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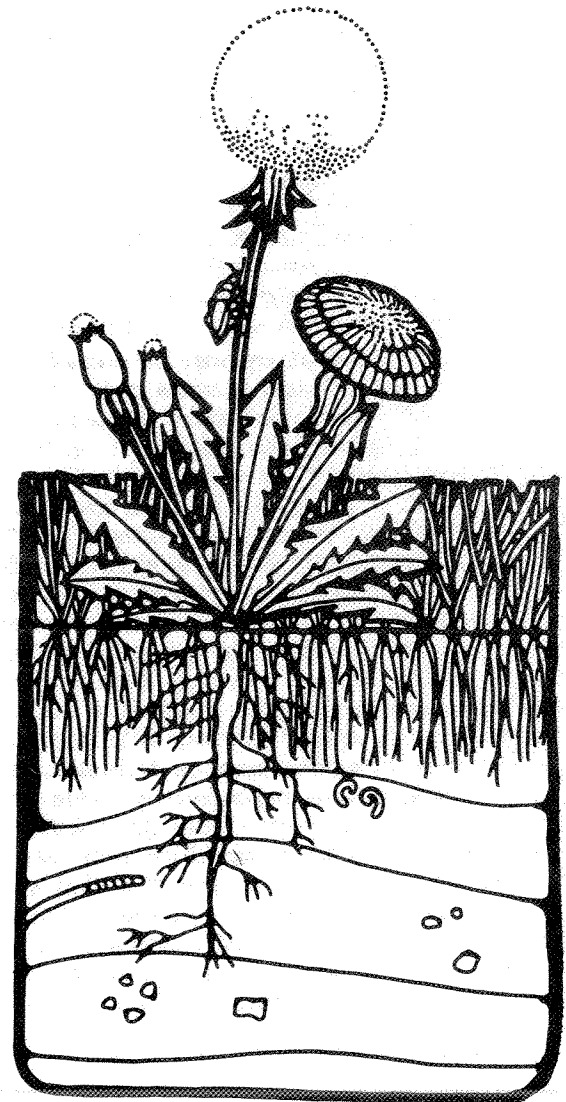
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## Control of broadleaf weeds in home lawns

Eugene Heikes, K. George Beck

### Quick Facts

- The first step in lawn weed control is to grow a healthy, dense, vigorous stand of grass.
- Since weeds vary widely in characteristics and no single chemical will kill all weeds, it is necessary to know what kind of weeds are present in the turf.
- Areas infested with weeds should be cleaned up before seeding new lawns.
- The most common herbicides for controlling broadleaf weeds are 2,4-D and related chemicals, usually applied to the foliage after the weeds are up.
- Weeds should be sprayed in a calm part of the day when there is little or no wind to minimize the danger of drift to garden and ornamentals.
- Most weed killers are nonselective if too much is applied, therefore it is necessary to use the correct amount.
- All label precautions for herbicides and fumigants should be carefully read and followed.



Thousands of weed seeds exist in every cubic foot of topsoil. This store of seeds, called soil seed reserve, accounts for the enormous number of annual weed seedlings that appear in most new lawns. Weed seeds will not germinate until air, light and moisture conditions become favorable for germination. Additionally, most weed seeds in the soil seed reserve remain for future infestations. Fortunately, most annual weeds cannot tolerate mowing or grass competition and are only major problems in new lawns. Some weeds per-

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sist even in healthy, established lawns. These persistent weeds are troublesome, make a lawn look unattractive and compete with your lawn for moisture and nutrients.

## Management

The first step in lawn weed control is to grow a healthy, dense, vigorous stand of grass. Anything that helps produce a thick turf will discourage weeds. If further help is needed, some very effective chemical weed killers are available, but chemicals should not be considered a substitute for good lawn management. It may be possible to kill most broadleaf weeds with chemicals, but without good management the lawn still will look bad.

## Weed Identification

Since weeds vary in characteristics and no single chemical will kill all weeds, it is necessary to know what weed or weeds are present in the turf. Your local county Cooperative Extension agent can help identify weeds.

