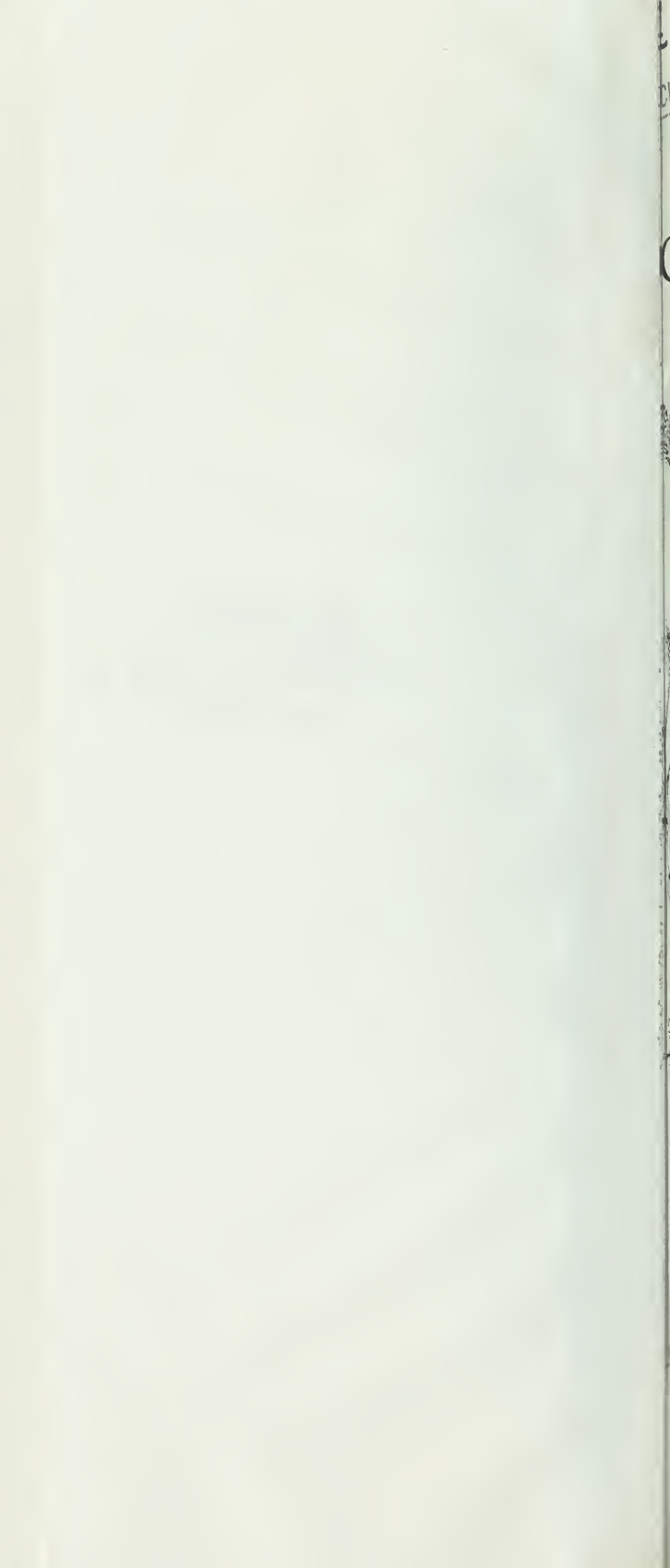


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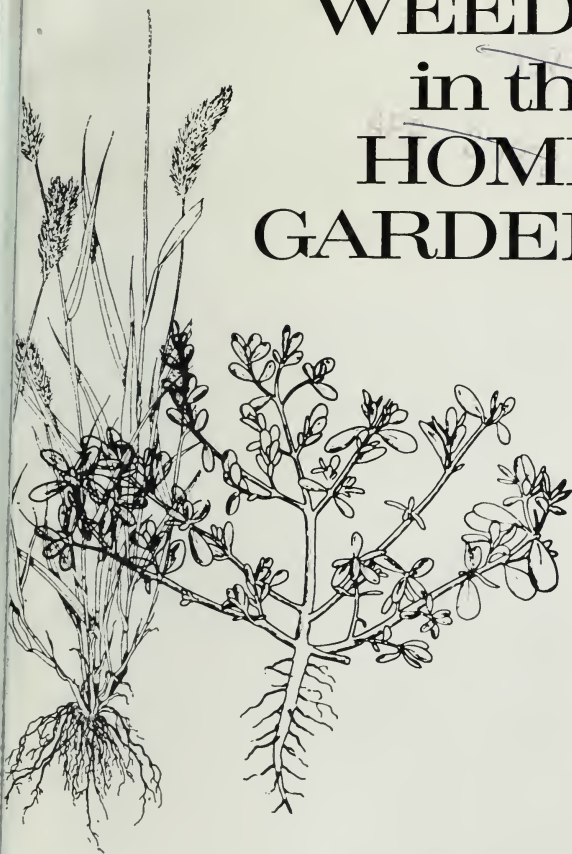


