



RANGE & PASTURE WEED ID GUIDE



PRODUCTS THAT FIT YOUR NEEDS

No one is better equipped to handle your special range and pasture management needs than Dow AgroSciences. We offer a full range of products that help address a wide range of weed and brush problems. For more information, see your agricultural products dealer or local weed board.

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Dow AgroSciences

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INTRODUCTION

RANGE & PASTURE IMPROVEMENT

Annual and perennial weeds choke forage production, restrict grazing, cut carrying capacity, ruin wildlife habitat and reduce forage yields and quality. When these weeds show up, grass and, ultimately, beef production suffer. And — especially in the case of noxious weeds— the value of the land itself can plummet. That's why managing them is a must.

Although mechanical or mechanical control methods may temporarily appear to do the job, they are labor-intensive and costly. What's more, they often don't get to the root of the problem and actually may compound it. That's where products in the Dow AgroSciences Range & Pasture lineup can help. Dow AgroSciences developed advanced, long-lasting herbicides specifically for rangeland and pastures to provide the most complete control available. They provide the type of control needed to control weeds all the way down to the roots.

By applying a Dow AgroSciences Range & Pasture herbicide, weeds, roots and all, are controlled in an efficient, cost-effective way. And unlike mechanical methods and some other herbicides, a quality Range & Pasture herbicide from the specialists at Dow AgroSciences won't harm desirable grass (although, Chaparral™ specialty herbicide should not be used on fescuegrass grown for seed). That means more quality forage for cattle or wildlife.

Dow AgroSciences compiled this weed guide to serve as a handy resource. It offers photographs and detailed descriptions of the annual and perennial weeds you most likely will encounter. The guide also provides treatment strategies that include application and rate information for the products that can help get the job done. If during your rangeland and pasture improvement efforts you run into a weed not listed in this guide, visit **RangeAndPasture.com** for a more extensive species listing or contact your local Dow AgroSciences Range & Pasture Specialist. You also can refer to product specimen labels; contact your local ag products dealer, Extension specialist or county weed director; or call Dow AgroSciences at **800.263.1196** for advice on treatment specifics.

This Weed Identification Guide is provided for reference purposes only and is not a substitute for the product label or MSDS. Federal law requires that all pesticide products be used in accordance with the label attached to the product container. The information contained in this Weed Identification Guide is presented in good faith, and Dow AgroSciences assumes no liability for the information and makes no expressed or implied representations or warranties.

¹Label precautions apply to forage treated with Chaparral or GrazonNext HL and to manure from animals that have consumed treated forage within the last three days. Consult the label for full details. Some states require an individual be licensed if involved in the recommendation, handling or application of any pesticide. Consult your local Extension office for information regarding licensing requirements.

Surmount and Tordon 22K are federally Restricted Use Pesticides.

Chaparral and GrazonNext HL are not registered for sale or use in all states. Contact your state pesticide regulatory agency to determine if a product is registered for sale or use in your state. State restrictions on the sale and use of Remedy Ultra apply. Consult the label before purchase or use for full details. Always read and follow label directions.

INTRODUCTION

THE FOUNDATION OF CHAPARRAL™ AND GRAZONNEXT® HL SPECIALTY HERBICIDES Aminopyralid

Aminopyralid emerged through Dow AgroSciences' discovery and R&D programs, and was developed specifically for the management of noxious, invasive and other broadleaf weed species. Aminopyralid was reviewed and accepted for registration under the Environmental Protection Agency's Reduced Risk Pesticide Initiative. This exclusive program is reserved for compounds that demonstrate lower risk to humans and the environment than other available alternatives. Aminopyralid, whether delivered as Chaparral or GazonNext HL, offers some key advantages over other available compounds.

- Aminopyralid containing products can be applied up to the waters' edge, allowing for effective weed control along creeks and streams, and around stock ponds — areas where weeds often thrive.
- There are no grazing (or haying) restrictions for any class of livestock, including beef cattle and lactating dairy animals, horses, sheep, goats and other livestock¹. There are some transfer restrictions for grazing animals (including horses) from areas treated with these products to areas where sensitive broadleaf crops grow without first allowing three days of grazing on an untreated pasture.
- Herbicides containing Aminopyralid are essentially nonvolatile so they stay where they're sprayed. However, whether applying by ground or by air, users still must take precautions so spray drift does not occur.
- These products are not federally Restricted Use Pesticides, so in most states, you don't need a license to purchase or to apply. However, some state restrictions do apply.¹ Check with your cooperative Extension office or state department of agriculture for any local requirements.
- Postemergence activity is relatively rapid. Treatments with herbicides containing Aminopyralid should be rainfast within two hours after application depending upon environmental conditions and species being controlled.

- Aminopyralid has an auxinic growth regulator mode of action. Despite extensive use, herbicides with this mode of action have demonstrated a low risk of resistance development.

While Dow AgroSciences developed Aminopyralid specifically for rangeland and pasture use, herbicides containing this ingredient also are excellent weed management tools on Conservation Reserve Program (CRP) acres and on other land types — wildlife and habitat management areas; wildlife openings; natural areas, including wildlands and wildlife refuges; seasonally dry wetlands, including ditch banks. No matter the situation it is important to remember that you must always read and follow all label directions.

INTRODUCTION

EFFECTIVE WEED CONTROL

A Benefit that Comes with Responsibility

The soil residual activity of some Dow AgroSciences herbicides is what provides more than a few days' worth of weed control. By contrast, 2,4-D controls many weeds that have emerged, but 2,4-D does little to control weed seedlings that emerge days later.

In the soil. The active ingredient, aminopyralid, in some Dow AgroSciences herbicides both broadens the spectrum of control and provides soil residual activity to control susceptible weeds that germinate for several weeks after spraying. That gives grasses a substantial head start.

Over the season, the active ingredient breaks down and its soil residual activity dissipates. But enough may remain the next year to damage sensitive crops if the pasture is converted to cropland. Don't use Aminopyralid containing herbicides on pastures you expect to rotate to crops. Also, don't apply within the root zone of desirable trees unless injury can be tolerated. Use special caution near rose species and leguminous trees, such as locusts, redbud and mimosa.

In the plant. While the herbicide is still active in the soil, grasses may absorb and store the active ingredient. So it may be present in hay harvested from treated grass. Treated grass hay should never be used, sold or given away for mulch or compost. Enough aminopyralid could be released from the hay, as the hay decomposes, that could damage sensitive broadleaf plants. Likewise, don't feed treated hay to animals on land to be planted to sensitive crops.

