Most broadleaf weeds have netlike veins in their leaves and nodes containing one or more leaves. They may have showy flowers. Broadleaf weed seedlings emerge with two leaves. Because of differences in their leaf structure and growth habits, they are easy to distinguish from grasses.

A weed’s life cycle has great impact on the selection and success of a given control procedure, so it is important to learn the life cycle characteristics of a weed when you first learn its identity.

Annual weeds germinate from seeds, grow, flower, produce seeds and die in 12 months or less. Annual weeds are further categorized by the season in which they germinate and flourish. Winter annuals sprout in the fall, thrive during the winter and die in late spring or early summer. Summer or warm-season grasses such as crabgrass and goosegrass sprout in the spring and thrive in summer and early fall.

Perennial weeds are weeds that live more than two years. They reproduce from vegetative (non-seed) parts such as tubers, bulbs, rhizomes (underground stems) or stolons (above-ground stems), although some also produce seed. Perennial weeds are the most difficult to control because of their great reproductive potential and persistence.

Proper identification of weeds targeted for control is necessary in order to select effective control measures, whether cultural or chemical. Further assistance with weed identification is available from any Clemson Extension office.

**Chickweed**

**Life Cycle & Description:** Common chickweed (*Stellaria media*) is a winter annual broadleaf weed that commonly infests thin or dormant lawn areas. It germinates in the fall, grows during the winter and produces seed from spring to early summer, then dies.

You can identify common chickweed by its flat, mat-forming growth habit and small egg- to football-shaped leaves that are arranged in pairs. The stems have a single line of hairs running along their length. Small clusters of white, five-petaled flowers occur at the ends of stems in the spring. Common chickweed reproduces by seed and creeping stems.

Sticky chickweed (*Cerastium glomeratum*), or mouse-ear chickweed, is a mat-forming branched winter annual with fuzzy, opposite leaves that
resemble mouse-ears, hence, the common name. The stems are also covered with dense hairs. The white flowers are arranged in clusters at the end of the stems. It is hairy, spreading or erect, and larger than common chickweed. The empty seed cases, which are almost transparent and have 10 teeth, are noticeable. Sticky chickweed reproduces by seed.

Perennial mouse-ear chickweed (*Cerastium vulgatum*) looks like sticky chickweed, but it has creeping stems that often take root to produce new plants. It reproduces by seed and by producing new plants from ground-hugging stems that root at the nodes (the point of attachment of the leaves).

**Control:** Handpulling is a simple, practical approach for small areas. Improve the health and density of the lawn by fertilizing at the right time and with the correct amount; maintaining an appropriate soil pH; mowing at the recommended height; and watering properly. Apply a 2- to 3-inch layer of mulch to ornamental bed areas to suppress germinating weed seeds. Since this weed reproduces by seed, control it before seeds are produced. Preemergence herbicides are available depending on the kind of turfgrass and ornamental plants grown. Optimum timing of postemergence herbicides is mid-autumn. See Table 1 for pre- and post-emergence control products. Apply all chemicals according to directions on the label.

**Dandelion**

**Life Cycle & Description:** Dandelion (*Taraxacum officinale*) is a deep-rooted, stemless perennial weed that is probably one of the most widely recognized weeds. It has a long taproot and a basal rosette (circular cluster of leaves radiating from the stem of a plant at ground level) of slightly to deeply cut leaves with lobes that point back towards the base. The rosette remains green year-round. Yellow flowers appear mainly in the spring on long, smooth, hollow stalks. A second bloom occurs in the fall. The leaves and flower stalks exude a milky juice when broken. The flowers give rise to a "puff" ball comprised of a cluster of brown seeds with a parachute attachment of a long stalk of hairs. It reproduces by seed.

Catsear dandelion (*Hypochoeris radicata*) is also a perennial weed that produces a basal rosette of leaves. Unlike dandelion, the leaves are densely hairy and have irregular to rounded lobes on the leaf margins. The flower stalk bears two to seven bright yellow flowers that look similar to dandelion. The leaves and flowers also excrete a milky juice when broken.

