



College of Agriculture, Human & Natural
Sciences

Cooperative Extension Program



An Outreach Education Program Serving Limited Resource Individuals, Families and Communities

Lawn Weed Management

By

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Weeds do not invade well-managed lawns. Proper fertilization and mowing help maintain a dense, healthy turf. Herbicides (chemical weed killers) can be used to destroy or help prevent infestation by weeds. However, herbicides are not substitutes for good lawn maintenance.

Correct weed identification, selection of the right herbicide and proper application are essential for the successful control of weeds by chemical means. Knowledge of weed characteristics and growth habits is helpful with both identification and control.

WEEDS

Weeds are divided into two basic groups: *grasses* (crabgrass, goosegrass, dallisgrass, etc) and *broadleaf weeds* (dandelion, chickweeds, plantains, etc.). Weeds are further subdivided into annuals, biennials and perennials and by season of growth. This information is important in proper timing of herbicide applications.

An annual germinates from seed, grows, matures and dies in less than 12 months. Crabgrass, goosegrass and knotweed are examples of summer annuals. They germinate in spring or summer and complete their life cycle by late fall. Many summer annuals are effectively controlled by **preemergence** herbicides which are applied in early spring, prior to weed emergence, to stop seedling growth. After weeds appear, **postemergence** herbicides work most effectively if used about 30 days after emergence.

A winter annual starts its life cycle in the fall and completes it the next spring. Chickweed, henbit and annual bluegrass are examples of winter annuals. Herbicides for their control are applied in the fall or early spring.

Biennials are weeds which germinate from seed one year and produce flowers and seeds the next year. Examples of biennials are wild carrot and wild lettuce. Biennials should be controlled in the seeding stage, much like annual weeds.

Perennial weeds live for several years. They reproduce vegetatively (bulbs, runners, underground stems, etc.) and by seed. Germinating seed may be killed by preemergence herbicides. Existing plants must be controlled by postemergence herbicides. Dallisgrass, dandelion, wild strawberry, wild onions or garlic and horsenettle are examples of perennial weeds.

WEED IDENTIFICATION AIDS

You must identify the weed problem before you can select an acceptable control program. Comparison of a weed with a picture is the easiest way to identify an unknown. Note the distinctive characteristics of the weed in question. Is it a grass or a broadleaf? Does the plant grow upright or prostrate? Does it root at the joints? Does it have a square stem? Does it grow better during cool or warm seasons?

Compare the weed with the pictures in this publication. If you need further help in identifying your weed, take a fresh sample to your county Agricultural Extension office. If possible, select a plant sample which includes the roots, stem, leaves and followers. This will certainly help in efforts to identify the weed.

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SUMMER WEEDS



wild violet

prostrate
spurge

white clover

horse nettle

green foxtail

sicklepod



yellow
nutsedge

broadleaf
plantain

johnsongrass

buckhorn
plantain

virginia
buttonweed

carpetweed

WINTER WEEDS



annual
bluegrass

musk thistle

carolina
geranium

wild lettuce

purple dead
nettle

wild garlic



orchard grass

large hop
clover

henbit

common
chickweed

dandelion

oxalis

WEED CONTROL SCHEDULE

Preemergence Herbicides – Apply before weed seedlings emerge from the soil.

Fall Application – When temperatures drop below 60° F at night, apply herbicides to control winter annuals such as annual bluegrass (approximately September 1 to October 15).

Spring Application – When daytime temperatures reach 65° F for four or more days, apply herbicides to control summer annuals such as crabgrass and goosegrass (approximately February 1 to March 15).

Selective postemergence herbicide (2,4-D, Banvel, MSMA, etc.) – Apply when sensitive weeds are young and actively growing. Control will be reduced if weeds are flowering or producing seeds. Application should be made when the wind is not blowing. This precaution is essential to prevent injury from chemical drift to ornamental plants in the lawn.

Nonselective postemergence herbicides (Kleenup, Blot-Out, Roundup, etc.) – Apply as spot treatment when troublesome weeds are actively growing. Time application to prevent seed production of weeds. Observe label precautions to prevent injury to desirable plants.

PREEMERGENCE WEED CONTROL

Chemicals applied to the soil to stop growth of weed seeds are preemergence herbicides. They work best on annual weeds and also control some perennials starting from seed. Most preemergence herbicides have little effect on weed seedlings which have already germinated and started to grow.

POSTEMERGENCE WEED CONTROL

The application of herbicides to destroy unwanted emerged plants is referred to as postemergence weed control. Herbicides such as DSMA, MSMA and CAMA are arsenates. The arsenates are used to control weedy grasses, such as dallisgrass, crabgrass and foxtail. They kill mostly by foliage contact, but also move within some plants to a limited extent. Arsenates are selective when used properly.

Selective postemergence herbicides such as 2,4-D, Banvel and MCPP are used to control broadleaf weeds. These herbicides are called growth regulators, as they interfere with the normal processes within susceptible plants by upsetting delicate hormone balances. These imbalances result in distorted growth. Food movement within the plant is impaired and eventually the plant will die. Wait three days after mowing before applying postemergence herbicides, and do not mow within five days of application. Also, at least five hours should be allowed prior to irrigation or rain.