Through the animal. When a grazing animal ingests treated grass or grass hay carrying aminopyralid residue, the residue passes through the animal completely intact and without harm to the animal. But the active ingredient may be present in the manure or urine for three days after consuming the treated forage. For that reason, manure from animals that have consumed grass or hay treated with aminopyralid should be used only on permanent grass pasture, grass grown for seed, wheat or corn, according to label directions. As a grass hay producer, it's critical to inform your customers about the restrictions for any manure produced from animals that eat forage treated with Chaparral™, GrazonNext® HL, or Milestone® herbicides. This manure must not be used to fertilize sensitive crops, ornamental flowers or other broadleaf crops. Manure can be used on rangeland, pasture, grass hay fields, wheat, corn and CRP land. If you are a livestock producer and plan to make manure available to others, it is important that you notify them of these precautions. Don't provide it to others for gardening purposes. Don't spread it on cropland planted to, or that will be planted to, sensitive crops, including soybeans, cotton, tobacco, sunflowers, strawberries, potatoes, tomatoes, sugarbeets, flowers, grapes, peanuts, alfalfa and cucurbits.

Drift potential. While Chaparral™, GrazonNext® HL, and Milestone® herbicides are essentially nonvolatile — meaning they won't form vapors and move after application — any liquid product can drift with the wind during application. For that reason, observe all precautions to avoid physical drift onto sensitive crops or land to be planted to sensitive crops.

All these precautions are spelled out on the product specimen label. That's why it's especially important to read it. Make sure you keep residual activity as a benefit only.



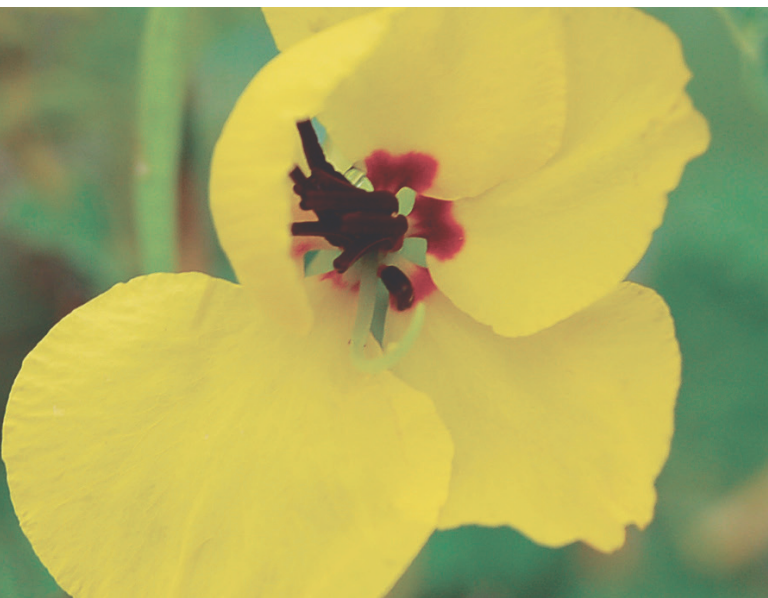
ANNUAL WEEDS

GENERAL TREATMENT AND APPLICATION GUIDELINES

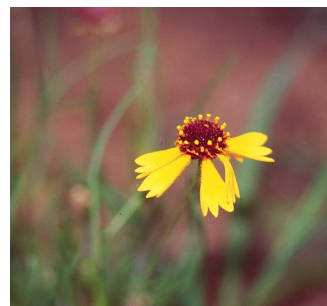
When product is applied to early emerging weeds at the labeled rate, you will obtain excellent broad-spectrum broadleaf weed control. As the season goes on and weeds become larger, and higher rates of herbicide will improve control and extend residual activity.

While you will find specific recommendations for most of the weeds included in this guide, here are some general treatment guidelines for broad-spectrum broadleaf weed control:

- Apply products in enough water to give a total spray volume of 15 to 20 gallons per acre. When a rate range is provided, the lower rate is most effective early in the season when weeds are actively growing. The higher rate will control larger weeds and provide longer-lasting residual control.
- To provide more complete wetting of the foliage, use the recommended rate of an agricultural surfactant. Using a drift control additive for drift reduction and improved deposition is also strongly recommended.



ANNUAL WEEDS



BITTER SNEEZEWEED

Helenium badium and *H. amarum*

Life Cycle: Annual

Plant Description: Summer annual with purplish, branching stems from 4 to 24 inches tall. Leaves are small, threadlike and numerous. Yellow flower heads have a domelike center. Plant has a pungent odor and a bitter taste. Often found in wastelands and unimproved pastures.

Treatment: Apply 1.5 to 2 ounces per acre of Chaparral™ herbicide or 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre. For non-residual weed control, apply 1 to 1.5 pints per acre of PastureGard® HL. Use lower rates when weeds are small and actively growing. Increase rate as season progresses and plants become more mature.

ANNUAL WEEDS



BROOMWEED, ANNUAL

Amphiachyris dracunculoides

Life Cycle: Annual

Plant Description: Tough woody stems 15 to 30 inches tall branch near top to form crown. Strong taproot, but most feeder roots are close to surface. Small needlelike leaves and tiny bright yellow flowers. Reproduces by seed.

Treatment: Apply 1.5 to 2.0 ounces per acre of Chaparral™ herbicide or 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre. For non-residual weed control, apply 1 to 1.5 pints/A of PastureGard® HL. Use lower rates when weeds are small and actively growing. Increase rate as season progresses and plants become more mature.



BUFFALOBUR

Solanum rostratum

Life Cycle: Annual

Plant Description: Erect, spiny branches with long-lobed leaves and yellow flowers grow to 2 feet tall. Leaves are 2 to 5 inches long, alternate, deeply lobed and spiny on the underside with prominent veins. Yellow flowers have five lobes and measure 1 inch wide.

Treatment: Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre prior to bud stage. For non-residual weed control, apply 1 to 1.5 pints/A of PastureGard® HL. Apply when weeds are small and actively growing. Increase rate as season progresses and plants become more mature.

ANNUAL WEEDS



CAMPHORWEED

Heterotheca subaxillaris

Life Cycle: Annual

Plant Erect, annual aromatic, rarely overwintering, growing from 1 to 3 feet tall. Lower leaves have short stems. Upper leaves are attached to stems in a clasping manner. Bright yellow daisylike flowers have darker yellow centers. Smells like camphor when crushed.

Treatment: Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 3.0 ounces of Chaparral™ herbicide per acre. Apply during active growth.

CAROLINA FALSE DANDELION

Pyrrhopappus carolinianus

Life Cycle: Annual/Biennial

Plant Winter annual or biennial weed common in disturbed pastures and fields. Hairy leaves are deeply lobed and form a basal rosette with a taproot. Flower stalk may have branches that end with bright yellow flowers that appear in the spring and summer.

Treatment: Apply 1.5 to 2.0 ounces of Chaparral™ herbicide or 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre.

ANNUAL WEEDS



CHICKWEED, COMMON

Stellaria media

Life Cycle: Annual

Plant Description: Winter annual plant with oval or elliptical outlined leaves. Leaves are light green in color and are typically smooth, but may be hairy near the base. Flowers form in clusters and consist of five white petals that are deeply lobed.

Treatment: Apply a labeled rate of 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 3.0 ounces of Chaparral™ herbicide. Apply any time in the fall after germination through late winter. Use lower rates when weeds are small and increase rate as season progresses until senescence.



