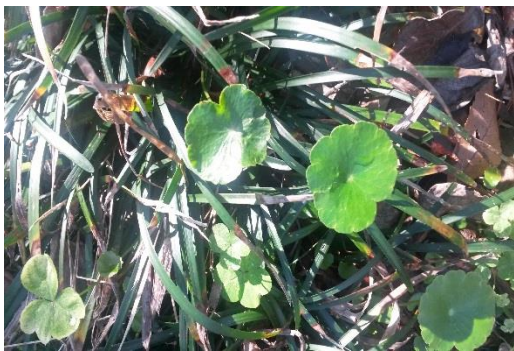


IDENTIFYING WEEDS IN TURF GRASSES OF NORTHWEST FLORIDA



UF | IFAS Extension
UNIVERSITY of FLORIDA



Introduction

In order to identify weeds in the North Florida lawn, it is helpful to understand their life cycles as well as appearance and form. This publication deals with identifying weeds by their leaf and stem structures since many times the flower is not visible due to maturity of the plant or mowing of the flowers.

The weeds are first named by three classes: broad leaf weeds, sedges, and grasses.

Our project would have been simple had we used only these three categories. However, as life-long learners, the process of identifying each plant was educational as we learned the botanical nomenclature of leaves and stems as well as determining if the weed is seasonal or perennial.

Included are diagrams of leaf arrangements, leaf margins, and leaf shapes. Types of stems are described as well.

In this publication, you will find characteristics of the weeds and a dichotomous key to help classify them. We will describe the types of herbicides and correct products to use on the specific weeds.

Table of Contents

	Page
List of Weeds	1-2
Characteristics of Weeds	3-4
Dichotomous Key	5
Herbicide Types	6
Table of Herbicides	7-8
Leaf Arrangements	9
Leaf Margins	9
Leaf Shapes	9-10
Stems	11
Resources	12

CHARACTERISTICS OF WEEDS IN THIS STUDY					
Plant	Scientific Name	Classification	Season	Herbicide Types	Cultural Indicators
Black Medic	<i>Medicago lupulina</i>	Broadleaf	Winter Annual	Pre; Post Contact	Too little nitrogen
Brazil Pusley	<i>Richardia brasiliensis</i>	Broadleaf	Perennial	Post Systemic	
Carolina Geranium	<i>Geranium carolinianum</i>	Broadleaf	Winter Annual	Pre; Post Contact	Poor soil; near dry areas
Chamberbitter	<i>Phyllanthus urinaria</i>	Broadleaf	Summer Annual	Pre; Post Systemic	Moist areas; compacted soil
Chickweed	<i>Stellaria media</i>	Broadleaf	Winter Annual	Pre; Post Contact	Shady, moist conditions
Cutleaf Evening Primrose	<i>Oenothera laciniata</i>	Broadleaf	Winter Annual	Pre; Post Contact	Prefers alluvial soils
Dichondra	<i>Dichondra carolinensis</i>	Broadleaf	Perennial	Post	Too much water & nitrogen
Dollarweed	<i>Hydrocotyle spp.</i>	Broadleaf	Perennial	Post Systemic	Moist soil
Doveweed	<i>Murdannia nudiflora</i>	Broadleaf	Summer Annual	Pre; Post Systemic	Moist soil
Florida Betony	<i>Stachys floridana</i>	Broadleaf	Perennial	Post Systemic	Grows under most conditions
Florida Pusley	<i>Richardia scabra</i>	Broadleaf	Summer Annual	Pre; Post Contact	Possibility of nematodes
Henbit	<i>Lamium amplexicaule</i>	Broadleaf	Winter Annual	Pre; Post Contact	Open, disturbed sites
Mouse-ear Chickweed	<i>Cerastium vulgatum</i>	Broadleaf	Perennial	Post	Moist soil
Small flower buttercup	<i>Ranunculus repens</i>	Broadleaf	Perennial	Post Systemic	Poor or compacted soil
Smilax	<i>Smilax.spp</i>	Broadleaf	Perennial	Post Systemic	Anywhere
Spreading Dayflower	<i>Commelina diffusa</i>	Broadleaf	Summer Annual	Pre; Post Systemic	Too much water

