

# Landscape Weed Management

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Weeds are often the most visible landscape pests, and they are a major problem for professional landscape managers and homeowners. Weeds are a concern principally because they compete with desirable plants for space, light, water and nutrients. They also detract from the appearance and function of landscapes.

Any plant can be considered a weed if it's growing where it's not wanted. For example, although tall fescue is a desirable turfgrass species, it may be considered a weed if it infests a Kentucky bluegrass lawn.

The presence of weeds is often the result of improper management, poor site preparation or inappropriate plant selection. Weeds are opportunistic and readily become established in thin, weak turfgrass stands and landscape beds. The best defense against weeds is to select plants that are adapted to the site conditions and to manage them appropriately. As turfgrass and other landscape plants mature, they will cover and/or shade the ground, making weed germination and survival difficult.

Weed identification is important in developing a weed management strategy. Knowing management and environmental conditions that weeds prefer can help in identifying weed species and in reducing weed populations. Decisions can be made to reduce their competitive edge against desirable turfgrasses or landscape plants. For example, if weeds are present in a turf that indicates compacted soils, core cultivation to improve turfgrass growing conditions and/or altering traffic patterns by installing plants that are difficult to walk on or through are two options available to reduce weed populations in that location.

## Integrated Weed Management

Integrated weed management uses a combination of methods to reduce weed populations. Mechanical, cultural and chemical practices are the primary methods used in landscapes.

Common integrated weed management strategies for landscapes include:

- Kill all existing vegetation when developing a new landscape bed or preparing a turfgrass area to be seeded or sodded. Tilling will control many annual weeds but may increase the number of perennial weeds. When perennial weeds are present, it is extremely important to use a nonselective systemic herbicide (such as Roundup®) in combination with tilling to limit surviving rhizomes or stolons in the soil.
- Use high quality compost when topdressing turfgrass areas or incorporating into landscape beds. When compost is prepared correctly, most weed seeds are destroyed during the heating process.
- Use high quality seed or vegetative material (sod, plugs or sprigs) when establishing a lawn. Certified seed will cost more but will contain fewer weed seeds than a cheaper seed blend or mix and will usually contain better quality seed cultivars for local conditions. Avoid using seed mats or mixes that contain a high percentage of annual or Italian ryegrass.
- Select weed-free plant material when purchasing trees, shrubs and flowers. Check containers before purchasing to make sure weeds aren't growing along with the desirable plant.
- Avoid planting aggressive ornamental species directly into the ground or adjacent to less aggressive species. Place them in a container or in an area with a physical barrier, such as a sidewalk or large mulch bed, between the invasive plants and other landscape or turfgrass areas. Violets, mints and yarrows are aggressive ornamental plants that can become weed problems in turf and other landscape areas.
- Use mulches in landscape beds. Detailed information about landscape mulches can be found in the NebGuide, *Mulches for the Home Landscape* (G1257).



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- Use recommended turfgrass management practices (mowing, watering, fertilizing and cultivation). Practices such as mowing too low, light frequent irrigation, or over fertilizing can thin turfgrass stands and increase weed populations. Specific information about management of turfgrass species commonly used in Nebraska can be found in the *NebGuides Kentucky Bluegrass Calendar* (G517) and *Tall Fescue Calendar* (G558).
- Mow before weed species flower and produce seed. If seedheads develop, collecting the clippings may reduce some of the seed. Weed seeds, however, can survive for several years in the soil until optimum conditions exist for germination.
- Keep mowing, edging and aerification equipment clean between uses. Weed seeds can be transferred from one area of the landscape to another through soil cores or plant pieces (stems, roots).
- Pull or hoe weeds. Be sure to remove as much of the root as possible. Turn over as little soil as possible to avoid bringing weed seed to the surface where germination conditions may be ideal. Remove weed debris to prevent re-rooting. Pulling is usually most effective after a rainstorm or irrigation.
- Use a preemergence herbicide. In areas with large weed populations, preemergence herbicides are desirable because they can reduce the number of weeds that emerge, thereby reducing the competition between weeds and desirable plants. Preemergence herbicides can also control weeds that are difficult to selectively control once they have emerged, such as grassy weeds in turfs and broadleaf weeds in landscape beds. Commercial applicators have more options for selective control of weeds in turf areas than homeowners.
- Use postemergence herbicides for spot-control of weeds.