COCKLEBUR, COMMON

Xanthium strumarium

Life Cycle: Annual

Plant Description: Erect, taprooted annual, normally bushy, 2 to 4 feet tall. Leaves are alternate, triangular, toothed, or lobed and rough. Two female flowers are enclosed in each oval burr. Male flowers in cluster on short stalks.

Treatment: Apply 1.5 to 2.0 ounces per acre of Chaparral™ herbicide or 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre. For non-residual weed control, apply 1 to 1.5 pints/A of PastureGard® HL. Use lower rates when weeds are small and actively growing. Increase rate as season progresses and plants become more mature.

ANNUAL WEEDS



CROTON, WOOLLY (Goatweed, Doveweed)

Croton texensis

Life Cycle: Annual

Plant Description: Several annual species. Erect or ascending stems. Usually covered with dense whitish or rust-colored hairs. Leaves alternate and are stemmed with serrated edges. Flowers are inconspicuous, usually clustered at branch tips. Seeds are smooth, somewhat turtle-shaped. Flourishes only in Southern summer heat, pastures and waster areas. Generally increases in abundance under overstocking conditions.

Treatment: Apply 1.5 to 2.0 ounces per acre of Chaparral™ herbicide or 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre. Use lower rates when weeds are small and actively growing. Increase rate as season progresses and plants become more mature.



CUTLEAF EVENING PRIMROSE

Oenothera laciniata

Life Cycle: Annual

Plant Description: Herbaceous plant that can reach 28 inches in height. Branched stem is often reclining. Leaves are alternate and leaf is toothed or lobed. Blooms in late sprint into early fall, with pale yellow or pink flowers.

Treatment: For broad-spectrum weed control, apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 1.5 to 2.0 ounces of Chaparral™ herbicide per acre. Apply when weeds are actively growing and under conditions favorable for growth.

ANNUAL WEEDS



FLEABANE

Erigeron annuus

Life Cycle:	Annual
Plant Description:	Annual plant up to 3½ feet tall, branching occasionally in the upper half to form flower stems. Leaves toward base are 3 to 5 inches long with larger petioles. Small clusters of daisylike flowers appear toward the apex of the plant.
Treatment:	Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 1.5 to 2.0 ounces of Chaparral™ herbicide per acre. Apply when weeds are actively growing and conditions are favorable for plant growth.



HENBIT

Lamium amplexicaule

Life Cycle:	Annual
Plant Description:	Winter annual with square stems and pink-purple flowers, reaching 16 inches in height. Leaves reach 5 inches in length, are circular to heart-shaped with rounded teeth on the edges. Flowers occur in whorls in the upper leaves and are fused into a tube approximately 2/3 inch long.
Treatment:	Apply a labeled rate of 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre any time in the fall after germination through late winter, or apply 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Use lower rates when weeds are small and increase rate as season progresses until senescence.

ANNUAL WEEDS



HORSEMINT (Bee Balm)
Monarda citriodora

Life Cycle:	Annual
Plant Description:	Pubescent, simple alternate leaves; tubular flowers, whorls in one to six successive heads. Blooms in spring through summer, blossom colors range from almost white to a deep purple.
Treatment:	Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 1.5 to 2.0 ounces per acre of Chaparral™ herbicide. Use lower rates when weeds are small and increase rate as season progresses until senescence.



HORSEWEED (Marestail)
Conyza canadensis

Life Cycle:	Annual
Plant Description:	Coarse annual 1 to 5 feet tall. Stem usually has short white hairs, but is sometimes nearly hairless. Its many leaves are alternate and lance-shaped. Blooms June to August with numerous tiny, inconspicuous flowers.
Treatment:	For broad-spectrum control, apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 1.5 to 2.0 ounces of Chaparral™ herbicide per acre.

ANNUAL WEEDS



LESPEDEZAS, ANNUAL

Lespedeza striata

Life Cycle: Annual

Plant Description: Fine-stemmed, leafy, legume with shallow taproots. Grows 1 to 2 feet tall. Leaves are pale green with light-colored, visible veins. Flowers in late summer and early fall.

Treatment: Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Apply when weeds are actively growing and favorable for plant growth. Use a higher rate when growing conditions are less than favorable, when weeds are mature, when weed foliage is tall and dense, or when residual control is important.



MAYWEED: Scentless and Stinking

Tripleurospermum perforata and *Anthemis cotula*

Life Cycle: Annual

Plant Description: **Scentless:** Plants can be very bushy and have an extensive, fibrous root system. Stems are erect, growing up to 3½ feet tall. Leaves are alternate and divided into short segments (carrotlike) and are scentless when crushed. Flowers are composed of a yellow central disk surrounded by white petals.

Stinking: Stems are low and bushy-branched, ranging from 4 to 24 inches tall and finely hairy just below the flower heads. Flower heads are daisylike. When crushed, all parts of the plant give off an offensive odor.

Treatment: Apply a labeled rate of 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre. Use lower rates when seeds are small and actively growing. Increase rate as season progresses and plants become more mature. Apply a labeled rate of 1.5 to 2.0 ounces of Chaparral™ herbicide per acre when treating for scentless mayweed and 3.0 to 3.3 ounces of Chaparral per acre when controlling stinking mayweed.

ANNUAL WEEDS



MARSHELDER (Sumpweed, Sulphurweed)
Iva annua

Life Cycle: Annual

Plant Robust, branching stems with greenish-white flowers at the top grow 2 to 10 feet tall. Leaves grow opposite one another with long petioles. Flowers are stalkless and crowded on long, branching spikes at the tops of stems.

Treatment: Apply 2.0 to 2.5 ounces per acre of Chaparral™ herbicide or 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre. For non-residual weed control, apply 1 to 1.5 pints/A of PastureGard® HL. Should be applied to young, actively growing plants.



MEDIC, BLACK
Medicago lupulina

Life Cycle: Annual/Biennial

Plant A low-trailing summer plant with yellow flowers approximately 1/2 to 3/4 inch long. Stems are hairy, radiating out from the taproot. Leaves are wedge- or oval-shaped with toothed margins.

Treatment: For broad-spectrum weed control, apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Apply during vegetative stage prior to bloom. Use higher rates when weeds are larger.

ANNUAL WEEDS



MEXICANTEA

Chenopodium ambrosioides

Life Cycle: Annual/Perennial

Plant A Strong-scented herb that may be annual or perennial. Stems and branches may be smooth or minutely hairy. Leaves are alternate, oblong to ovate or lanceolate in shape with wavy or toothed margins. Leaf size is gradually reduced upward on the plant. Flowers occur in clusters on spikes, with the upper spikes in a branched arrangement.

Treatment: Apply a labeled rate of 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Use lower rates when weeds are small and actively growing. Increase rate as season progresses and plants become more mature.



NIGHTSHADE, BLACK

Solanum ptycanthum

Life Cycle: Annual

Plant Foliage with gray or silvery appearance with violet, light blue or white flowers, and 1 to 3 feet tall. Stems are sparsely covered with short yellow thorns. Leaves and stems have a dense silvery covering of hair.