Spurge	<i>Chamaesyce</i>	Broadleaf	Summer Annual	Pre; Post Contact	Dry, barren ground
Sticky Chickweed	<i>Cerastium glomeratum</i>	Broadleaf	Winter Annual	Pre; Post Contact	Frequent, light irrigation
Virginia Buttonweed	<i>Diodia virginian</i>	Broadleaf	Perennial	Post Systemic	Well drained soil
Wild Carrot	<i>Daucus carota</i>	Broadleaf	Perennial	Post Systemic	Poor Soil
Bermudagrass	<i>Cynodon</i>	Grass	Perennial	Post Systemic	Grows in full sun
Crabgrass	<i>Digitaria</i>	Grass	Summer Annual	Pre; Post Contact	Dry, moist soil
Goosegrass	<i>Eleusine indica</i>	Grass	Summer Annual	Pre; Post Contact	Compacted soil
Rustweed	<i>Polypremum procumbens</i>	Grass	Perennial	Post	Sunny, sandy area
Sandspur	<i>Cenchrus echinatus</i>	Grass	Summer Annual	Pre; Post Contact	Sandy, dry soil
Torpedograss	<i>Panicum repens</i>	Grass	Perennial	Post Systemic	Shallow water
Globe Sedge	<i>Cyperus globulosus</i>	Sedge	Perennial	Post Systemic	Moist habitat
Purple Nutsedge	<i>Cyperus rotundus</i>	Sedge	Perennial	Post Systemic	Moist habitat
Yellow Nutsedge	<i>Cyperus esculentus</i>	Sedge	Perennial	Post Systemic	Moist habitat

BROAD LEAF WEEDS		
<p style="text-align: center;">Black Medic <i>(Medicago lupulina)</i></p> <p>Non-woody stem Leaf arrangement – alternate Leaf shape – elliptic Leaf margin – toothed near tip Growth habit - prostrate</p>	<p style="text-align: center;">Brazilian Pusley <i>(Richardia brasiliensis)</i></p> <p>Non-woody stem Leaf arrangement – opposite Leaf shape – ovate Leaf margin – smooth Growth habit – prostrate Stems – with stiff hairs and does not root</p>	<p style="text-align: center;">Carolina Geranium <i>(Geranium carolinianum)</i></p> <p>Non-woody stem Leaf arrangement – whorled Leaf shape – palmate Leaf margin – lobed Growth habit – upright; basal rosette; stems erect</p>
<p style="text-align: center;">Chamberbitter <i>(Phyllanthus urinaria)</i></p> <p>Non-woody stem Leaf arrangement - alternate Leaf shape – oblong Leaf margin – smooth Growth habit – upright</p>	<p style="text-align: center;">Chickweed <i>(Stellaria media)</i></p> <p>Non-woody stem Leaf arrangement – opposite Leaf shape – ovate Leaf margin – smooth Growth habit – prostrate Stems – creeping stems that root; fine hairs</p>	<p style="text-align: center;">Cutleaf Evening Primrose <i>(Oenothera laciniata)</i></p> <p>Non-woody stem Leaf arrangement – opposite Leaf shape - lanceolate Leaf margin – deeply lobed Growth habit - prostrate</p>
<p style="text-align: center;">Dichondra <i>(Dichondra carolinensis)</i></p> <p>Non-woody stem Leaf arrangement – stem attached to leaf Stem attached at edge Leaf shape –kidney-shaped (reniform) Leaf margin – smooth Growth habit – prostrate</p>	<p style="text-align: center;">Dollarweed <i>(Hydrocotyle spp.)</i></p> <p>Non-woody stem Leaf arrangement – stem attached to leaf Stem attached at center Leaf shape – round (orbicular) Leaf margin – round teeth (crenate) Growth habit – upright</p>	<p style="text-align: center;">Doveweed <i>(Mudannia nudiflora)</i></p> <p>Non-woody stem Leaf arrangement – alternate Leaf shape – lanceolate Leaf margin – smooth Growth habit – prostrate</p>
<p style="text-align: center;">Florida Betony <i>(Stachys floridana)</i></p> <p>Non-woody stem Leaf arrangement – opposite Leaf Shape – heart (chordate) Leaf margin – round teeth (crenate) Growth habit – upright</p>	<p style="text-align: center;">Florida Pusley <i>(Richardia scabra)</i></p> <p>Non-woody stem Leaf arrangement – opposite Leaf shape – ovate Leaf margin – smooth Growth habit – prostrate Stems – hairy and do not root</p>	<p style="text-align: center;">Henbit <i>(Lamium amplexicaule)</i></p> <p>Non-woody stem Leaf arrangement – opposite Leaf shape – egg shape (obovate) Leaf margin – bluntly toothed Growth habit – low growing</p>
<p style="text-align: center;">Mouse-ear Chickweed <i>(Cerastium vulgatum)</i></p> <p>Non-woody stem Leaf arrangement – opposite Leaf shape – ovate to elliptic Leaf margin – smooth Growth habit – mat forming</p>	<p style="text-align: center;">Smallflower Buttercup <i>(Ranunculus abortivus)</i></p> <p>Non-woody stem Leaf arrangement – whorled in threes Leaf shape – heart (chordate) Leaf margin – smooth OR wavy Growth habit – upright</p>	<p style="text-align: center;"><i>Smilax</i></p> <p>Woody stem Leaf arrangement – alternate Leaf shape – oblong to chordate Leaf margin – smooth Growth habit – vining</p>

