



Weed Control in Home Lawns

Cultural Weed Control

The complete elimination of weeds in the lawn is not a practical goal for many homeowners. A more realistic approach is to minimize weed populations through various control measures. An attractive, well-maintained lawn is an important component of a home landscape. Unfortunately, an infestation of weeds can reduce the aesthetic quality and vigor of the turf. Cultural, mechanical, and chemical measures can be used to control weeds in the lawn. Weeds are often a sign of a thin or weakened turfgrass. Weeds are often the result of improper cultural practices that stress the turfgrass, giving weeds a competitive edge. Weed control should start and end with the development of a dense, healthy, competitive lawn. Proper turf care is the best weed control.

Most weed infestations are due to mowing too short, light and frequent irrigation, incorrect specie or cultivar choice, and inappropriate fertilization. These maintenance mistakes often lead to excess thatch, compaction, and susceptibility to weed pressure, insect, and diseases.

Although herbicides may seem like a simple solution to weed problems, killing weeds with herbicide only treats the symptom without correcting the cause. Before attempting to control weeds, the problems that allowed the weed infestation must be identified. Such problems may include growing the wrong turfgrass specie or cultivar for a particular location. For example, Kentucky bluegrass grows best in full sun. In areas of deep shade, such as under a maple tree, a grass mixture containing shade-tolerant fine fescues should be used.

Mechanical Weed Control

Mechanical weed control refers to the physical removal of undesirable plants. Mowing eliminates a wide variety of plants that have upright growth habits, such as velvetleaf, lambsquarter, and sunflower. Some perennial weeds also may be controlled in time by continuous mowing. Manually removing plants by pulling or digging is also an efficient means of control in small lawns or when only a few weeds are present. The key to manually pulling undesirable plants is to remove the entire weed including its root system. Pulling/digging effectiveness is best after a soaking rain or deep watering.

Chemical Weed Control

Cultural and mechanical measures can reduce weed problems; however, supplemental chemical control may be required. Careful selection and application of chemicals can effectively control a wide variety of weeds with little risk of injury to the turf or nearby ornamental plants. When mixing or handling any herbicide, use proper caution to minimize exposure both to the applicator and to other individuals in the area. Always read thoroughly and follow the label directions.

Weed Identification

The first step toward obtaining good weed control is proper identification of the weeds. Books and websites are available to provide pictorial guidance to weed identification. The Iowa State Turfgrass blog found at <http://iaturf.blogspot.com/> is also a good resource for pictures. If you are unable to identify the weed, take a sample of the plant to your county extension office or a local garden center. Applying a herbicide that is not labeled for control of a certain weed will usually result in poor to no weed control.



Plants are usually categorized according to their life cycle.

- **Annual weeds complete their life within one year.**

Summer annuals, such as crabgrass and prostrate spurge, begin growth in the spring from seed and usually become a nuisance in the early summer.

Winter annuals, such as henbit, annual bluegrass, and common chickweed, begin growth from seed in late fall, overwinter as small seedlings, and then resume growth early in the spring to produce seed before their death with the onset of warmer temperatures.

- **Biennial weeds live for two years; however, normally they do not cause major problems in lawns.**

Plants such as wild carrot and musk thistle live their first year as a rosette. During the second year, the plants flower, produce seeds, and then die.

- **Perennial weeds live for three or more years.**

Simple perennials, such as dandelion and plantain, reoccur each year in the same position. Creeping perennials, such as quackgrass and ground ivy, spread via above or belowground stems. Creeping perennials are often the most difficult type of weed to control because of their extensive root systems.

Herbicide Classification

Herbicides are commonly classified according to when they are applied: preemergence or postemergence.

A preemergence herbicide is applied to the lawn before the weeds emerge. A preemergence treatment is generally the best method for control of annual weeds, such as crabgrass and foxtail. Preemergence products are customarily soil-applied one to two weeks before seeds germinate (see Table

1). The application of a preemergence product after the weeds have germinated provides no weed control. Most preemergence products require one-half inch of irrigation or rainfall within three to five days of application.

Applications of postemergence herbicides are made after weeds emerge. Postemergence products may be selective or nonselective. Selective products, such as 2, 4-D, triclopyr, fluroxypyr, and dicamba, effectively control broadleaf weeds without injuring the turfgrass. Nonselective products, such as glyphosate, kill the turfgrass and weeds and provide a good starting part for renovation.

Label Information

Herbicides are manufactured under various formulations, brand names, and concentrations. Herbicides are composed of active and inert ingredients. The active ingredient is the chemical that kills the weeds (or other pests). Inert ingredients do not directly harm the pest, but may improve the effectiveness of the product. The percentages of both ingredients are listed on the product label. The label also will present precautionary statements and directions for use, storage, and disposal, as well as information on weeds controlled, mixing instructions, and reseeding restrictions. Before applying any herbicide, always read and follow the instructions on the manufacturer's label. Applying higher than labeled rates is unlawful and may injure the turfgrass or surrounding plants.