Treatment: Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre during bloom.

ANNUAL WEEDS



PARTRIDGE PEA

Cassia fasciculata

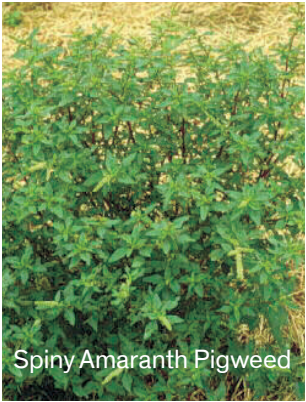
Life Cycle: Annual

Plant Description: Smooth or hairy annual, that ranges from 30 to 100 centimeters tall. Leaves have a distinct gland midway along the stalk and are compound. Each leaf has 12 to 36 linear leaflets, which are 1 to 3 centimeters long and 2 to 6 millimeters wide.

Treatment: Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.5 to 3.0 ounces of Chaparral™ herbicide per acre. Apply when weeds are actively growing and conditions are favorable for plant growth.



Smooth Pigweed



Spiny Amaranth Pigweed



Redroot Pigweed

PIGWEEED, SPINY AMARANTH

Amaranthus spinosus

Life Cycle: Annual

Plant Description: Stems erect, rough, textured. Grows to 6 feet tall. Leaves alternate and are dull green on long stems. Small green flowers are in dense spikes at stem tips and upper leaf axils. Each flower is surrounded by three shiny bracts. Seeds are small and shiny black. Smooth pigweed is similar but leaf stems shorter, plant texture smoother.

Treatment: For broad-spectrum weed control, apply 2.0 to 2.5 ounces per acre of Chaparral™ herbicide or 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre. Use lower rates when weeds are small and actively growing. Increase rate as season progresses and plants become more mature.

ANNUAL WEEDS



PRICKLY LETTUCE

Lactuca serriola

Life Cycle:	Annual
Plant Description:	Annual weed with prickly leaves that emit a milky sap when cut. Leaves are arranged alternately on the stem between 2 to 14 inches long. Flowers are approximately 10 millimeters wide and are composed of 5 to 12 yellow toothed petals.
Treatment:	Apply 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre. Apply when weeds are actively growing and conditions are favorable for growth. Or apply 1.5 to 2.0 ounces of Chaparral™ herbicide per acre. For best results, tank-mix Chaparral with 2,4-D and apply to weeds shorter than 6 inches in height.



RAGWEED: Common and Giant
Ambrosia artemisiifolia and *Ambrosia trifida*

Life Cycle:	Annual
Plant Description:	Giant ragweed reaches 12 to 15 feet on fertile, moist soils; 4 to 8 feet in less fertile, dry areas. Leaves are in pairs on coarse stems and have three to five large lobes. Common ragweed (<i>A. artemisiifolia</i>), 1 to 4 feet tall, has many lobed leaves. Lanceleaf grows 1 to 4 feet tall with rough leaves bearing two sharp teeth on a broad base.
Treatment:	For common ragweed, apply 2.0 to 2.5 ounces per acre of Chaparral™ herbicide or 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre. Use lower rates when weeds are small and actively growing. Increase rate as season progresses and plants become more mature.

ANNUAL WEEDS



SMARTWEED, PENNSYLVANIA

Polygonum pensylvanicum

Life Cycle:	Annual
Plant Description:	A summer annual weed that may reach 3½ feet in height. Leaves are elongated and often have a purple spotted “lady’s thumbprint” in the middle. Stems are branched and reddish. Pink or white flowers are small and clustered in terminal spikes at the ends of stems.
Treatment:	Apply a labeled rate of 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 1.2 to 2.0 ounces of Chaparral™ herbicide per acre when weeds are small and actively growing. Increase rate as season progresses and plants become more mature.



SNOW-ON-THE-MOUNTAIN

Euphorbia marginata

Life Cycle:	Annual
Plant Description:	An erect annual native from Minnesota to Colorado and Texas. Ovate to oblong light green leaves, 1 to 3 inches long, ranging from 2 to 4 feet in height. Handling plant may cause skin irritation or allergic reaction.
Treatment:	Apply 2.0 to 2.5 ounces per acre of Chaparral™ herbicide or 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre. Apply when weeds are small and actively growing. Increase the rate as the season progresses and plants become more mature.

ANNUAL WEEDS



Ted Bodner, Southern Weed Sciences Society

SPANISH NEEDLES

Bidens bipinnata

Life Cycle: Annual

Plant Description: Slender, erect, branched annual, grows 1 to 2 feet high. Leaves are sparse, lanceolate and hairy, growing 1½ to 3 inches long.

Treatment: For broad-spectrum weed control, apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Apply when weeds are actively growing.



John D. Byrd, Mississippi State University, Bugwood.org



John D. Byrd, Mississippi State University, Bugwood.org



Steve Dewey, Utah State University

VETCH

Vicia sativa

Life Cycle: Annual

Plant Description: A straggling, climbing, trailing herb. Can be anywhere from 3 to 7 feet in height, with lance-shaped, pointed leaflets. Flowers are bluish-violet.

Treatment: Apply 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre or 1.5 to 2.0 ounces of Chaparral™ herbicide per acre.

ANNUAL WEEDS



WESTERN BITTERWEED (Bitter Rubberweed)
Hymenoxys odorata or *H. richardsonii*

Life Cycle:

Annual

Plant Description:

A poisonous bushy annual weed that forms a dome-shaped clump. Daisylike yellow flowers have yellow centers. Grows up to 1 foot in height. Leaves are aromatic when crushed. Thrives in standing or temporary water after a wet winter. A weed of overgrazed plains.

Treatment:

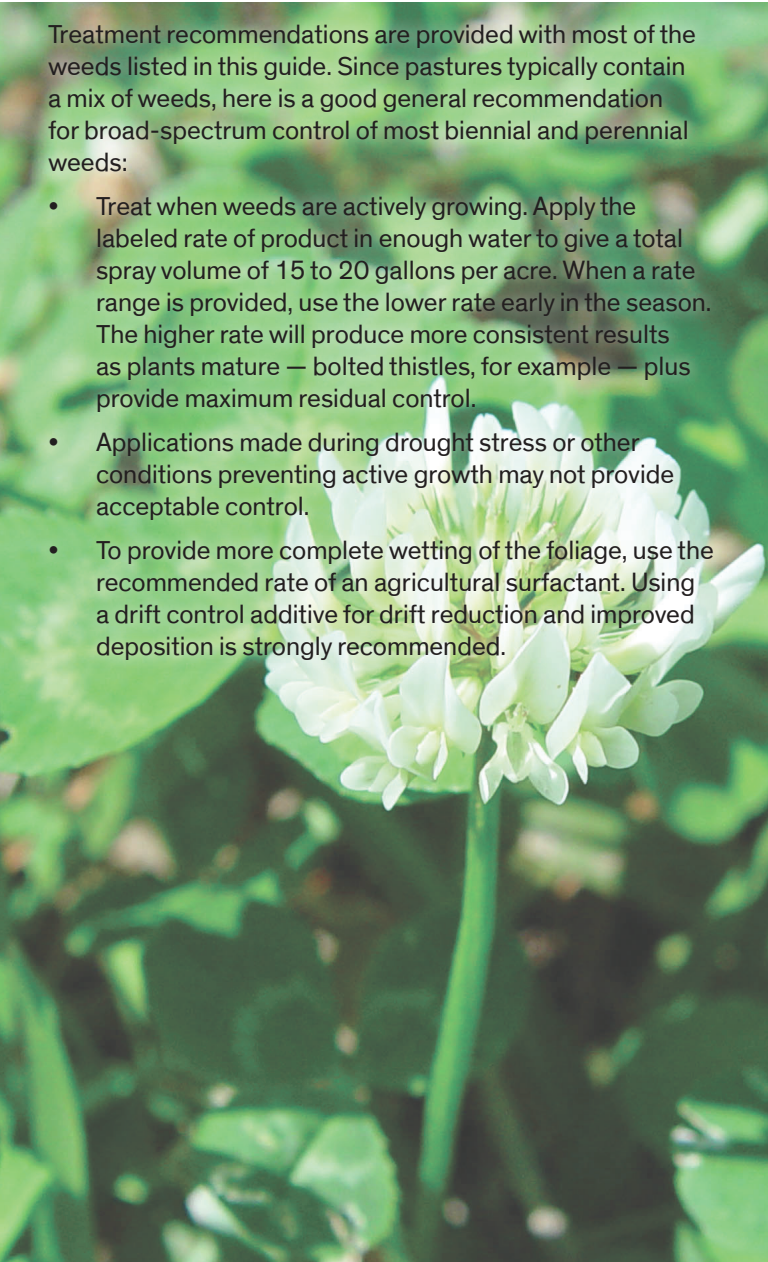
Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre. For non-residual weed control, apply 1 to 1.5 pints/A of PastureGard® HL.

BIENNIAL & PERENNIAL WEEDS

GENERAL TREATMENT AND APPLICATION GUIDELINES

Treatment recommendations are provided with most of the weeds listed in this guide. Since pastures typically contain a mix of weeds, here is a good general recommendation for broad-spectrum control of most biennial and perennial weeds:

- Treat when weeds are actively growing. Apply the labeled rate of product in enough water to give a total spray volume of 15 to 20 gallons per acre. When a rate range is provided, use the lower rate early in the season. The higher rate will produce more consistent results as plants mature — bolted thistles, for example — plus provide maximum residual control.
- Applications made during drought stress or other conditions preventing active growth may not provide acceptable control.
- To provide more complete wetting of the foliage, use the recommended rate of an agricultural surfactant. Using a drift control additive for drift reduction and improved deposition is strongly recommended.



BIENNIAL & PERENNIAL WEEDS



BEDSTRAW

Galium mollugo or Galium aparine

Life Cycle:	Perennial
Plant Description:	Perennial with square stems and whorls of six to eight leaves. Leaves are without hair, and flowers form in clusters on a stalk between the stem and leaves.
Treatment:	Apply at a rate of 1.2 to 1.5 pints per acre of GrazonNext® HL herbicide. Apply any time during active growth spring through fall. Or apply 2 to 2.5 ounces of Chaparral™ herbicide per acre.



BROOM SNAKEWEED

Gutierrezia sarothrae

Life Cycle:	Perennial
Plant Description:	Perennial warm-season plant reproducing by seeds and root systems. Most toxic during leaf formation. Woody in nature, rarely growing above 18 inches. Stems grow new from the crown each year, not from old regrowth. Leaves are narrow with smooth edges. Small, round, inconspicuous yellow-ray flowers appear from July to September.
Treatment:	Apply 3.3 ounces per acre of Chaparral™ herbicide. Spray during and after full flower stage in fall when growing conditions are good.

BIENNIAL & PERENNIAL WEEDS



BULLNETTLE

Cnidoscolus texanus

Life Cycle:	Perennial
Plant Description:	Usually 1½ to 3 feet high with several stems. If any part of the stem is broken, a milky sap appears. Leaves are 2 to 4 inches long with stinging hairs. Flowers consist of five to seven white, petal-like sepals.
Treatment:	Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2 to 2.5 ounces per acre of Chaparral™. Spray bullnettle in the summer after plants begin to flower. Spraying too early may require repeat applications for control.



BURDOCK, COMMON

Arctium minus

Life Cycle:	Biennial
Plant Description:	A biennial that produces a rosette of large leaves in the first year and a branched stem with multiple burrs during the second year. Rosette leaves are broadly heart-shaped, 6 to 18 inches long, with wavy and toothed margins. Flowers occur in clusters at the ends of branches and are purple to lavender, occasionally white. Flowers dry to a burr with hooked bracts that can be confused with a thistle.
Treatment:	Apply a labeled rate of 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Apply in the spring and early summer to rosette or bolting plants or in the fall to seedlings and rosettes before ground is frozen. Use higher rates after bolting through early flower.

BIENNIAL & PERENNIAL WEEDS



BUTTERCUP, TALL

Ranunculus acris

Life Cycle:	Perennial
Plant Description:	Up to 3 feet in height with hairy, deeply lobed leaves divided into three to five segments. Flowers are glossy yellow and are ¾ inch in diameter with a greenish center.
Treatment:	Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Use the lower rate when weeds are shorter than 6 inches tall and actively growing. Increase rate as plants become more mature, when weed foliage is tall and dense or when growing conditions are less than favorable or for longer residual control.



CHICORY

Cichorium intybus

Life Cycle:	Perennial
Plant Description:	Chicory is a perennial growing from 1 to 6 feet tall. Rough, basal leaves 2 to 10 inches long are in rosette, oblanceolate, petiolate, toothed or often pinnately parted. Upper leaves extend from spreading. One to three flowers – usually blue, but sometimes purple and occasionally white – form in axils of upper leaves. Fruits can be weakly angled or ribbed, tipped by a crown of minute scales.
Treatment:	For broad-spectrum weed control, apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 1.5 to 2.0 ounces of Chaparral™ herbicide per acre. Apply low rate to the rosette stage. Use higher rates on larger plants prior to flower.

BIENNIAL & PERENNIAL WEEDS



CLOVER: White and Sweet
Trifolium repens and *Melilotus officinalis*

Life Cycle:	Biennial/Perennial
Plant Description:	Plants are very similar with yellow sweet clover blooms shorter and earlier. Plants do not bloom in the first year. Second-year plants are between 3 to 5 feet high and are bushlike. Alternate leaves, divided into three finely toothed leaflets; middle leaflet grows on a short stalk.
Treatment:	Apply a labeled rate of 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre when weeds are small and actively growing. Increase the rate as the season progresses and plants become more mature. Or apply a labeled rate of 1.5 to 3.0 ounces of Chaparral™ herbicide.