<p>Spreading Dayflower (<i>Commelina diffusa</i>)</p> <p>Non-woody stem Leaf arrangement – alternate Leaf shape – lanceolate Leaf margin – smooth Growth habit – running</p>	<p>Spurge (<i>Chamaesyce humistrata</i>)</p> <p>Non-woody stem Leaf arrangement – opposite Leaf shape – oblong Leaf margin – smooth or slightly toothed Growth habit – prostrate</p>	<p>Sticky Chickweed (<i>Cerastium glomeratum</i>)</p> <p>Non-woody stem Leaf arrangement – opposite Leaf shape – ovate to elliptic Leaf margin – smooth Growth habit - upright</p>
<p>Virginia Buttonweed (<i>Diodia Virginian</i>)</p> <p>Non-woody stem Leaf arrangement – opposite Leaf shape – lanceolate Leaf margin – smooth Growth habit – prostrate</p>	<p>Virginia Creeper (<i>Parthenocissus quinquefolia</i>)</p> <p>Woody stem Leaf arrangement – whorled Leaf shape – elliptic (5 leaflets) Leaf margin – toothed Growth habit – vining</p>	<p>Wild Carrot (<i>Daucus carota</i>)</p> <p>Non-woody stem Leaf arrangement – alternate Leaf shape – pinnately dissected Leaf margin – pinnatifid Growth habit – erect</p>
SEDGES (Stems are triangular)		
<p>Globe Sedge (<i>Cyperus globulosus</i>)</p> <p>Leaves are flat, smooth and bright green Seedhead branches at the top of the stem, producing seeds in loose, globe-like clusters</p>	<p>Purple Nut Sedge (<i>Cyperus esculentus</i>)</p> <p>Leaves originate from the base Deep green Flat or slightly corrugated Abruptly tapered at tips Purplish to red-brown inflorescence</p>	<p>Yellow Nutsedge (<i>Cyperus esculentus</i>)</p> <p>Leaves yellowish green Blade tapering to long thin strip Flat or slightly corrugated Spikelets are straw-colored to gold-brown with many flowers</p>
GRASSES		
<p>Bermudagrass (<i>Cynodon</i>)</p> <p>Stems: flat or round; sparsely hairy Tips: sharp-pointed; sparsely hairy, edges rough, leaf blade soft Blades: flat or round Collar: continuous; not hairy, maybe on edges Flowerhead: raceme; 3-5 spikes that join @ top of a main stem</p>	<p>Crabgrass (<i>Digitaria</i>)</p> <p>Stems: prostrate growth habit Flat with long hairs, purple veins Tips: sharp-pointed; covered with short hairs on both surfaces Blades: sharply creased Collar: indistinct, mostly divided, hairy edges Flowerhead: raceme; 2-9 spikes @ different points along stem</p>	<p>Goosegrass (<i>Eleusine indica</i>)</p> <p>Stems: flattened Tips: blunt Blades: folded Collars: Continuous; crooked fine hairs on edges Flowerheads: raceme, 2-6 spikes @ top of stem</p>
<p>Rustweed (<i>Polypremum procumbens</i>)</p> <p>Stems – diffusely branched from central crown Leaves – opposite linear – green becoming rusty in color</p>	<p>Sandspur (<i>Cenchrus echinatus</i>)</p> <p>Stem tips from the lower nodes which bend and root Seed heads are spiny briars and are one to five inches long.</p>	<p>Torpedograss (<i>Panicum repens</i>)</p> <p>Stems – widely creeping or floating rhizomes; overlapping brownish to white scales to rigid sharp-pointed (torpedo-like) growing tips. Leaves – mostly short, flat, rolled. Ligules have fringed hair</p>