**Control:** Handpulling can be done with the aid of a tool that removes the entire taproot, especially when the soil is moist. Maintain a dense, healthy turf which crowds out weeds naturally and reduces the chances for invasion. Mulch ornamental bed areas with a 2- to 3-inch layer of mulch to suppress weed

Common dandelion (*Taraxacum officinale*) is a perennial broadleaf weed that spreads by wind-blown seeds. Joey Williamson, ©2015 HGIC, Clemson Extension

Carolina falsedandelion (*Pyrrhopappus carolinianus*) is a winter annual or biennial with erect branching flowering stems. The leaves are alternate, sharply pointed with leaves that may be deeply lobed or lack lobes. The basal leaves are attached to the stem with petioles; leaves on the stem do not have petioles. In late spring, bright yellow flowers similar to dandelion occur on the ends of stems. The flowers give rise to a "puff" ball comprised of a cluster of brown seeds with a parachute attachment of a long stalk of hairs. It reproduces by seed.
seed germination and growth. Remove the flowers before they reach the "parachute stage" to eliminate seed production. There are many herbicides available depending on the kind of turfgrass in your lawn. Optimum timing of postemergence herbicide use is mid-fall. See Table 1 for pre- and post-emergence control products. Apply all chemicals according to directions on the label.

Florida Betony

**Life Cycle & Description:** Florida betony (*Stachys floridana*) is a fast-spreading nuisance of lawns and landscaped beds. It grows in full sun to partial shade and tolerates a wide variety of soil conditions ranging from wet to dry. Florida betony is often called "rattlesnake weed" because it produces white, segmented tubers that resemble a rattlesnake’s tail.

![Distinctively shaped Florida betony (*Stachys floridana*) tubers.](https://example.com/florida-betony-tubers.jpg)


This cool-season perennial weed emerges from seeds and tubers during the cool, moist months of fall. Throughout the winter months, the plants grow and spread rapidly, often reaching heights of less than 2 feet. Florida betony has square stems and lance-shaped leaves with slightly toothed or serrated edges arranged oppositely on the stems. From late spring to early summer the weeds bear white to pink trumpet-shaped flowers occurring in whorls of three to nine in the leaf axils (the upper angle formed where the leaf joins the stem). In response to the onset of high summer temperatures or cold winter temperatures, Florida betony growth stops and the plant becomes nearly dormant. Florida betony reproduces primarily from tubers but also from seeds and rhizomes.

**Control:** Maintain a healthy, dense lawn by fertilizing and liming according to soil test results and mowing at the proper height and frequency. Healthy lawn grasses can out-compete Florida betony for light, water and nutrients and reduce the level of infestation.

Suppress growth by applying a 2- to 3-inch layer of mulch such as pine straw or pine bark around shrubs and trees. Using landscape fabric weed barriers beneath the mulch layer will further hinder its emergence. Pull or dig out all plant parts, especially the tubers, when the soil is moist. Hoe or cut the top growth down to soil level repeatedly to "starve" the plant.

Spot-treat with herbicides when Florida betony is actively growing during the cool fall months. Preemergence and postemergence herbicides are available depending on the kind of turfgrass and ornamental plants grown. See Table 1 for post-emergence control products. Apply all chemicals according to directions on the label.

Japanese Clover

**Life Cycle & Description:** Japanese clover (*Lespedeza striata*) or common lespedeza is a wiry, ground-hugging summer annual that has oblong leaflets that occur in triplets, or threes. A noticeable midvein runs down the center of each leaflet. A parallel arrangement of veins is attached at 90-degree angles to the midvein. The pink to purple single flowers appear in mid- to late summer along the branching stems. Japanese clover reproduces by seed.

**Control:** Handpulling is a simple, practical approach for small areas. Improve the health and density of the lawn by fertilizing at the right time and with the correct amount; maintaining an appropriate soil pH; mowing at the recommended height; and watering properly. Apply a 2- to 3-inch layer of mulch to ornamental bed areas to suppress germinating weed seeds.

Postemergence herbicides are available depending on the kind of turfgrass in your lawn. Optimum timing of postemergence herbicide use is early summer. See Table 1 for post-emergence control products. Apply all chemicals according to directions on the label.
Plantain

**Life Cycle & Description:** Both buckhorn, or narrow-leaved plantain (*Plantago lanceolata*), and broadleaf plantain (*Plantago major*) are perennial weeds that reproduce by seeds. Both produce a rosette or cluster of leaves at ground level and have fibrous root systems. The leaves of buckhorn plantain are narrow and lance-shaped (2 to 10 inches long – about five times as long as wide), often twisted or curled. Raised, parallel veins can be found on the underside of the leaf.