## New Lawns

Areas infested with perennial weeds, such as field bindweed, Canada thistle or other broadleaf perennial grass species, such as quackgrass or brome grass, should be cleaned up with cultivation of chemicals before seeding to a new lawn.

If, 2,4-D is used on a new lawn, it should not be applied until the grasses have become well established and cut at least twice. Although the lawn appearance may be discouraging, most weeds in a new lawn will disappear after it is mowed several times and the grass thickens. New grass seedlings will be killed with 2,4-D if they are sprayed at an early growth stage.

## 2,4-D and Related Chemicals

One of the most common herbicides for controlling broadleaf weeds is 2,4-D. It is sold as 2,4-D (many trade names) or pre-mixed with other herbicides such as dicamba (Banvel), 2,4-DP, MCP, or triclopyr (Turflon). Combinations of 2,4-D plus dicamba and 2,4-DP or MCP are sold as Trimec, Trimec S, Super Trimec, Weeddestroy Triamine, Triamine II, Tri-Ester, and others. Combinations of 2,4-D plus triclopyr are sold as Turflon II and Turflon D. Generally, pre-mixed products of 2,4-D and other chemicals control weeds more effectively than 2,4-D alone.

2,4-D and its pre-mixed products are applied to foliage of actively growing weeds. The amount necessary to kill different weeds varies with the type of weed and its maturity. Most weeds are destroyed more easily when they are small.

Most favorable temperatures for using 2,4-D are between 65° and 85° F (18.3° and 29.4° C). At temperatures higher than 85° F (29.4° C), the danger of injury due to drift of chemical vapors or fumes is increased. Below 65° F (18.3° C), most

weeds are not growing vigorously and are less susceptible to 2,4-D.

Weeds should be sprayed during a calm part of the day when there is little or no wind. This timing will minimize the danger of drift to garden and ornamental plants.

Ornamentals should be protected by covering them with plastic, cardboard boxes, blankets or other suitable materials during spraying and for several hours afterward. Some of the common plants most susceptible to 2,4-D are tomatoes, grapes, peppers, cucumbers and most annual flowers and roses.

The chemical 2,4-D is sold under several trade names and in different formulations. The 2,4-D esters are volatile (give off fumes), while the amines are relatively nonvolatile. For this reason, 2,4-D amines are safer to use around homes. If the esters of 2,4-D are used, a low volatile form should be selected.

Dicamba (Banvel) is a selective herbicide that will kill many broadleaf annual and perennial weeds in turf. This herbicide has been used to destroy white clover, black medic, chickweed, knotweed, yarrow and several other perennial weeds. It should be applied when plants are growing vigorously.

Dicamba should not be used over the root-zone area or the drip line of trees or shrubs. It may be injurious to stoloniferous grasses, such as bentgrass.

Kentucky bluegrass has shown considerable tolerance to this herbicide without grass injury when used at recommended rates.

## Choice of Sprayers

There are several ways to apply 2,4-D and its pre-mixed herbicide products. A small sprayer with a capacity of 2 to 5 gallons often is used. It may have a single nozzle or a short boom with two or more nozzles. This kind of sprayer is convenient, does a good job and, when used properly, there is less danger of drift than with some other methods of application.

If 2,4-D or its pre-mixed products are sprayed accidentally on flowers, shrubs or garden plants, the best thing to do is cut them back immediately to keep the herbicide from moving through the plant into the root system. Washing off or sprinkling the leaves doesn't help much, and fertilization intensifies the action. To be safe, it is best to keep the herbicide away from flower beds or shrubs.

Several garden-hose sprayer attachments are used by homeowners; the herbicide is put into the attachment and mixed with water as it comes from the hose. These attachments are convenient and relatively inexpensive; but with these, controlling drift and making an even and accurate application of the herbicide is more difficult.

For touch-up application, a sponge or rag can be soaked with 2,4-D and dabbed on weeds. Some people use a pint- or quart-size atomizer/trigger

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bottle to spray individual plants or small areas. Others use a paint brush. Herbicides also are available in pressurized cans.

A number of weed killers now are sold as dry formulations. These can be applied with a small hand spreader of the type used for fertilizers.