DICHOTOMOUS KEY FOR BROADLEAF TURF WEEDS

- | | | |
|-----|--------------------------------------|---|
| 1. | a. Woody Stems | Go to 2 |
| | b. Non-woody Stems | Go to 3 |
| 2. | a. Leaf arrangement alternate | Smilax (<i>Smilax</i>) |
| | b. Leaf arrangement whorled | Virginia Creeper (<i>Parthenocissus quinquefolia</i>) |
| 3. | a. Leaves are opposite | Go to 4 |
| | b. Leaves are alternate | Go to 9 |
| 3. | a. Leaves are whorled | Go to 11 |
| | b. Stem attached to leaf | Go to 12 |
| 4. | a. Leaf shape is chordate | Florida Betony (<i>Stachys floridana</i>) |
| | b. Leaf shape is oblong | Spurge (<i>Chamaesyce humistrata</i>) |
| 4. | a. Leaf shape is obovate | Henbit (<i>Lamium amplexicaule</i>) |
| | b. Leaf shape is lanceolate | Go to 5 |
| 4. | a. Leaf shape ovate to elliptic | Go to 6 |
| | b. Leaf shape ovate | Go to 7 |
| 5. | a. Leaf margin smooth | Virginia Buttonweed (<i>Diodia Virginian</i>) |
| | b. Leaf margin deeply lobed | Cutleaf Evening Primrose (<i>Oenothera laciniata</i>) |
| 6. | a. Growth habit upright | Sticky Chickweed (<i>Cerastium glomeratum</i>) |
| | b. Growth habit mat forming | Mouse-ear Chickweed (<i>Cerastium vulgatum</i>) |
| 7. | a. Stems are hairy and do not root | Go to 8 |
| | b. Stems are hairy and do root | Chickweed (<i>Stellaria media</i>) |
| 8. | a. Stems have stiff hairs | Brazilian Pusley (<i>Richardia brasiliensis</i>) |
| | b. Stems have fine hairs | Florida Pusley (<i>Richardia scabra</i>) |
| 9. | a. Leaf shape is lanceolate | Go to 10 |
| | b. Leaf shape is oblong | Chamberbitter (<i>Phyllanthus urinaria</i>) |
| 9. | a. Leaf shape is elliptic | Black Medic (<i>Medicago lupulina</i>) |
| | b. Leaf shape is pinnately dissected | Wild Carrot (<i>Daucus carota</i>) |
| 10. | a. Growth habit is prostrate | Doveweed (<i>Mudannia nudiflora</i>) |
| | b. Growth habit is running | Spreading Dayflower (<i>Commelina diffusa</i>) |
| 11. | a. Leaf shape palmate | Carolina Geranium (<i>Geranium carolinianum</i>) |
| | b. Leaf shape chordate | Smallflower Buttercup (<i>Ranunculus abortivus</i>) |
| 12. | a. Stem at edge of leaf | Dichondra (<i>Dichondra carolinensis</i>) |
| | b. Stem in center of the leaf | Dollarweed (<i>Hydrocotyle spp.</i>) |

HERBICIDE TYPES
Selective – can be used as over-the-top applications because they control only certain types of weeds without seriously affecting other plant species
Nonselective – control all weed and plant species that they are applied to. These products are recommended for renovation projects, over hardscapes, and for some spot treatments.
Contact – only affect the portions of the plant tissues they touch and do not move throughout the plant’s vascular system. They will not kill root systems or parts of the plant that are underground.
Systemic – move throughout the plant’s vascular system, which means they will enter into the root and stem systems. These products are typically used for perennial weeds, are slower acting, and will kill the plant over several days.
Pre-emergence – prevent root or shoot development from the newly emerging plant. The product has to be in place before the seed germinates, otherwise little to no control is achieved.
Post-emergence – work on actively growing weeds. The treated plant should be young and vegetative for the herbicide to be most effective.