As the name suggests, the leaves of broadleaf plantain are broad and egg-shaped – 1½ to 7 inches long – with several main veins running parallel to the leaf margins. The petioles are sometimes tinged with red at the base.

Both plantains produce erect flower stalks from June to September. Buckhorn plantain produces a cone-like spike of white flowers perched at the top of the leafless flower stalk. Broadleaf plantain produces white-petaled flowers along the length of a leafless flower stalk that may be 2 to 18 inches long. Seed germinates in late spring through midsummer and sporadically in early fall.

**Control:** Handpulling is a simple, practical approach for small areas. Improve the health and density of the lawn by fertilizing at the right time and with the correct amount; maintaining an appropriate soil pH; mowing at the recommended height; and watering properly. Apply a 2- to 3-inch layer of mulch to ornamental bed areas to suppress germinating weed seeds. Postemergence herbicides are available depending on the kind of turfgrass in your lawn. Optimum timing of postemergence herbicides is mid-autumn. See Table 1 for pre- and post-emergence control products. Apply all chemicals according to directions on the label.

**Landscape Bed Weed Control**

**Glyphosate:** When herbicides are applied to beds intended for future planting of ornamentals, care must be taken as various herbicides may injure the plants to be installed. For planned beds, glyphosate has far less soil activity (a few days) as compared with the three-way herbicides or atrazine (a few weeks). Glyphosate is the safest choice for spray application in existing flower and shrub beds, so long as care is taken to prevent drift to non-target plants. Glyphosate applications are much less apt to move through the soil, be absorbed by roots, and injure existing woody ornamental shrubs.

Glyphosate can be used for spot treatments around ornamental plants in landscape beds. Glyphosate is a non-selective herbicide that should be used with caution. Do not allow glyphosate spray mist to contact ornamental foliage or stems as severe injury will occur. A cardboard shield may be used to
prevent glyphosate spray from drifting to nearby ornamentals. Examples of products containing glyphosate in homeowner sizes are:

- Roundup Original Concentrate,
- Roundup Pro Herbicide,
- Martin’s Eraser Systemic Weed & Grass Killer,
- Quick Kill Grass & Weed Killer,
- Bonide Kleenup Weed & Grass Killer 41% Super Concentrate,
- Hi-Yield Super Concentrate,
- Maxide Super Concentrate 41% Weed & Grass Killer,
- Super Concentrate Killzall Weed & Grass Killer,
- Tiger Brand Quick Kill Concentrate,
- Ultra Kill Weed & Grass Killer Concentrate,
- Gordon’s Groundwork Concentrate 50% Super Weed & Grass Killer,
- Zep Enforcer Weed Defeat III,
- Eliminator Weed & Grass Killer Super Concentrate,
- Monterey Remuda Full Strength 41% Glyphosate,
- Knock Out Weed & Grass Killer Super Concentrate,
- Southern States Grass & Weed Killer Concentrate II,
- Total Kill Pro Weed & Grass Killer Herbicide,
- Ace Concentrate Weed & Grass Killer.

Natural-based, Burn-down Herbicides: For those who would prefer not to use glyphosate for weed control in landscape beds or areas to be kept free of weeds, several non-selective, burn-down herbicides are available that are based on more natural products. This does not mean that they are safer for the individual doing the spraying – caution is always advised. Even natural products may irritate or burn the skin or injure the eyes, especially in the concentrated form. Read the product label for safe use and protective clothing (such as coveralls). It is advisable to wear rubber boots to prevent contact when walking through areas being sprayed, as well as wearing protective goggles and a pair of rubber or top quality dish washing gloves to help protect your hands and forearms from exposure, especially when mixing and adjusting the sprayer nozzle. Also keep in mind that sprayer wands often leak.

Please note that burn-down herbicides do not translocate into the root system, which means that for perennial and tougher to kill weeds, the weeds may regrow from the roots and require additional sprays for control. These products control actively growing, emerged, green vegetation. However, by being persistent with the spraying of any weed regrowth, even the toughest of weeds can be controlled. Do not allow sprays to contact desirable plants.

