



BEYOND PESTICIDES

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Least-toxic Control of Weeds

- Weeds are defined as any plant that grows where it is not wanted. There are a number of different species of “weeds.” Generally weeds vary by region and climate. Of the weeds in the U.S., more than half fit into one of these seven plant families: daisy, grass, mustard, mint, clover, chickweed, or snapdragon.
- Weeds can cause damage to food crops if not maintained. A few weeds may cause allergies or lead to skin rash on contact. Most weeds are simply a nuisance because they are considered unappealing in a lawn. A few weeds should be tolerated, but weed infestations that overtake turfgrass are signs of unhealthy soil.
- Weeds can also be beneficial. For example, the coneflower has medicinal properties, *fleabane* is a natural insect repellent, parts of the *dandelion* and *lambquarters* plants are edible, and others provide habitats for beneficial insects and food for aquatic organisms.
- Weeds are spread or introduced by trade, traveling, animals, wind, and water. There are many variations in the methods of reproduction and growth between each weed. Some reproduce each year, others reproduce from stems, and some have seeds that can lay dormant for up to two years. Identifying the weed plant and knowing its preferred environment will help you determine the most effective method for control.

Prevention: The key to managing weeds

Beneficial cultural practices

- Cultural practices are the single most effective method of weed management. Having healthy soil, using at least two native turfgrasses, proper watering, and a sensible landscape design can all help your lawn ecosystem develop a natural resistance to weeds. Read Beyond Pesticides’ *8 Steps To Toxic Free Lawn* fact sheet at www.beyondpesticides.org/lawn for more tips on how to maintain these good cultural practices.

Encourage native species

- Introduce native herbs, trees, flowers, or grasses adaptable to your climate. Native species are naturally hardy and compete well with weeds.
- Select well-grown insect/disease resistant plant varieties.

Suppress weeds

- Consider alternate groundcovers other than just turfgrass. Clover and wildflowers or low-maintenance perennials, herbs, shrubs and trees.
- Use mulches to suppress weeds such as uncomposted chopped (mowed) leaves, bark, or plastic and polyethylene mulches free of PVC (polyvinyl chloride).
- Prevent weeds in your unplanted areas with netted or plastic barriers. Several varieties are available from garden stores. Lay these sheets under mulch, stone, pebbles, or any other unplanted landscaping materials.

Pre-emergent control

- Apply corn gluten meal, a highly effective natural pre-emergent, to weed prone areas. It works on weeds before they have sprouted. Corn-gluten is a by-product of the wet milling process of cornstarch manufacturing. It inhibits seed germination of selected weeds as well as offers fertilizing properties due to its nitrogen content. Timing is important when preventing weeds with this product in a lawn. Apply it in early spring, 3-5 weeks before weeds sprout and again in early fall. It can be used in gardens continually. Results last around 6 weeks. Spread the product evenly and rake the area lightly. Avoid areas that have been newly planted. Water the area and allow it dry. If there are excessive rains repeat the process. Corn gluten can be found in local garden stores, online, or through mail order retailers. Product examples are BioWeed® (call 707.781.9233 to order), Earth Friendly® (847.818.1550), Safe N' Simple® (800.367.2730), W.O.W® (812.537.8650), or WeedBan®. Visit this website for more information about corn-gluten <http://www.uwex.edu/ces/wihort/turf/CornGluten.htm>.