## Herbicides

The best approach is to use an integrated system that uses proper management practices along with herbicides to reduce weed infestations. However, herbicides are a useful tool for controlling weeds, but they only provide short-term relief. Care should be used when applying any pesticide. Improper use can result in poor weed control, turf injury or injury to sensitive ornamental or garden plants. Always read and follow label directions.

Herbicides, for the most part, are specific as to which weeds they control. For optimum control, several pieces of information need to be identified before selecting a herbicide. These items include: weed type (grass, broadleaf, sedge), life cycle and weed name. Once these items have been determined, a herbicide can be selected.

Several combination products, those with more than one active ingredient (a.i.), are available for use. Combination products are more effective when several weed species are present. An example of a combina-

tion product commonly used by homeowners and professional turfgrass managers is Trimec. The active ingredients in Trimec are 2,4-D, MCPP and dicamba. While the 2,4-D will control dandelion, it is weak on clover. The MCPP works well on clover but not on dandelion. Combining MCPP and 2,4-D with dicamba results in a product with a broader spectrum of weed control.

**Preemergence herbicide applications.** Preemergence herbicides are most effective against annual weeds because their major form of reproduction is via seed. In order to time the application correctly, the life cycle of the weed must be known. Annuals may be summer annuals or winter annuals.

Summer annuals germinate in the spring, grow and flower until they are killed by the first hard frost in the fall. Examples of summer annuals include crabgrass, sandbur, puncturevine and prostrate spurge. Applications for warm-season annual weeds should be made in the spring when soil temperatures exceed 50°F. This usually occurs first in landscape beds, thinned turfgrass stands and areas near sidewalks. Applications in these areas should be made around April 15 in eastern Nebraska and about seven to 10 days later in western Nebraska. Turfgrass soils typically warm slower due to the insulating effect of the leaves, thatch and mat. Application timing in most turfgrass stands is May 1 in eastern Nebraska and seven to 10 days later in western Nebraska. A second application may be needed to provide season-long control of summer annuals.

Winter annuals germinate in the fall, go dormant during the winter, and then continue growth and flower in the spring. Examples include henbit, field pennycress and chickweed. Applications for winter annuals should be made in September.

General tips for success when making preemergence herbicide applications include:

- Make the application before the weed seed germinates. Once the seed germinates, most preemergence herbicides, except Dimension (a.i. dithiopyr), will not control seedling weeds and postemergence control will be necessary.
- Water immediately after application with at least ½ inch of water. Many preemergence herbicides degrade very quickly if left exposed to the sunlight. Watering will move the herbicide into the soil and will encourage seed germination.
- Plan application timing and product selection based on planting plans for the season. Most products, except Tupersan (a.i. siduron), have activity against desirable turfgrass and ornamental seeds. Most preemergence herbicides have residuals from four to 16 weeks, depending on environmental conditions. An application made in late spring may still be present at a concentration level that could affect fall overseeding success. Applications made to landscape beds can affect root growth of newly planted transplants. Typically, once transplants have reached 3 inches in height

or the plant has roots below the level of herbicide incorporation, an application can be made. See product labels for specific timing recommendations when using flower or vegetable transplants.

- Avoid applying to new turfgrass seedlings and sod. Most preemergence herbicides will inhibit the growth of seedling turfgrasses and root growth of newly sodded turf. In addition, over application can stunt the root system of established turfgrasses, making them more prone to environmental stresses. When the turf root system is below the second inch of soil and/or the turf has been mowed a minimum of three times, application is acceptable.
- Return aerification cores to the surface if an application has been made prior to aerification. If the cores are removed, weed breakthrough may occur.