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CONTROLLING WEEDS in the HOME GARDEN



University of Illinois at Urbana-Champaign
College of Agriculture
Cooperative Extension Service

The following publications contain more detailed information on weed control and other gardening subjects. These publications can be obtained from your local extension adviser or from the listed source.

OFFICE OF AGRICULTURAL PUBLICATIONS, 123 MUMFORD HALL, URBANA, ILLINOIS 61801:

Prevent 2,4-D Injury to Crop and Ornamental Plants, Circular 808

Lawn Weeds: Identification and Control, Circular 873

Illinois Vegetable Garden Guide, Circular 882

Soil Disinfection, Circular 893

Insecticide Recommendations for the Homeowner, Circular 900 (revised annually)

Herbicide Guide for Commercial Vegetable Growers, Circular 907 (revised annually)

Growing Small Fruits in the Home Garden, Circular 935

Growing Tomatoes at Home, Circular 981

Home Orchard Pest Control, Circular 1001

Mulching Vegetables, Circular 1009

OFFICE OF INFORMATION, EXTENSION SERVICE, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C. 20250:

Mulches for Your Garden, USDA Home and Garden Bulletin 185

Selected Weeds of the United States, Agriculture Handbook 366 (\$4.00)

DEPARTMENT OF HORTICULTURE, 124 MUMFORD HALL, URBANA, ILLINOIS 61801:

Herbicides for Commercial Fruit Crops, H-659 (revised annually)

This circular was prepared by H. J. Hopen, extension horticulturist, University of Illinois at Urbana-Champaign. It replaces VG-4, "Weed Control in the Vegetable Garden."

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A weed is a plant growing where it is not wanted. Weeds compete with desirable plants for water, soil nutrients, sunlight, and gaseous components of the air needed for growth. Many weeds also harbor diseases and insects that may attack plants around the home.

Three general methods of weed control can be used in the home garden: (1) cultivation and mechanical removal (hoeing, pulling, etc.); (2) mulching (smothering of weeds); and (3) herbicides (weed killers).

CULTIVATION AND MECHANICAL REMOVAL

Cultivation and mechanical removal is the safest and most common method for controlling weeds in small home gardens. Since only those weeds that are actually present can be controlled, the process must be repeated several times throughout the growing season. It may be difficult to control weeds adequately during vacations or busy work periods with this method.



Hand-hoeing is the most common method for controlling weeds in small home gardens.

Weeds should be shaved off with a sharp hoe while gently breaking up the crust. Deep tillage causes severe injury to many shallow-rooted plants and helps place a fresh supply of weed seeds in position to germinate. Keeping equipment sharp and in good condition will help reduce injury to desirable plants. Hoe carefully around your plants and hand pull weeds close to the plants.

Weeds can be controlled by wheel and hand hoes in smaller areas or by power equipment such as rototillers and garden-type tractors in large gardens. This equipment should be set shallow when used in a garden for weed control.

MULCHING

Mulching controls weeds by preventing light from reaching the weed seedlings. This method will control annual weeds—those that germinate from seed each year for several weeks. Perennial weeds (those that sprout each year from below-ground plant parts) usually must be removed by mechanical means.

Organic Mulches

The organic materials most frequently used for mulching include plant residues such as straw or hay (free of weed seeds); crushed corncobs; various nut hulls; leaf and grass composts; peat; wood products such as sawdust, wood chips, shredded bark, and shavings; and well-rotted animal manures. To function as an effective mulch, these materials should be applied at a depth of about 4 to 6 inches.

Natural mulch materials may require considerable hand labor for application. Most organic materials are bulky and must be hauled to the place of use. This is not a serious problem for small gardens.

Organic mulches return organic matter and some plant nutrients to the soil and improve soil

tilth as they decompose. Added benefits are prevention of soil compaction, conservation of soil moisture, erosion control on slopes, cooler summer soil temperatures, and the added attractiveness of the garden. Mulches such as colored stones and decorative barks are available for flower and ornamental plantings.