CROWNVETCH
Coronilla varia L.

Life Cycle:	Perennial
Plant Description:	Perennial legume with dark green and pinnately compound leaves usually with 15 ovate-oblong leaflets. Coarse, strong, branched stems that are 2 to 6 feet long and upright to trailing. Pinkish-white to deep pink flowers in long-stalked clusters.
Treatment:	For broad-spectrum weed control, apply 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre. Or apply 1.5 to 2.0 ounces of Chaparral™ herbicide per acre. Apply when weeds are actively growing and under conditions favorable for growth. Use a higher rate in the rate range when growing conditions are less than favorable, when weed foliage is tall and dense, or when residual control is desired.

Chris Evans, River to River CWMA

Chris Evans, River to River CWMA

Dave Powell, USDA Forest Service

BIENNIAL & PERENNIAL WEEDS



CURLYCUP GUMWEED

Grindelia squarrosa

Life Cycle:	Biennial
Plant	Erect biennial or short-lived perennial
Description:	1 to 3 feet tall with pale branches. Branches topped with bright yellow flowers supported by cups with small, sticky, curved bracts.
Treatment:	Apply labeled rate of 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Apply to new growth and seedlings that have fully emerged, but before bloom stage. Use lower rates when weeds are small and higher rates on larger plants.



DOCK, CURLY

Rumex crispus

Life Cycle:	Perennial
Plant	Perennial, reproducing by seeds only.
Description:	Fleshy taproot somewhat branched, yellowish-orange. Stems smooth with swollen nodes, erect, 2 to 4 feet tall. Leaves are dark green, alternate, smooth and simple with crimped edges. Small green flowers are without petals, turn dark reddish brown at maturity and cluster in whorls at top of stem.
Treatment:	For broad-spectrum weed control, apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Use lower rates when weeds are small and actively growing. Use higher rates on larger plants, but prior to bolting.

BIENNIAL & PERENNIAL WEEDS



DOGFENNEL
Eupatorium capillifolium

Life Cycle:	Perennial
Plant Description:	Grows up to 10 feet tall. Several slender stems form a stout woody main stem. Leaves are dissected into fine divisions. Lower leaves are opposite (others alternate) and mostly ¾ to 4 inches long. Flower heads green to bronze and numerous in a branched panicle.
Treatment:	Apply 1.5 to 2.1 pints per acre of GrazonNext® HL when less than 12 inches. Tank mix GrazonNext HL 1.5 pints per acre + 8-10 fluid ounces of PastureGard HL for large DogFennel. For non-residual weed control, apply 1.2 to 1.5 pints per acre PastureGard® HL to plants as tall as 48 inches.



FIREWEED (Stinging Nettle)
Chamerion angustifolium

Life Cycle:	Perennial
Plant Description:	Narrow, lance-shaped leaves up to 8 inches long alternate on the stem. Flowers are large and range from rose to purple mauve and are clustered along the top of the reddish stem.
Treatment:	Apply 2.5 to 3.0 ounces per acre of Chaparral™ herbicide or 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre. Apply during vegetative stage prior to bloom.

BIENNIAL & PERENNIAL WEEDS



GOLDENROD

Solidago spp.

Life Cycle:	Perennial
Plant Description:	Tall, green-stemmed plant with yellow-ray and -disk flowers. Thick, rigid stems can be single or clustered.
Treatment:	Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Apply when weeds are actively growing to bud stage.



HORSENETTLE (Carolina and Western)

Solanum carolinense and *S. dimidiatum*

Life Cycle:	Perennial
Plant Description:	Stems erect, loosely branched, covered with gray hairs and yellow spines. Grow to 2 feet tall. Leaves are dark green, oval, pointed at tip, sharply lobed or wavy-toothed. Clusters of white to purple flowers look like tomato flowers. Bloom May to October, when yellow-orange berries form. Berries are poisonous.
Treatment:	Apply 2.0 to 2.5 ounces per acre of Chaparral™ herbicide or 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre. Spray when plants begin to flower in the spring.

BIENNIAL & PERENNIAL WEEDS



IRONWEED: TALL & WESTERN

Vernonia gigantea and *Vernonia baldwinii*

Life Cycle:	Perennial
Plant	Clump-forming perennial herbs with erect stems 2 to 4 feet tall. Reproduce by rhizomes and seed. Long, lance-shaped leaves are sharply toothed with short hairs on lower surface. Reddish-purple flowers are arranged along slender branches at top of plant.
Description:	
Treatment:	Apply 2.0 to 3.3 ounces per acre of Chaparral™ herbicide or 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre before flowering during vegetative stage prior to bloom. Use higher rates in range when weeds are larger.



LOCOWEEDS: WOOLY & CRAZYWEED

Astragalus spp and *Oxytropis* spp

Life Cycle:	Perennial
Plant	Tufted plant covered with silvery hairs.
Description:	Poisonous to all livestock species. Leafless stalks emerge from the center of low-growing basal leaves, holding flowers 4 to 16 inches high. Flowers resemble sweet peas and may be blue, purple, yellow or white.
Treatment:	Apply 1.0 - 1.5 pints of PastureGard® HL herbicide per acre or 2.0 pints of Surmount® herbicide per acre. Apply when plants are approaching maximum vegetative growth, but before flowers open.

BIENNIAL & PERENNIAL WEEDS



MULLEIN, COMMON

Verbascum thapsus

Life Cycle:	Biennial
Plant Description:	Biennial with thick, fuzzy leaves that form a rosette during the first year. Second year produces a single, stout, upright stem 2 to 6 feet tall. Light green, woolly leaves alternate and are overlapping. Long terminal spikes bear sulfur yellow, sessile flowers that are five-lobed and more than 1 inch in diameter. Two-chambered fruit yields numerous, small, angular, brownish seeds.
Treatment:	Apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 3.3 ounces of Chaparral™ herbicide per acre. Apply in the rosette stage or up to 6-inch bolt.



NIGHTSHADE, SILVERLEAF

Solanum elaeagnifolium

Life Cycle:	Perennial
Plant Description:	Foliage with gray or silvery appearance with violet, light blue or white flowers, and 1 to 3 feet tall. Stems are sparsely covered with short yellow thorns. Leaves and stems have a dense silvery covering of hair.
Treatment:	Apply 2 to 3.3 ounces per acre of Chaparral™ or 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre during bloom. Use higher rates in range when flowering or when weeds are larger. Re-treatment is necessary for total control.

BIENNIAL & PERENNIAL WEEDS



OXEYE DAISY
Leucanthemum vulgare

Life Cycle:	Perennial
Plant Description:	Grows 10 to 24 inches tall. Spreads by rhizomes and seeds. Leaves reduce in size upward on the stem. Basal and lower stem leaves are oblanceolate to narrowly obovate. Upper leaves are sessile and merely toothed. Single flowers form at the ends of branches. Fruits have about 10 ribs.
Treatment:	For broad-spectrum weed control, apply 2.5 to 3.3 ounces of Chaparral™ herbicide per acre or apply 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre. Apply to vegetative stage prior to bloom. Use higher rates when weeds are larger.