Examples of **plant essential oil-based herbicides** include:

- SafeGro WeedZap (contains 45% cinnamon oil & 45% clove oil) (OMRI)
- St Gabriel Organics BurnOut II (8% clove oil & 24% citric acid) (OMRI)

Examples of **orange oil (d-limonene) based herbicides** include:

- Avenger AG Burndown Herbicide (55% d-limonene) (OMRI)
- Worry Free Weed and Grass Killer (70% d-limonene) (OMRI)

Examples of **fatty acid-based herbicides** include:

- Monterey Herbicidal Soap (22% ammoniated soap of fatty acids)
- Finalsan Total Vegetation Control (22% ammoniated soap of fatty acids)
- Garden Safe Weed & Grass Killer RTU (premixed) (3.68% ammoniated soap of fatty acids)
- Bayer Advanced Natria Grass & Weed Killer RTU (premixed) (3.68% ammoniated soap of fatty acids)

Examples of **pelargonic acid herbicides** include:

- Scythe Herbicide (57% pelargonic acid)
- BioSafe Weed Control (40% ammoniated nonanoate)
- BioSafe Weed Control RTU (premixed) (5% ammoniated nonanoate)
- BioSafe AXXE Broad Spectrum Herbicide (40% ammoniated nonanoate)
- Mirimichi Green Pro Concentrate (40% ammoniated nonanoate) OMRI
- Mirimichi Green Pro RTU (premixed) (5% ammoniated nonanoate) OMRI

Note: Pelargonic acid is a fatty acid which occurs naturally as esters in the oil of pelargonium. It is
often called nonanoic acid. The ammonium salt of nonanoic acid, ammoniated nonanoate, is an herbicide.

Examples of **acetic acid-based herbicides** include:
- Summerset Brand All Down Concentrate (23% acetic acid & 14% citric acid)
- Vinagreen (20% acetic acid)