When organic materials are used, you may need to add nitrogen fertilizer to prevent a deficiency of nitrogen in the mulched crop. With legume mulches (alfalfa or clover), however, excess nitrogen is released during decomposition.

ORGANIC MULCH MATERIAL	NITROGEN REQUIRED FOR DECOMPOSITION (pounds per ton of mulch)
Cocoa pods	6.0
Corncobs, ground	22.5
Hay, grass	7.6
Peanut hulls	8.5
Sawdust, fresh	26.0
Wheat straw	17.6

Synthetic Mulches

Common synthetic mulches include polyethylene, paper, paper-polyethylene combinations, wax-coated papers, and aluminum and steel foils.

Polyethylene film is used in a thickness of 1 to 1½ mils (0.001 inch = 1 mil) and a width of 3 to 6 feet. Black polyethylene is preferable for the home vegetable garden because it prevents light from reaching the weed seedlings. It is generally not practical to use transparent polyethylene because weed problems develop under the polyethylene.

Press the edges of the mulch down into furrows and cover firmly with soil. Do not throw excess soil on top of the mulch.

A push-type, one-wheel cultivator works well to open and close furrows. The mulch may also be installed simply by covering the edges with a rake or shovel. It is better to apply synthetic mulches in crop rows rather than attempting to



Polyethylene mulches help control weeds and increase early spring temperatures in Illinois.

cover the entire area. The area between the rows of polyethylene mulch must be carefully cultivated and hoed.

The advantages of polyethylene mulching include moisture conservation, increased spring soil temperatures, and keeping edible aboveground plant portions clean.

HERBICIDES

It is not a good practice to use herbicides in small ornamental and vegetable gardens containing several crop species because different flowers, vegetables, and weeds vary in their tolerance to herbicides. Some herbicides may remain in the soil longer than one growing season, and may kill or injure some species the following year (especially if excessive rates are used). Ideally, a specific herbicide should be used for each crop species, but most people have small areas of several species in their gardens, and it would often be impractical and expensive to buy the several herbicides that would be needed.

Application methods must be carefully controlled when a herbicide is used on small areas.

The tendency is to apply additional amounts if the quantity measured out "looks" as if it is not enough. *Check rates of material to use and application techniques on the container label very carefully. Applications must be accurate and uniform. Excessive amounts may cause injury to the present or subsequent crops.*

If a gardener is unwilling to remove weeds by hand in the home garden, Dacthal, Amiben, or Treflan can be used on several species. These herbicides may not be the most effective for a large planting of the individual fruit or vegetable species. Herbicides for large plantings of individual species are listed in the commercial growers' recommendations (see Circular 907 or H-659).



Left, weeds in large garden controlled with a "general" herbicide; no herbicide used on right. General herbicides must be applied with extreme care.

Herbicides may be sold under several trade names. If you cannot identify the trade names on the container, look for the common name or chemical name on the label. The trade names listed in this circular are for products commonly used in Illinois. Products of identical content marketed under other trade names may be equally acceptable.

TRADE NAME	COMMON NAME	CHEMICAL NAME
Dacthal	DCPA	dimethyl 2,3,5,6-tetrachloroterephthalate
Treflan Preen	trifluralin	α,α,α -trifluoro-2,6-dinitro-N-N-dipropyl-p-toluidine
Amiben Vegiben Weedone Garden Weeder	chloramben	3-amino-2,5-dichloro benzoic acid
Dowpon	dalapon	2,2 dichloropropionic acid

Dacthal

Dacthal is a preemergence (before the weeds emerge) herbicide that must be applied to weed-free soil. It controls very small weed seedlings soon after the weed seeds germinate. The herbicide action is most effective if rainfall occurs or the soil is irrigated within 2 to 3 days after application of the herbicide.

Dacthal is available as a 75 percent wettable powder that can be used for large garden areas and as a 5 percent granular material for smaller areas. This material can be used for annual grass control in lawns, on a number of species of flowers, and on strawberries, broccoli, brussels sprouts, cauliflower, cabbage, dry and snap beans, cucumbers, squash, melons, collards, kale, mustard greens, turnips, garlic, onions, potatoes, sweet potatoes, yams, tomatoes, eggplants, and peppers.

Do not use Dacthal on beets, bugle weed, button pink, carnation, geum, germander, mensesbryanthemum, pansy, phlox, sweet william, and telanthera.

A one-time application to all species is not always possible in a garden of flowers or vegetables because some plants are susceptible to injury in early-growth stages. It is preferable to use Dacthal at seeding or transplanting time.