**Postemergence herbicide applications.** Postemergence herbicide applications are made to the leaves of emerged, actively growing weeds. Several factors influence the effectiveness of these applications. Control is easiest to achieve when the weeds are small, healthy and actively growing. As the weeds age, changes in the leaf surface, growth habit and physiological function occur. These changes result in reduced herbicide uptake and translocation.

The location of the weed—in turf or a landscape bed—is important in determining whether a selective or nonselective herbicide can be used. A selective herbicide can be applied over the top of a desirable plant without harming it, while controlling the weed species. Broadleaf weed control in lawns and grassy weed control in landscape beds are the most common options for selective weed control. The product label will list tolerant turfgrass and landscape species that will not be affected by the herbicide application if label directions are followed. Liquid and granular applications can both be effective as long as they stick to the leaf surface of the weed. For areas where selective control is not possible, nonselective products can be used by carefully spraying around the desirable plants, while spraying over the top of the weeds. Nonselective herbicides will damage most plants that come in contact with the herbicide.

Postemergence herbicide applications are the primary chemical control method used for perennial weeds. Late August through October is the preferred time to control established perennial broadleaf weeds such as dandelion, white clover and bindweed. At this time, herbicide applications will control both root and topgrowth. Conversely, applications made during the spring to perennial weeds will kill existing topgrowth, but the roots will not be damaged and regrowth will occur from the crown. Yellow nutsedge is the exception to fall application for perennial plants. Applications for yellow nutsedge should be made prior to the third week in June. Applications made later than the third week in June will provide poor control and may increase the spread of the weed.

General recommendations when making postemergence herbicide applications include:

- Avoid mowing for several days before and after the application. Mowing before application reduces the amount of weed foliage available to absorb the chemical and causes stress, which reduces herbicide uptake. Mowing after application may remove the treated portion and prevent translocation to the roots.
- Avoid watering for several days after application. Watering can wash the herbicide off the plant. Check the local weather forecast to make sure rain is not expected within 24 hours after application.
- Apply to healthy, actively growing weeds. Weeds that are under drought or heat stress may not be effectively controlled and the application may injure the desirable plant. Watering a day or two prior to application will assure the weeds are healthy and actively growing.
- Spray when the wind is calm and the air temperature is between 60° and 80°F. Many broadleaf postemergence herbicides drift easily and may be volatile. As a result, they may injure sensitive plants in the area if applied when windy or at temperatures above 80°F. Temperatures below 60°F may not be warm enough for the herbicide to be translocated in the plant.
- Check the label to determine how soon an application can be made on newly seeded turf.
- Check the label for specific restrictions on clipping use, such as for use as mulch in a vegetable garden. Residual activity may last for three or more weeks. Most herbicide treated clippings should not be used around sensitive plants until the turf has been mowed at least four times. The clippings can be used in a compost pile.

## Summary

Weeds succeed in landscapes that are designed or managed inappropriately. The best way to minimize competition from weeds is to use management practices that promote the healthy growth of desirable plants and to remove weeds and weed parts in a timely manner using mechanical and chemical means to reduce spread and seed development.

Herbicides are an important tool for controlling weeds but may only fix the problem for a short time and not the underlying problem. Understanding why a weed has become established in a landscape is important for reducing future weed infestations. Herbicides should be selected based on the weed species present. Applying herbicides at the correct time relative to the weed life cycle is critical for successful management.

The following table and images give detailed information about common weeds found in Nebraska landscapes.

*The information in this publication is supplied with the understanding that no endorsement of specific products named, nor discrimination of products not named, is implied by University of Nebraska–Lincoln Extension.*