PLANTAIN: BROADLEAF & BUCKTHORN
Plantago major and *Plantago lanceolata*

Life Cycle:	Perennial
Plant Description:	Broadleaf Plantain: Perennial from a basal rosette with broad oval leaves. Leaves are smooth or slightly hairy, oval or elliptic. Flowering stems are 5 to 15 inches long and clustered with small flowers with whitish petals surrounded by bracts. Buckthorn Plantain: Perennial weed with narrow, linear leaves in a basal rosette. Leaves have veins running the length of the leaf, either sparsely hairy or without hairs. A leafless, unbranched spike up to 4 inches long contains many inconspicuous flowers.
Treatment:	Apply 2.0 to 2.5 ounces per acre of Chaparral™ herbicide or 1.5 to 2.1 pints of GrazonNext® HL herbicide. Use lower rate when weeds are shorter than 6 inches tall and actively growing. Increase rate as plants become more mature.

BIENNIAL & PERENNIAL WEEDS



POKEWEED, COMMON/ POKEBERRY

Phytolacca americana

Life Cycle: Perennial

Plant Description: A large, 3- to 10-foot-tall perennial weed with thick, reddish-purple branched stems and dark purple to black berries. Leaves are egg-shaped, without hairs, and are smaller in size toward the top of the plant. All parts of the plant are poisonous to cattle, horses, swine and humans.

Treatment: Apply a labeled rate of 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre when weeds are actively growing. Use higher rates on larger plants, prior to bolting.

RAGWEED, BUR

Ambrosia grayi

Life Cycle: Perennial

Plant Description: Reproducing perennial by underground rootstocks and seeds. An erect plant growing 1 to 2 feet high, somewhat bushy branching from the base and covered with fine, woolly hairs. Purplish-white in appearance and grows from a well-developed root system.

Treatment: Apply a rate of 1.5 to 2.1 pts per acre of GrazonNext® HL herbicide. Apply in good moisture conditions with plants less than 4-6 inches and prior to flowering.

Nebraska Department of Agriculture

BIENNIAL & PERENNIAL WEEDS



RAGWEED, WESTERN

Ambrosia psilostachya

Life Cycle: Perennial

- Plant** An erect, bushy plant growing 1 to 2 feet tall. Leaves are silvery-green and usually covered with fine hairs. A deep, extensive root structure makes it extremely drought-hardy. It can produce more than 200 new shoots from a single plant. Infestations generally start in low areas of cropland and spread to higher ground
- Description:**
- Treatment:** For broad-spectrum control, apply 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre or 2.5 to 3.3 ounces of Chaparral™ herbicide per acre. For non-residual weed control, apply 1.0 to 1.5 pints/A of PastureGard® HL. Apply in the spring to actively growing plants prior to flowering, usually from spring to early summer.



RAYLESS GOLDENROD, JIMMYWEED

Isocoma wrightii

Life Cycle: Perennial

- Plant** A low-growing half-shrub in the Sunflower family. It has erect stems that arise from a woody crown and grow to a height of 2 to 4 feet. The leaves are sticky, hairless, narrow and located alternately along the stems. The leaf margins may be even or slightly toothed. The stems bear flat-topped clusters of yellow flowers from June through October.
- Description:**
- Treatment:** Apply 2.0 pints per acre of Tordon® 22K or 6.0 pints per acre of Surmount®. Spray during and after full bloom in the fall and with good moisture.

BIENNIAL & PERENNIAL WEEDS



RUSH SKELETONWEED

Chondrilla juncea

Life Cycle: Perennial

Plant Description: Perennial that grows close to the ground before bolting, similar to the common dandelion. Stems of the mature plant are sparsely leafed and appear wiry, 1 to 4 feet in height. Downward-bent, coarse, brown hairs can be found on the lower 4 to 6 inches of the stem after the plant has bolted. Leaves are small and lance-shaped. Flowers are bright yellow and 3/4 inch in diameter.

Treatment: Apply a labeled rate of 2.5 to 3.0 ounces of Chaparral™ herbicide or 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre.



SERICEA LESPEDEZA

Lespedeza cuneata

Life Cycle: Perennial

Plant Description: Erect perennial with stems up to 5 inches tall. Each leaf is divided into three smaller leaflets on the lower portion of the stem. Leaflets are flattened on the outer end with small, flat hairs on the lower surface. Flowers are yellow and may be tinged with purple.

Treatment: Apply 0.75 to 1 pint of PastureGard® HL herbicide or 1 to 1.5 pints of Remedy® Ultra herbicide per acre with surfactant. Apply 5 or more gallons total spray volume per acre by air or 10 gallons per acre by ground.

Apply 2.5 to 3.3 ounces of Chaparral™ herbicide per acre beginning at flower bud initiation through the full bloom stage of growth

Early Summer: Begin treatment when weed is a minimum of 8 inches tall. Treatment may continue as long as plants are actively growing.

Late Fall: Treatment may continue through September when plants are actively growing. The higher labeled rate should be used late in the season due to the advanced growth stage of the plant.

BIENNIAL & PERENNIAL WEEDS



SOWTHISTLE, PERENNIAL

Sonchus arvensis

Life Cycle:	Perennial
Plant Description:	Erect, stout, smooth stems that can reach 4 to 6 feet in height. Leaves are light green, ranging from 6 inches to 1 foot long with toothed edges. Yellow, dandelionlike flower heads can grow 2 inches in diameter.
Treatment:	Apply a labeled rate of 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre after complete plant emergence to the flower stage of growth.



SPINY ASTER, WOLFWEED

Leucosyris spinosa

Life Cycle:	Perennial
Plant Description:	A native, warm-season perennial that can grow to more than 3 feet tall. It is also called wolfweed, Mexican devilweed or devilweed aster. The plant is characterized by green stems with stripes, occasional spines on the stems and solitary sunflowers that have white petals and small, yellow flowers in the center disk. Small leaves are present for a brief period in the spring when the young stems are succulent. The leaves drop off after 2 to 3 weeks, and the stems begin conducting photosynthesis. The plant flowers in the summer and fall.
Treatment:	Apply 1.5 to 2.0 pints per acre of Surmount® or 1.0 to 1.5 pints per acre of PastureGard® HL. Shred plants during winter, apply during regrowth with leaves 10 to 12 inches tall.

BIENNIAL & PERENNIAL WEEDS



TEASEL

Dipsacus fullonum

Life Cycle:	Biennial
Plant Description:	An erect biennial with small prickles on the stem and distinctive spiny flower heads. Can reach 6½ feet in height with basal rosette leaves. Flowers are white-to lilac-colored and are egg-shaped.
Treatment:	For broad-spectrum weed control, apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre. Or apply a labeled rate of 2.0 to 3.0 ounces of Chaparral™ herbicide per acre. Application should be made in the spring and early summer to rosette or bolting plants. Use higher labeled rates after bolting through early flower.