Weed Management

Mechanical

- Hand pull weeds when the ground is moist. Be sure to remove vegetative parts to prevent re-sprouting. Tools and machines are available to make pulling easier. For example a standard hoe, a trowel, and the Weed Wrech™ can be used on a variety of weeds. The Dandelion Terminator is another option. It is a device that can be attached to a drill to twist weeds out of the ground, order on-line or by mail DLT Co. 3845 Kismet Dr. Helena, MT 59602. Or try the Clawdia Ergonomic Gardening Tool (434.293.6689 to order) made from recycled milk cartons.
- Flame weeding machines use a targeted flame to kill weeds. Some examples of handheld flamers include Red Dragon (call 888.388.6724 to order) and Peaceful Valley Farm Supply sells several (888.784.1722). See this article for more information on flame weeding <http://www.pesticide.org/radiant.html>.
- Boiling water and high pressure steam both work to kill weeds as well, yet not as effectively as flame weeders. These are a better option in areas where an open

flame may be hazardous. Do it yourself by carefully pouring boiling water over selected weeds. Thermal weeders like AquaHeat® and Waipuna Hot Foam Weed Control System are commercially available for large scale jobs. Waipuna is in the process of marketing a product for home use that should be available in 2006, see their website for more details. <http://www.waipuna.com/product/home.htm>

Biological

- Goats are herbivorous foragers that are very effective at controlling weeds since grass is their least desirable food choice. They can be especially effective for roadside management, along railroad tracks, parks, forests, etc. Many people now make a living by contracting themselves and their herd out for weed control around the nation. Read about this practice on our website by searching the article “Successfully Controlling Noxious Weeds with Goats.”
- A goose at 6-7 months of age can consume enough grass equal to their weight daily. One goose can adequately weed an urban garden and they can be used to control many invasive species. Contact PINA (Permaculture Institute of North America 206.547.6838) for more information on using geese for weed control.

Least-toxic sprays

- Horticultural vinegar, or acetic acid, is also effective at killing certain weeds. Avoid spraying other green vegetation, such as turfgrass, since this is a non-selective plant killer. Available products such as BurnOut® (call 540.672.0866 to order), and EcoClear™ or others may be found at your local nursery. Use these products with caution since concentrations of acetic acid greater than 5% can cause skin irritation or eye damage.
- Herbicidal soaps are highly refined soaps that can penetrate the waxy coating on plant leaves, causing them to dry out. Some of these products also contain essential oils that enhance their herbicidal properties. Examples of products are Scythe™ and Matran II™ (call 877.667.0006 for commercial or 800.723.3991 for agricultural product info, or visit www.ecosmart.com).

Where to find least-toxic solutions

Local garden stores and nurseries should carry some organic, natural products.

Mail order catalogs

- Gardens Alive – Tel. 513.354.1483
5100 Schenley Place, Lawrenceburg, Indiana 47025
<http://www.gardensalive.com/>

- Seven Springs Farm — Tel. 800-540-9181
426 Jerry Lane NE - Check, VA 24072
<http://www.7springsfarm.com>
- Peaceful Valley — Tel. 888 784-1722
125 Clydesdale Court, Grass Valley, CA 95945
<http://www.groworganic.com/>
- Worms Way — Tel. 800.274.9676
7854 North State Road 37
Bloomington, IN 47404 (store locations in the Midwest, FL, and MA)
<http://www.wormsway.com/>

Online retailers

Common Sense — <http://www.common sensecare.com/burnout-weed-killer.html>
 Organica — <http://www.organica.net>
 Extremely Green — <http://www.extremelygreen.com>
 North Country Organics — <http://www.norganics.com/>
 Whitney Farms — <http://www.whitneyfarms.com/>
 Nature's Way Organics (fertilizers, worms, etc.) — www.natureswayorganics.com
 St. Gabriel Laboratories — <http://www.milkyspore.com/burnout.htm>
 Golden Harvest Organics — http://www.ghorganics.com/Scythe_Weed_Killer.html
 Dirt Works — http://www.dirtworks.net/Burn_Out.html

Where to find service providers that use least-toxic solutions

Visit the National Coalition for Pesticide-Free Lawns (led by Beyond Pesticides) at:
<http://www.pesticidefreelawns.org/resources>

References

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 Newton: The Tauton Press, Inc, 1991.

Quarles, William. 1999. "Non-Toxic Weed Control." *Common Sense Pest Control Quarterly*. 15(3) 4-14. Bio-Integral Resource Center, Berkely, CA.