HERBICIDE FORMULATIONS

Liquid Forms

Most postemergence and some preemergence herbicides are sold in this form. Liquids are easy to measure, mix and apply with compressed air sprayers or hose attachment sprayers. Chemicals may be purchased as concentrated materials (i.e., “Banvel” 4 pounds active ingredient per gallon, “Surflan” 4 pounds active ingredient per gallon, MSMA 6 pounds active ingredient per gallon) or in dilute formulations as packaged in lawn and garden supply stores. You should be aware of the exact concentration to apply the proper amount of herbicide to kill weeds without seriously injuring lawn grasses. Be sure to follow the label on whatever formulation you purchase.

Use low pressure (25 pounds per square inch or less), lots of water (at least one gallon per 1,000 square feet) and avoid application on windy days. These precautions are necessary to prevent injury to flowers, shrubs and shade trees in the area.

Aerosol sprays or foam formulations of some herbicides are also available for spot weeding. They should not be used for large areas or broadcast application. Be careful with aerosols. They can easily be misdirected to the face.

Dry Forms

Granules – The granular herbicides are ready to use as purchased and are convenient for preemergence use on large or small lawns. Because particles are large and relatively heavy, granular materials drift less than those applied as sprays. Granular materials are best applied with either the drop or spinner type of fertilizer spreaders. Use the spreader setting recommended on the herbicide label or that recommended by the spreader manufacturer. Do not go above labeled rates, as severe turf injury may result. Do not attempt to apply by hand, as even distribution would be practically impossible.

Wettable powders – Wettable powder formulations usually contain a high percentage of active ingredients. They should be added to water and applied as a spray. The spray tank should be shaken often to keep the herbicide properly mixed. Use the same application precautions as discussed under liquid forms.

Fertilizer-Herbicide Mixtures – The fertilizer-herbicide mixtures are generally sold as a granular material. These mixtures are quite convenient, as they save one application trip over the lawn. Also, the fertilizer may stimulate grass growth and thereby help overcome any stunting effect of the herbicide.

The most common misuse of fertilizer-herbicide mixtures is the second or third trip around trees or shrubs to give them extra fertilizer. The extra trips also add extra herbicide which can cause injury or even death to the trees and shrubs, as well as the turfgrass growing in the area.

One big disadvantage to these mixtures is their cost. They are quite expensive on large lawns when compared with the use of separate applications of fertilizer and herbicide.

Fertilizer-herbicide combinations which contain 2,4-D or other postemergence herbicides are not generally recommended due to possible injury to desirable plants from root uptake. Higher levels of postemergence weed control are usually obtained by spray application rather than by granules.

Wax Bars – Wax bars containing 2,4-D are available for wiping herbicide onto growing weeds in lawns. They provide an expensive but convenient means of applying 2,4-D. Control will generally be less than with a spray application. Do not use when temperatures exceed 80° F or grasses may be injured.

HERBICIDE APPLICATION EQUIPMENT & CALIBRATION

Herbicides for lawn weed control may be applied in several different ways, depending on formulation purchased and application equipment available. It is very important that the chemical be applied in a uniform manner to assure good weed control and a minimum of injury to lawn grasses and other desirable plants. Uniform application can be obtained only by calibrating the equipment before trying to apply the herbicide.

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The most convenient equipment for applying sprays is the small *pressure* or *knapsack sprayer* of one to three gallon capacity. This type of sprayer provides a fairly consistent volume of spray at low pressure. However, constant agitation or shaking is necessary to prevent wettable powder formulations from settling out. Hose end sprayers are not recommended.

Calibration procedure for knapsack sprayers:

1. Fill tank full or to a marked level with water.
2. Spray an area of 1000 square feet (100 feet by 10 feet).
3. Measure the amount of water needed to refill the tank to same level you started with in step 1.
4. Mix the proper amount of herbicide for each 1000 square feet of lawn area with the amount of water you have measured.

Calibration of Granular Distributors

Most granular herbicide containers have specific instructions for spreader settings as a guide to application. The instructions listed by the spreader manufacturer should be followed carefully.

Calibration of granular distributors, although difficult, can be done and acceptable accuracy can be obtained. For best results, calibration must be done with the granular material in the distributor. To prevent a waste of herbicide and possible grass injury, set the distributor to apply about half the anticipated amount of herbicide you think will be required.

Measure an area of 100 square feet (10 feet x 10 feet). Weigh the material before you place it in the distributor. Then treat the measured area and weigh the granules remaining in the distributor and subtract this amount from the original. You will then know the amount applied, which you will multiply by 10 to get the amount used per 1000 square feet. Make necessary adjustments to the equipment and repeat the calibration test until you have the correct adjustment for the required amount of herbicide you want to apply.

Do not use equipment which was used to apply Banvel, 2,4-D, MCPP or other hormonetype herbicides on other plants, such as vegetables and flowers. There may be enough herbicide residue left in the applicator equipment to seriously injure these plants.

NOTE: A Conversion Table for Herbicides on Small Areas can be found on the Cooperative Extension Program website:
<http://www.tnstate.edu/cep/fact.htm>

Precautionary Statement

In order to protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label. Persons who do not obey the law will be subject to penalties.

Disclaimer Statement

Pesticides recommended in this publication were registered for the prescribed uses when printed. Pesticides registrations are continuously reviewed. Should registration of a recommended pesticide be canceled, it would no longer be recommended by Tennessee State University. Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others which may be of similar suitable composition, nor does it guarantee or warrant the standard of the product.

This *Agriculture & Natural Resources* Fact Sheet is part of a series prepared by the Small Farms Program of the Cooperative Extension Program at Tennessee State University.

For more information, contact your local county Agricultural Extension agent (See your telephone blue pages). Printable copies of this fact sheet can be found on our website.

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