**Table 1. Examples of Herbicides for Broadleaf Weed Control in Turfgrass and Landscape Beds.**

<table>
<thead>
<tr>
<th>Brands &amp; Specific Products</th>
<th>Herbicide Active Ingredients</th>
<th>% Active Ingredient in Product</th>
<th>Sites Labeled for Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayer Advanced Weed Killer for Lawns Concentrate; &amp; RTS¹</td>
<td>2,4-D Mecoprop Dicamba</td>
<td>7.59 1.83 0.84</td>
<td>For use on Tall Fescue, Bermudagrass, &amp; Zoysiagrass.</td>
</tr>
<tr>
<td>Bayer Advanced Southern Weed Killer for Lawns Concentrate; &amp; RTS¹</td>
<td>2,4-D Mecoprop Dicamba</td>
<td>9.41 2.27 1.04</td>
<td>Use at the lower label rate on: St. Augustinegrass &amp; Centipedegrass.</td>
</tr>
<tr>
<td>Lilly Miller Lawn Weed Killer Concentrate</td>
<td>2,4-D Mecoprop Dicamba</td>
<td>7.59 1.83 0.84</td>
<td>Not for use in landscape beds.</td>
</tr>
<tr>
<td>Bonide Weed Beater Lawn Weed Killer Concentrate</td>
<td>2,4-D Mecoprop Dicamba</td>
<td>5.88 5.45 1.21</td>
<td>Will control virtually all broadleaf weeds, although multiple applications may be needed on select weeds.</td>
</tr>
<tr>
<td>Ferti-lome Weed-Out Lawn Weed Killer Concentrate</td>
<td>2,4-D Mecoprop Dicamba</td>
<td>3.05 5.30 1.29</td>
<td></td>
</tr>
<tr>
<td>Southern Ag Lawn Weed Killer with Trimec® Concentrate</td>
<td>2,4-D Mecoprop Dicamba</td>
<td>7.57 2.73 0.71 0.18</td>
<td></td>
</tr>
<tr>
<td>Spectracide Weed Stop for Lawns for Southern Lawns</td>
<td>2,4-D Mecoprop Dicamba Sulfentrazone</td>
<td>4.73 1.10 0.52 2.63</td>
<td>For use on Centipedegrass &amp; St. Augustinegrass only. Will control many, but not all broadleaf weeds. Good to excellent control of chickweed, dandelion, lespedeza &amp; many other weeds. Fair to good control of Florida betony &amp; plantain.</td>
</tr>
<tr>
<td>Bayer Advanced Season Long Weed Control for Lawns Conc.; &amp; RTS¹</td>
<td>2,4-D Mecoprop Dicamba Isoxaben</td>
<td>4.00 4.00 4.00 4.00</td>
<td>For use on Bermudagrass, Zoysiagrass, Centipedegrass, St. Augustinegrass. Gives very good control of many broadleaf and some grass weeds in lawns. Not for use in landscape beds, nor on tall fescue lawns.</td>
</tr>
<tr>
<td>Ortho Weed B Gon Weed Killer for Lawns</td>
<td>Atrazine</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>Spectracide Weed Stop for Lawns for St. Augustine &amp; Centipede Lawns RTS¹</td>
<td>2,4-D Mecoprop Dicamba Atrazine Iodosulfuron Dicamba</td>
<td>4.73 1.10 0.52 2.63 4.00 4.00 4.00</td>
<td></td>
</tr>
<tr>
<td>Hi-Yield Atrazine Weed Killer</td>
<td>Atrazine</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>Southern Ag Atrazine St. Augustine Weed Killer</td>
<td>Atrazine</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>Image Herbicide for St. Augustine &amp; Centipede with Atrazine</td>
<td>Atrazine</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>Celsius WG Herbicide²</td>
<td>Thiencarbazone Iodosulfuron Dicamba</td>
<td>8.7 1.9 57.4</td>
<td></td>
</tr>
<tr>
<td>Product Name</td>
<td>Active Ingredient(s)</td>
<td>Rate</td>
<td>Form</td>
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</tr>
<tr>
<td>Ferti-lome Broadleaf Weed Control with Gallery</td>
<td>Isoxaben (pre-emergence)</td>
<td>0.38 Granules</td>
<td>For use in landscape beds and on all turfgrass lawns. Prevents burweed, buttercup, chickweed, henbit, pennywort, speedwell, spurge, yellow woodsorrel.</td>
</tr>
<tr>
<td>Unlock 2.5TG</td>
<td>Isoxaben Trifluralin (pre-emergence)</td>
<td>2.0 0.5 Granules</td>
<td>For use in landscape beds only. Small amounts getting into lawn adjacent to beds should not hurt lawn. Prevents same as above, plus plantain, dandelion, bittercress, fireweed, pigweed, pokeweed, henbit, shepherd’s purse, white clover, crabgrass.</td>
</tr>
<tr>
<td>Green Light Amaze Grass &amp; Weed Preventer</td>
<td>Benefin Oryzalin (pre-emergence)</td>
<td>1.0 1.0 Granules</td>
<td>For use in landscape beds &amp; on warm season turfgrass. Prevents chickweed, bittercress, purslane, henbit, lambsquarters, pigweed, spurge, shepherd’s purse, yellow woodsorrel.</td>
</tr>
<tr>
<td>Helena Pro-Mate Barricade &amp; Fertilizer 0-0-7</td>
<td>Prodiamine (pre-emergence)</td>
<td>0.22 to 0.38 Granules</td>
<td>For use on all turfgrass lawns. Prevents some selected broadleaf weeds, such as chickweed, spurge, henbit, yellow woodsorrel, lambsquarters, shepherd’s purse; also summer annual grasses, annual bluegrass, goosegrass, crabgrass.</td>
</tr>
</tbody>
</table>

1 RTS = Ready to Spray (a hose-end spray bottle). 2 RTU = Ready to Use (a pre-mixed spray bottle).

Note: Do not apply post-emergence herbicides, except Celsius WG Herbicide, to lawns during the spring green up of warm season turfgrass.

2 Celsius WG requires the addition of 2 teaspoons of a non-ionic surfactant (that is, a wetter-sticker agent to aid in weed control at 0.25% by volume) per gallon of water, such as Hi-Yield Spreader Sticker. Spot treatments to St. Augustinegrass at temperatures above 90 degrees may cause temporary growth regulation.

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