Off-target Herbicide Injury

The potential for off-target herbicide injury is higher with the use of postemergence products. Spray applications during periods of high temperature should be avoided due to increased chances of vapor drift. Dicamba and ester formulations of 2, 4-D and MCPP vaporize under high temperatures (>85° F) and humidity conditions. The risk of injury to nearby desirable plants can be reduced by restricting late spring and summer applications to spot treatments and by using nonvolatile amine salt formulations of 2, 4-D and MCPP. To reduce drift and environmental risks, postemergence herbicides should be applied only when the air is calm and rain is not expected for at least 24 hours. Do not spray on windy days and avoid spraying when any breeze is blowing toward nearby flowerbeds and gardens. Reduce spray drift potential by using low sprayer pressure and nozzles that produce coarse droplets.

Fertilizer-herbicide Combinations

Fertilizer-herbicide combinations allow a homeowner to combine two operations into one application. A disadvantage of the combination is that the proper time for weed control often does not coincide with the optimum time to fertilize. Combinations with preemergence herbicides are generally effective in controlling annual grass weeds as long as applications are made at the appropriate time. Postemergence herbicide combinations require wet leaf surfaces so that granules will stick to leaves.

Control of Annual and Perennial Grasses

Annual Grasses

A key to the successful control of annual grasses (such as crabgrass) in established lawns is the correct timing of preemergence herbicide application. Preemergence herbicides must be applied before the grassy weed seeds germinate. Preemergence herbicides should normally be applied in early to mid-April in southern Iowa, mid-April to first of May in central Iowa, and late April to early May in the northern part of the state. Weather often varies considerably from year to year in Iowa. Accordingly, home gardeners should make minor adjustments in the timing of the preemergence herbicide application. If the weather in March and April is consistently warmer than normal, apply the preemergence herbicide early in the normal time period. Apply the herbicide late in the recommended time period if Iowa is experiencing a cold, early spring. If still uncertain as to when to apply the preemergence herbicide, Mother Nature provides some helpful clues. Preemergence herbicides should be applied when the forsythia blossoms start dropping or when redbud trees begin to bloom. Crabgrass seed germination typically begins after these events.

Postemergence control of crabgrass can be obtained with an application of dithiopyr, quinclorac, or fenoxaprop to small and actively growing crabgrass. A second application 7 to 10 days after the first treatment with quinclorac or fenoxaprop may be required for complete control. A single application of dithiopyr prior to the fifth leaf stage (first tiller) will provide early postemergence control. The turfgrass may experience temporary discoloration from the use of some products.

Control of Perennial Grasses

Few options are available for the selective control of perennial grasses, such as nimblewill, quackgrass, and common tall fescue, in lawns. Oftentimes, the most effective herbicide option is the nonselective herbicide glyphosate

(Roundup®). Nonselective herbicides kill virtually all plants (both desirable and weedy) to which the material is applied. Spot treat the weedy perennial grasses. A single glyphosate application should effectively kill common tall fescue. However, quackgrass is extremely difficult to control. Several repeat application of glyphosate (applied over a period of three to four months) will likely be necessary to kill quackgrass. Nimblewill can effectively be controlled with use of the postemergence herbicide mesotrione (Tenacity®).

Control of Yellow Nutsedge

Yellow nutsedge is a warm-season perennial weed with a growth habit similar to grasses except that it has a triangular stem. The grass-like leaves are light green to yellowish in color and shiny in appearance. The leaves come off the stems in sets of threes. Yellow nutsedge reproduces by seed and small underground tubers called nutlets. Flowers are yellowish or yellowish brown and are borne on small spikelets. Yellow nutsedge grows most rapidly during the hot summer months and is often found in wet or poorly drained soils.

Yellow nutsedge is difficult to kill. Postemergence herbicides are most effective when plants are small and actively growing. Products with active ingredients of sulfentrazone, bentazon, and halosulfuron provide the best control.

Control of Broadleaf Weeds

Annual broadleaf weeds, such as prostrate knotweed, can be controlled with an application of preemergence herbicide in the spring. A second application at a reduced rate may be necessary for season-long control.

Perennial broadleaf weeds can be controlled with an application of a broadleaf herbicide in the fall (late September to early November in Iowa). In the fall, perennial broadleaf weeds are transporting carbohydrates from their foliage to their roots in preparation for winter. Broadleaf herbicides applied in fall will be absorbed by the broadleaf weed's foliage and transported to the roots along with the carbohydrates, resulting in the destruction of broadleaf weeds. The most effective broadleaf herbicide products contain a mixture of two or three herbicides as no single compound will control all broadleaf weeds.