After using 2,4-D or other weed chemical, the same sprayer should not be used to apply chemicals for insect or disease control. Residues of herbicides are very difficult to wash out, and minute quantities left in a sprayer can damage susceptible plants.

### Sprayer Calibration

Most weed killers are nonselective (will kill turf grasses as well as weed) if too much is applied; therefore, it is essential to use the recommended amount. To do this, knowing how much material the sprayer will apply to a given area is necessary. This formula can be determined by going over a measured area (100 or 1,000 square feet) with water or blank granules.

The following steps should be taken to determine capacity of equipment:

- An area of turf (i.e., 100 square feet) should be measured using twine to outline the block.
- A measured amount of water (i.e., 2 gallons) should be poured into the sprayer container.
- The sprayer should be pumped up and the measured area sprayed as though for weed control.
- After spraying is completed, the amount of water left in the tank should be measured and that amount subtracted from the original amount. This figure is what was needed to cover the 100 square feet; it will be the base for figuring how much chemical to use.

Example: If one quart was used to cover 100 square feet and the suggested rate of chemical is 3 tablespoons per 1,000 feet, 3 tablespoons of chemical should be mixed with each 2.5 gallons of water. It is good to repeat this procedure several times and average the amount of water used over the measured area.

The same procedure can be used with dry spreaders. A 1,000-square-foot area can be measured off, a setting on the feed-regulating device selected, and with 5 or 10 pounds of dry chemical as a start, the area can be sprayed. The material remaining should be weighed to determine how much was used on the measured area. The setting may have to be changed and the process repeated on a different area. Overdose of most dry materials on the trial area will seldom cause injury, but would be expensive.

### Broadleaf Weeds

Dandelions and plantains are common lawn weeds that can be killed with 2,4-D. Use 1 to 1.5 fluid ounces of 40 percent active 2,4-D per 1,000 square feet of lawn area to be treated. The chemicals should be applied before or during early blossom period when the plants are growing actively. The lawn should not be mowed for two days before or two days after spraying and should not be watered for a couple of days after applying the 2,4-D. The lawn may be resprayed again in September to kill seedlings. Chickweed, black medic, clovers, knotweed, ground ivy, yarrow and other hard-to-kill perennials are tolerant of 2,4-D but can be killed with dicamba (Banvel) or pre-mixed herbicides such as Trimec S, Turflon II, Turflon D, or others. Use 0.5 fluid ounces of 49 percent active dicamba (Banvel), 1.6 fluid ounces of Trimec S, or 1.1 to 1.5 fluid ounces of Turflon II or Turflon D per 1,000 square feet of lawn area to be treated. Double spot treatments should be avoided. Dicamba or pre-mixed herbicides can be used whenever weeds are growing vigorously.

Thymeleaf spurge (*Euphorbia serpyllifolia*) is a common annual weed in lawns. It appears in later summer until freeze-up. The stems usually are pink to red, forming a mat in the grass. The flowers usually are very small, green or white. This weed is semi-resistant to 2,4-D or dicamba. DCPA (Dacthal) applied in late May or early June before spurgeseeds germinate, will control a high percentage of this weed. Dacthal is a commonly used preemergence crabgrass herbicide but since thymeleaf spurge germinates later than crabgrass in warm soil, the early application for crabgrass usually will not control spurge. Apply Dacthal at 5 ounces of 75-percent wettable powder per 1,000 square feet. A second application near the end of June may be needed for severe infestations.

Creeping bellflower (*Campanula rapunculoides*) is a problem weed in northeastern Colorado. It is a perennial, spreading by seeds. It has thick radish-like roots. The flowers are purple and bell-shaped; the leaves are spear-shaped. It often is planted in flowerbeds, then escapes into the lawn and becomes a weed. It is difficult to control and is quite resistant to 2,4-D. It can be killed with dicamba (Banvel), using two teaspoons of 49-percent active dicamba per 1,000 square feet of area. Dicamba can be sprayed whenever weeds are growing vigorously but should not be sprayed over the drip line of trees or shrubs.