Soil compacts over time, weakening the turfgrass and making it more susceptible to weed invasions. To alleviate soil compaction, aerate regularly, several times a year on heavy clay soil or soil with heavy foot or equipment traffic. Once or twice per year is adequate for small lawns with little traffic. Hand-held aerators are available for small lawns. Machine-driven aerators for larger lawns can be rented from equipment rental businesses.

**Hand weeding.** In lawns and landscapes, controlling weeds by hand-pulling may be all that is needed if you practice regular and proper maintenance procedures. Certain weeds—Bermuda grass, creeping wood sorrel, dallis grass, dandelion, spotted spurge, yellow nutsedge—are particularly difficult to manage once they have invaded. Hand weeding is the most effective management strategy for these weeds.

- Remove weeds while they are still young and before they set seed.
- Remove entire weed, including the root, rhizome, or other underground plant parts such as tubers or bulbs.
- Use a dandelion fork or a wide-bladed screwdriver to remove weeds with a thick taproot.

Hand-weeding may be less practical in large, landscaped areas. Nevertheless, if weeds are scattered around a site, hand-weeding may be the preferred management strategy. If weeds are prevalent, you may choose to cultivate (hoeing). Be careful to cultivate around shallow-rooted ornamentals, and do not cultivate too deep, as this brings weed seeds to the surface where they are more likely to germinate.

## Herbicides

Generally, home gardeners should not need to apply herbicides to existing landscape plantings or lawn. Hand-weeding and mulching should provide sufficient control. When they are needed, use them as part of an integrated management program that includes good cultural practices. No single herbicide will control all lawn weeds, and not all herbicides can be used on all lawn species. You must identify your weed problem(s) and turfgrass or plant species before choosing an herbicide.

Herbicides are generally identified as preemergent or postemergent, and selective or nonselective. Preemergent herbicides are applied before weeds emerge from the soil; they kill weed seedlings as they germinate and try to emerge. In lawns they are primarily used against annual grass weeds such as annual bluegrass and crabgrass. Postemergent herbicides are applied after weeds have emerged from the soil; they control actively growing weeds.

Selective herbicides kill target weeds without damaging the surrounding lawn or ornamentals. They are toxic to only certain plants or weeds. Nonselective herbicides kill all or most vegetation including turfgrass; use them only prior to planting a lawn, during renovation, or as spot treatments. Please refer to Pest Note #74113 listed in **References re: herbicides for home lawn use. Always use appropriate precautions and read the label when using herbicides.**

## REFERENCES

Elmore, C. L., et al. 1997. [\*Soil Solarization: A Nonpesticidal Method for Controlling Diseases, Nematodes and Weeds.\*](#) Oakland: UC ANR Pub. 21377.

Elmore, C. L., et al. June 2003. [\*UC IPM Pest Management Guidelines: Turfgrass—Weeds.\*](#) Oakland: UC ANR Pub. 3365-T.

Harivandi, M. A., et al. 2001. [\*Turfgrass Selection for the Home Landscape.\*](#) Oakland: UC ANR Pub. 8035.

Hartin, J., P. M. Geisel, and C. L. Unruh. 2001. [\*Lawn Watering Guide for California.\*](#) Oakland: UC ANR Pub. 8044.

Henry, J. M., V. A. Gibeault, and V. F. Lazaneo. 2002. [\*Practical Lawn Fertilization.\*](#) Oakland: UC ANR Pub. 8065.

Reynolds, C. A., and M. L. Flint. 2002. [\*The UC Guide to Healthy Lawns.\*](#)

UC Statewide IPM Program. [\*Pest Notes\*](#) series: *Weed Management in Lawn Guidelines*  
[www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74113.html](http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74113.html).

UC Statewide IPM Program. [\*Pest Notes\*](#) series: *Weed Management in Landscapes Guidelines*  
[www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7441.html](http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7441.html)

UC Statewide IPM Program. [\*Pest Notes\*](#) series: *Field Bindweed*, in *How to Manage Pests in Landscapes and Gardens*  
[www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7462.html](http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7462.html).

UC Statewide IPM Program. [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)  
[\*Pest Notes\*](#) series: Annual Bluegrass, Bermuda grass, Clovers, Common Knotweed, Common Purslane, Crabgrass, Creeping Woodsorrel/Bermuda Buttercup, Dallis grass, Dandelions, Field Bindweed, Green Kyllinga, Kikuyu grass, Nutsedge, Plantains, Spotted Spurge. Oakland: UC ANR.

*By Jeri Ohmart, Yolo County Master Gardener*

The University of California prohibits discrimination against or harassment of any person employed by or seeking employment with the University on the basis of race, color, national origin, religion, sex, physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or status as a covered veteran (covered veterans are special disabled veterans, recently separated veterans, Vietnam era veterans, or any other veterans who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized). University policy is intended to be consistent with the provisions of applicable State and Federal laws. Inquiries regarding the University's equal employment opportunity policies may be directed to the Affirmative Action/Staff Personnel Services Director, University of California, Agriculture and Natural Resources, 300 Lakeside Drive, 6<sup>th</sup> Floor, Oakland, CA 94612-3550, (510) 987-0096.