Herbicide	Selective	Non-selective	Contact	Systemic	Pre-emergence	Post-emergence	Monocot /Dicot
Glyphosate		X		X		X	Both
Glufosinate		X	X			X	Both
2, 4-D	X			X		X	Dicot
Pelargonic acid		X	X			X	Both
Bentazon	X		X			X	Dicot
Fluazifop	X			X		X	Monocot
Diquat		X	X			X	Both
Pendimethalin	X		X		X		Monocot
Proflaminate	X		X		X		Dicot
Oryzalin	X		X		X		Both *
	*Oryzalin affects annual grasses						

How herbicides work

Weeds are either dicots (broadleaf weeds) or monocots (lawn grasses, including grassy weeds). There are also sedges, which are grass-like weeds. There are many genetic similarities between grasses and broadleaf weeds, yet there are also differences. Scientists locate these differences and find a method of attacking that part of the plant. An example would be an essential hormone that is found in dicots, but not found in monocots. By finding a way of blocking the hormone, you can control that weed. If the hormone is found in dicots and not in monocots, then the monocots will not be affected.

Weed to Control	Pre or Post Emergent	Active Ingredient	Example of Brand Name	Bahiagrass	Bermuda grass	Centipede grass	St. Augustine	Zoysiagrass
Annual grass & some broadleaf	Post	Atrazine	Many brands (e.g. Hi-Yield Atrazine Weed Killer, Ortho Weed-B Gon)	No	No	Yes	Yes	Yes
Annual grass & some broadleaf	Pre	Benefin	Balan, Crabgrass Preventer, + others	Yes	Yes	Yes	Yes	Yes
Annual grass & some broadleaf	Pre	Benefin + trifluralin	Team Pro, Team 2G	Yes	Yes	Yes	Yes	Yes
Annual grass & some broadleaf	Pre	Bensulide	Bensumec, Weedgrass Preventer	Yes	Yes	Yes	Yes	Yes
Nutsedge	Post, contact	Bentazon	Basagran T/O	Yes	Yes	Yes	Yes	Yes
Broadleaf	Post	Carfentrazone	Fertilome Weed Free Zone	Yes	Yes	Yes	Yes	Yes
Broadleaf	Post, systemic	Dicamba	Banvel	Yes	Yes	Yes	Yes	Yes
Annual grass & some broadleaf	Pre	Dithiopyr	Dimension*, Quali-Pro Dithiopyr*	Yes	Yes	Yes	Yes	Yes
Annual Grass	Pre & Post	Ethofumesate	Prograss*	No	No	No	Yes	No
Annual grass	Post	Fenoxaprop	Acclaim Extra	No	No	No	No	Yes
Annual grass	Post	Fluazifop	Grass-B-Gon	No	No	No	No	Yes
Nutsedge	Post	Halosulfuron	SedgeHammer	Yes	Yes	Yes	Yes	Yes
Nutsedge	Post, systemic	Imazaquin	Image	No	Yes	Yes	Yes	Yes
Annual grass	Pre	Metolachlor	Pennant Magnum*	Yes	Yes	Yes	Yes	Yes
Broadleaf	Post, systemic	Metsulfuron	Bonus S Southern Weed & Feed	No	Yes	Yes	Yes	Yes
Annual grass & some broadleaf	Pre	Oryzalin	Surflan	Yes	Yes	Yes	Yes	Yes
Crabgrass	Pre	Oxadiazon	Ronstar 2G, 50WP, QP Oxadiazon 2G, 50 WP	No	Yes	No	Yes	Yes
Annual grass & some broadleaf	Pre	Pendimethalin	Pendulum, Pre-M, Halts Crabgrass Preventer	Yes	Yes	Yes	Yes	Yes
Annual grass & some broadleaf	Pre	Prodiamine	Barricade	Yes	Yes	Yes	Yes	Yes
Dollarweed, torpedograss, crabgrass	Post	Quinclorac	Drive, Fertilome Weed Out with Q	No	Yes	No	No	Yes