A single application of a broadleaf herbicide effectively kills many broadleaf weeds. Difficult-to-control weeds, such as violets, ground ivy ("creeping Charlie"), and dandelions, will likely require two or more applications of a broadleaf herbicide to achieve satisfactory control.

Table 1. Preemergence herbicides available to homeowners

Herbicides	Comments
Benefin (Balan [®])	Not recommended for use on bentgrass, fine fescue, or newly seeded turf. Do not sow seed until at least six weeks after application.
Benefin + trifluralin (Team [®] , Team [®] Pro)	Rates above 1.5 lb. a.i./acre may thin fine leaf fescue or annual bluegrass turf. Do not seed until 6 to 16 weeks after application depending on rate and weather conditions.
Bensulide (many names)	Do not seed until four months after application.
Oxadiazon (Ronstar [®])	Not recommended for use on fine fescue lawns. Do not apply to wet turf. Wait four to five months after application to seed. Excellent goosegrass control.
Pendimethalin (many names)	Not recommended for use on bentgrass or newly seeded turf. Do not seed until four to five months after application.
Siduron (Tupersan [®])	Primarily used in low rates when applied to newly seeded fescue, bluegrass, and ryegrass lawns in spring and higher rates to newly seeded lawns in the fall or established lawns. May injure some bentgrass or fine leaf fescue turfs.
Mesotrione (Tenacity [®])	Only recommended for use on Kentucky bluegrass and tall fescue lawns. Can be used in low rates during seeding. Also used as a postemergence herbicide.
Prodiamine (Barricade [®] , Stonewall [™])	Apply to only well-established turf. Do not apply to colonial bentgrass or annual bluegrass turfs. Do not seed until four to six months after application.
Dithiopyr (Dimension [®])	Apply to only well-established turf. Not labeled for certain cultivars of fine fescue, colonial, and creeping bentgrass turf. Do not seed within three months of application. Offers some early postemergence control.



Table 2. Postemergence broadleaf herbicides available to homeowners

Herbicides	Comments
2, 4-D	Do not use on bentgrass or newly seeded Kentucky bluegrass lawns. Amine formulations are less volatile than esters and reduce risk of injury to nearby non-target plants.
MCPP	More effective against chickweed and clover than 2, 4-D. Do not use on newly seeded lawns. Lawns should not be watered or mowed until two to three days after application.
Dicamba (Banvel [®])	Used to control weeds tolerant to 2, 4-D and MCPP. Dicamba is highly volatile. Avoid applications under drip lines of trees. Do not seed until six weeks after application. Best control of thistles.
Triclopyr (Turflon [®])	More effective against oxalis, clover, and wild violet than 2, 4-D.
Quinclorac (many names)	Do not use on fine fescue lawns. Do not mow until two to three days after application. Excellent crabgrass and clover control.

Table 3. Postemergence herbicide effectiveness

	Life Cycle ²	Control ¹			
		2, 4-D	MCPP	Dicamba	Triclopyr
Bindweed	PN	G/F	F	F	– ³
Chickweed, common	AN	F	E	E	E
Clover, white	PN	F/P	E	E	E
Dandelion	PN	E	F	G	E/F
Dock, curly	PN	F	F	E	E
Ground ivy	PN	F	G	G	E/F
Henbit	AN	P	G	E	E
Knotweed	AN	P	F	E	E
Medic, black	AN	F	G	G	E
Oxalis (woodsorrel, yellow)	PN	P	P	F	F/G
Plaintain, broadleaf	PN	E	P	G	E
Plaintain, buckhorn	PN	E	P	G	E
Poison ivy	PN	F	–	G	E/F
Puncturevine	AN	G	F	E	–
Sorrell, red	PN	P	P	G	–
Speedwell, corn	AN	P	F	F	PN
Speedwell, purslane	AN	F	F	F	–
Spurge, spotted	AN	F	P	F	E/G
Thistle, Canada	PN	F	F	E	E
Violet, wild	PN	P	P	F	F/G

¹ E = Excellent control

G = Good control

F = Fair control; repeated application or higher rates needed

P = Poor control; not effective

² AN = Annual

PN = Perennial

³ – = No data to report on effectiveness of herbicide against weed species

NOTE: Indication of relative sensitivity of a species is under optimum conditions; cool, dry conditions generally reduce susceptibility.

For more information

Horticultural information is available from your local Iowa State University Extension and Outreach office and these websites.

www.yardandgarden.extension.iastate.edu/

<https://store.extension.iastate.edu/>

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