When this is not possible, the weeds should be removed and Dacthal applied to prevent further weed development. Consult the container label for the appropriate application time.

Dacthal is effective in controlling annual grasses that are a problem in the spring. Those broadleaf weeds that escape control should be mechanically removed.

Dacthal is the best *multi-purpose* herbicide for home-garden use.

Treflan

Since Treflan is used in soybean culture in Illinois, it is widely available. It can be purchased as a liquid with 4 pounds of active ingredient per gallon for large garden areas or as a 1.47 percent or 5 percent granular for smaller areas.

Treflan can be used for weed control in green, lima, and dry beans, broccoli, brussels sprouts, cabbage, cauliflower, carrots, kale, mustard greens, okra, peppers, tomatoes, and turnip greens, or in growing apricots, cherries, grapes, peaches, and plums. Established trees, some ornamentals, and many established flowers will tolerate Treflan. *Do not use* on ground covers, sweetcorn, strawberries, bramble fruits, or blueberries, since injury may result.

Treflan must be mixed with or watered into the soil to prevent loss of the chemical from the soil surface. A rototiller or similar equipment should be used to mix Treflan with the soil to a 3- to 4-inch depth. When it is impractical to mix Treflan with the soil mechanically, all germinated and growing weeds should be removed and the herbicide carried into the soil through rainfall or sprinkle irrigation.

The amount of Treflan to use is correlated very closely with the type of soil. The appropriate amounts are shown on the container label.

Treflan is quite effective on annual grasses, but many broadleaf weeds will need to be mechanically removed.

Amiben

Amiben is also available to many farmers because it is used in soybean culture. It should be applied to the soil surface before weed seeds germinate. The herbicide action is most effective if rainfall occurs or the soil is irrigated 2 to 3 days after application of the herbicide.

Amiben is available as a liquid with 2 pounds of active ingredient per gallon for large garden areas and as a 1.3 percent or 10 percent granular material. It can be used on seeded asparagus, lima beans, green beans, muskmelons, pumpkins and squash, cucumbers, sweet potatoes, and transplanted tomatoes and peppers. *Do not use* on other vegetable or fruit crops.

As indicated on the container label, a number of annual flowers and established shrubs will tolerate Amiben. Amiben controls a wider range of annual grass and broadleaf weeds than Dacthal or Treflan, but it is not as effective on purslane (often a problem in home gardens).

Amiben should not be used on gardens in light sandy soil.

Soil Sterilants

Herbicides used to eradicate weeds that volunteer through cracks in sidewalks, patios, driveways, or along fences are known as soil sterilants. *Do not use* these materials where they can possibly be carried by water or wind movement into lawns or gardens. Most grass weeds will be controlled with Dowpon, a relatively safe edging and border control material.

If a garden area becomes contaminated with a persistent herbicide or a soil sterilant, this area can be decontaminated by applying activated carbon to inactivate the herbicide.

PRECAUTIONS

General

Phenoxy herbicides (2,4-D, 2,4,5-T, and silvex) are used for control of broadleaf weeds.

Most flowers, shrubs, small fruits, tree fruits, and vegetables are susceptible to injury by phenoxy herbicides. When applying these materials to grass, be sure that spray, drifting spray, or fumes do not reach susceptible plants.

Use the forms of the phenoxy herbicides (amine and sodium or lithium salts) that are less volatile and do not drift as easily, and apply under as calm conditions as possible. A sprayer used to apply phenoxy herbicides on grass should not be used to apply other pesticides on gardens. *Never use* a phenoxy-contaminated sprayer on desirable broadleaf plants. Phenoxy cannot be cleaned out of sprayers thoroughly enough to avoid injury to broadleaf plants. For further precautions, see Circular 808.

Disposal of Pesticide Containers and Surplus Pesticides

Use pesticides safely — read the label. If pesticides are handled or applied improperly, or if unused parts are disposed of improperly, they may be injurious to humans, domestic animals, desirable plants, pollinating insects, and fish or other wildlife, and they may contaminate water supplies. Use pesticides only when needed and handle them with care. Follow the directions and heed all precautions on the container labels.

Store all pesticides in a cool, dry, locked storage area so that they are not accessible to children, irresponsible persons, and animals. Do not dispose of pesticides through sewage systems. Haul them or have them hauled to a sanitary land fill for burial.

Never place pressure cans on a stove or heater or near any source of heat that might exceed 120°F. Store in a cool place — not in the hot sun. Have empty pressure cans hauled away and buried by experienced disposal crews. *Do not incinerate.*

Urbana, Illinois

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