THISTLE, CANADA

Cirsium arvense

Life Cycle:	Perennial
Plant Description:	Erect, up to 4 feet tall, with tremendous leaf variability. Leaves vary from light to dark green, oblong or lance-shaped, deeply cut, often with spiny-toothed margins, slightly hairy below. Flowers are small, bristly clusters and light lavender to deep rose purple. Plants are male and female.
Treatment:	Apply 2.0 to 3.3 ounces per acre of Chaparral™ herbicide either in the spring or summer to fully emerged Canada thistle. Or 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre. Apply when most basal leaves have emerged, but before bud stage.

BIENNIAL & PERENNIAL WEEDS



Bull Thistle



Musk Thistle



Plumeless Thistle

THISTLE: BULL, MUSK, PLUMELESS

Cirsium vulgare, *Carduus nutans* and *Carduus acanthoides*

Life Cycle: Biennial

Plant Description: **Bull Thistle:** Erect, 2 to 5 feet tall with many spreading branches, spiny wings from leaves. Rosette formed first year; flowering stem elongates second year. Leaves have short prickles on the surface and are cottony below. Flowers are dark purple and somewhat clustered.

Musk Thistle: Erect, freely branching, up to 7 feet tall. Leaves are dark green with light midrib, hairless on both sides, with long, sharp spines. Flowers are deep rose to purple, up to 3 inches in diameter.

Plumeless Thistle: Branching plant with spiny wings that extend up to flowers. Stems grow 1 to 4 feet tall. Rarely flowers the first year. Flowers are purple to pink, 1 to 2 inches in diameter, solitary or in clusters of two to five. Bracts are sparsely to densely hairy.

Treatment: Apply 1.5 to 2.5 ounces per acre of Chaparral™ herbicide to rosette or bolting plants or in the fall to seedling and rosettes before ground is frozen. Or apply 1.2 to 1.5 pints per acre of GrazonNext® HL herbicide during the rosette stage early in the season.

For late-season application (bolting to early flower), apply 2.0 to 2.5 ounces per acre of Chaparral plus 0.5 pound/ae per acre of 2,4-D when plants are at the late bolt through early flowering stage. Or apply 1.5 pints per acre of GrazonNext HL.

BIENNIAL & PERENNIAL WEEDS



THISTLE, SCOTCH

Onopordum acanthium

Life Cycle: Biennial

Plant Description: Plant grows up to 8 feet tall with branching, spiny leaf wings that extend down onto the stem and are covered with dense fine hairs. Leaves are large, closely lobed, hairy on both sides and velvety-gray in appearance. Leaf edges are lined with sharp spines. Basal leaves grow up to 2 feet long and 1 foot wide. Flowers are violet to reddish-colored, 1 to 2 inches in diameter.

Treatment: Apply 1.5 to 2.5 ounces per acre of Chaparral™ herbicide or apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre. Apply in the spring and early summer to rosette or bolting plants, or in the fall to seedlings and rosettes before the ground is frozen. Use higher rates after bolting through early flower.



THREADLEAF GROUNDSEL

Senecio douglasii

Life Cycle: Perennial

Plant Description: A many-stemmed evergreen composite in the Sunflower family. The stems are herbaceous, although somewhat woody at the base, and may have variable hairiness. The stems and leaves are gray-green. The leaves are long, threadlike and divided into three to seven segments. They may be hairy or nearly smooth. Showy yellow flowers emerge from March through November.

Treatment: Apply 1.0 to 1.5 pints per acre of PastureGard® HL. Spray during and after full bloom in the fall with good moisture.

BIENNIAL & PERENNIAL WEEDS



TROPICAL SODA APPLE

Solanum viarum

Life Cycle: Perennial

Plant Description: Mature plants reach 3 to 6 feet in height with broad-based prickles on leaves and stems. Leaves are 4 to 8 inches long and 3 to 6 inches wide. Flowers have five white recurved petals. Fruit is smooth and round, between ¾ to 1¼ inches in diameter. Immature fruit display green and white mottling, while mature fruit are yellow.

Treatment: Apply a labeled rate of 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 2.5 to 3.0 ounces of Chaparral™ herbicide per acre. Application can be made any time of year when foliage is present. Avoid applying near or during a killing frost.

VERVAIN: BLUE & HOARY

Verbena hastata and *Verbena stricta*

Life Cycle: Perennial

Plant Description: Erect perennial grows 3 to 5 feet tall. Reproduces by seed and short rhizomes. Lance-shaped leaves are opposite or whorled with serrated or toothed edges. Flowers are blue to purplish or pink in straight spikes, which are arranged in upright panicles. Hoary vervain has very similar appearance.

Treatment: Apply 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Use lower rates when weeds are small and actively growing. Increase rate as season progresses and plants become more mature, prior to flowering. Chaparral provides weed suppression, and a second treatment may be necessary.

BIENNIAL & PERENNIAL WEEDS



WILD CARROT (Queen Anne's Lace)

Daucus carota

Life Cycle:	Biennial
Plant	First year: Produces rosette. Second
Description:	year: Grows to 1 to 4 feet and produces small white flowers in tight clusters. Fleshy, white, carrot-shaped taproot and carrotlike leaves.
Treatment:	Apply 1.2 to 1.5 pints of GrazonNext® HL herbicide per acre or 2.0 to 2.5 ounces of Chaparral™ herbicide per acre. Use lower rates to the rosette stage. Use higher rates on larger plants prior to flower.

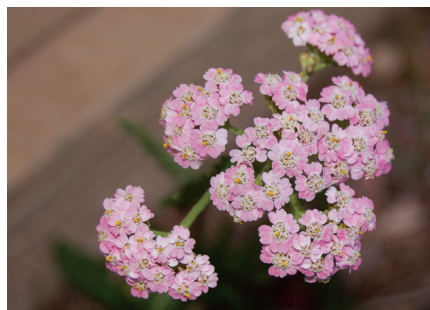


WINGSTEM

Verbesina alternifolia

Life Cycle:	Perennial
Plant	A perennial that may grow as tall as
Description:	13 feet with showy yellow flowers and conspicuous “wings” that run along the length of the stem. Leaves are hairless and have a serrated edge. Flowers occur in clusters at the ends of erect stems.
Treatment:	Apply 1.2 to 1.5 pints per acre of GrazonNext® HL or 2.5 ounces per acre of Chaparral™ prior to bloom during active growth.

BIENNIAL & PERENNIAL WEEDS



YARROW, COMMON

Achillea millefolium

Life Cycle: Perennial

Plant Description: Erect herbaceous plant that produces one to several stems 8 to 16 inches tall and has a rhizomatous growth form. Leaves distributed evenly along the stem, with the largest leaves near the middle and bottom. Flowers are white to pinkish-white with flat-topped flower heads.

Treatment: For broad-spectrum control, apply 1.5 to 2.1 pints of GrazonNext® HL herbicide per acre or 1.5 to 2.0 ounces of Chaparral™ herbicide per acre. Apply when weeds are actively growing and conditions are favorable for growth.

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