<i>Common Name</i>	<i>Scientific Name</i>	<i>Life Cycle*</i>	<i>Grass, Broadleaf or Sedge</i>	<i>Preferred Control</i>	<i>Typical Sites Found</i>
black medic	<i>Medicago lupulina</i>	SA	BL	Post	low nitrogen fertility, low moisture
carpetweed	<i>Mullugo verticillata</i>	SA	BL	Post	low nitrogen fertility, landscape beds
catchweed bedstraw	<i>Galium aparine</i>	SA	BL	Post	excessive moisture, shade, landscape beds
lambsquarters, common	<i>Chenopodium album</i>	SA	BL	Post	landscape beds
prostrate knotweed	<i>Polygonum aviculare</i>	SA	BL	Post	compacted soils
puncturevine	<i>Tribulus terrestris</i>	SA	BL	Post	sandy soils, compacted soils, low nitrogen fertility
purslane, common	<i>Portulaca oleracea</i>	SA	BL	Post	high nitrogen fertility, low moisture
ragweed, common	<i>Ambrosia artemisiifolia</i>	SA	BL	Post	thinned turf
prostrate spurge	<i>Euphorbia supina</i>	SA	BL	Pre	low moisture, compacted soils
mallow	<i>Malva neglecta</i>	SA/B	BL	Post	low nitrogen fertility, high mowing
field sandbur	<i>Cenchrus pauciflorus</i>	SA	G	Pre	low nitrogen fertility, low moisture
yellow foxtail	<i>Setaria glauca</i>	SA	G	Pre	excessive moisture, new seedings
crabgrass	<i>Digitaria</i> sp.	SA	G	Pre	low mowing, high fertility, excessive moisture, compacted soils
goosegrass	<i>Eleusine indica</i>	SA	G	Pre	compacted soils, low moisture
field pennycress	<i>Thlaspi arvense</i>	WA	BL	Post	new seedings
henbit	<i>Lamium amplexicaule</i>	WA	BL	Pre	thinned areas
chickweed, common	<i>Stellaria media</i>	WA	BL	Pre	low mowing, excessive moisture, compacted soils, shade
field speedwell	<i>Veronica agrestis</i>	WA	BL	Pre	low mowing, low moisture
ground ivy	<i>Glechoma hederacea</i>	P	BL	Post in Fall	low nitrogen fertility, shade
curly dock	<i>Rumex crispus</i>	P	BL	Post in Fall	low moisture
dandelion	<i>Taraxacum officinale</i>	P	BL	Post in Fall	thinned turf
field bindweed	<i>Convolvulus arvensis</i>	P	BL	Post in Fall	turf and landscape beds
yellow woodsorrel	<i>Oxalis stricta</i>	P	BL	Pre	low moisture, thinned turf areas, low nitrogen fertility
blackseed plantain	<i>Plantago rugelii</i>	P	BL	Post in Fall	compacted soils, high pH
buckhorn plantain	<i>Plantago lanceolata</i>	P	BL	Post in Fall	thinned turf
white clover	<i>Trifolium repens</i>	P	BL	Post in Fall	high or infrequent mowing, low nitrogen fertility
wild violet	<i>Viola</i> sp.	P	BL	Post in Fall	excessive moisture, shade
yarrow, common	<i>Achillea millefolium</i>	P	BL	Post in Fall	low nitrogen fertility, low moisture
nimblewill	<i>Muhlenbergia schreberi</i>	P	G	Post	shade
windmillgrass	<i>Chloris verticillata</i>	P	G	Post	thinned turf
quackgrass	<i>Agropyron repens</i>	P	G	Post	low nitrogen fertility, low moisture, thinned turf
yellow nutsedge	<i>Cyperus esculentus</i>	P	S	Post	poor drainage

\* SA-summer annual, WA-winter annual, P-perennial, B-biennial



**Black Medic**



**Blackseed Plantain**



**Buckhorn Plantain**



**Carpetweed**



**Catchweed Bedstraw**



**Common Chickweed**



**Common Lambsquarters**



**Common Purslane**



**Common Ragweed**



**Crabgrass**



**Curly Dock**



**Dandelion**



**Field Bindweed**



**Field Pennycress**



**Field Sandbur**



**Field Speedwell**



**Goosegrass**



**Ground Ivy**



**Henbit**



**Mallow**



**Nimblewill**



**Prostrate Knotweed**



**Prostrate Spurge**



**Puncturevine**



**Quackgrass**



**White Clover**



**Wild Violet**



**Windmillgrass**



**Yarrow**



**Yellow Foxtail**



**Yellow Nutsedge**



**Yellow Woodsorrel**