Weed to Control	Pre or Post Emergent	Active Ingredient	Example of Brand Name	Bahiagrass	Bermuda grass	Centipede grass	St. Augustine grass	Zoysiagrass
Annual grass & some broadleaf	Pre	Oryzalin	Surflan	Yes	Yes	Yes	Yes	Yes
Crabgrass	Pre	Oxadiazon	Ronstar 2G, 50WP, QP Oxadiazon 2G, 50 WP	No	Yes	No	Yes	Yes
Annual grass & some broadleaf	Pre	Pendimethalin	Pendulum, Pre-M, Halts Crabgrass Preventer	Yes	Yes	Yes	Yes	Yes
Annual grass & some broadleaf	Pre	Prodiamine	Barricade	Yes	Yes	Yes	Yes	Yes
Dollarweed, torpedograss, crabgrass	Post	Quinclorac	Drive, Fertilome Weed Out with Q	No	Yes	No	No	Yes
Crabgrass	Post, systemic	Sethoxydim	Segment, Fertilome Over-the-Top II Grass Killer	No	No	Yes	No	No
Broadleaf	Post	Simazine	Princep	No	Yes	Yes	Yes	Yes
Broadleaf	Post, systemic	2,4-D + dicamba + MCPP, MCPA, and/or 2,4-DP	Many brands (e.g. Trimec Southern, Ortho Weed-B-Gon MAX, Spectracide Weed Stop)	Yes	Yes	Yes	No	Yes
Broadleaf	Pre	Atrazine + isoxaben	Gallery	Yes	Yes	Yes	Yes	Yes
Kills all plants	Nonselective, systemic	Glyphosate	Roundup	No	No	No	No	No
Kills all plants	Nonselective, contact	Glufosinate	Finale	No	No	No	No	No
Kills all plants	Nonselective, contact	Diquat	Reward	No	No	No	No	No

Leaf Arrangements

Alternate – one leaf at each node



Opposite – two leaves at each node, on opposite sides of the stem

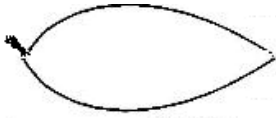


Whorled—more than two leaves at a node spaced around the stem



Leaf Margins

Smooth – no teeth, notches or lobes



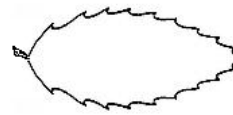
Crenate – round teeth



Lobed – rounded incisions which do not extend deeper than halfway between the margin and the center of the blade



Serrate –sharp, saw-like teeth pointing forward



Leaf Shapes

Elliptic – broadest in the middle



Linear – narrow



Lanceolate – lance shaped



Oblong- nearly twice as long as broad



Ovate – egg-shaped, with the broadest part near the base



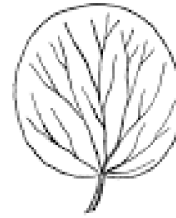
Obovate – egg-shaped with the narrower part near the base



Cuneiform – wedge-shaped



Orbicular – round



Reniform – kidney-shaped



Hastate – arrow-shaped



Cordate – heart-shaped



Dissected – deeply cut



Stems

Simple – stems without branches

Branched – stems with more than one terminal bud, with side growths or branches.

Climbing – stems too weak to support themselves, which lean or twist about other plants or posts for support

Creeping – stems that rest on the surface of the ground, sending down roots at the nodes or joints

Rhizomes – *prostrate*, usually thickened, underground stems, with leaves coming from one side and roots from the other, such as canna, and some begonias.

Stolons - *slender*, modified stems growing along the surface of the ground and rooting at the nodes

Brown, S., & Ruppert K. (2015). *Botany Handbook for Florida*. University of Florida IFAS Extension.

Colvin, D., Dickens, R., Everest, J., Hall, D., & McCarty L.B. (2013). *Weeds of Southern Turfgrasses*. University of Florida IFAS Extension.

Harlow, E., Leon, R. Leon, R., & Unruh, J. (2015). *Identification Guide to Common Florida Lawn and Ornamental Weeds*. University of Florida IFAS Extension.

Trenholm, L., & Unruh, J. (2005). *The Florida Lawn Handbook*. University of Florida IFAS Extension.

Published February, 2017