

WEED CONTROL IN PASTURES AND FORAGES



Paul A. Baumann, Vanessa Corriher-Olson, and Larry A. Redmon

Weed Control in Pastures and Forages

Paul A. Baumann

Professor and State Extension
Weed Specialist

Vanessa Corriher-Olson

Assistant Professor and Extension
Forage Specialist

Larry A. Redmon

Professor and State Extension
Forage Specialist

The Texas A&M University System

Table

	Page
1 Bermudagrass pastures—newly sprigged	4
2 Dormant bermudagrass pastures	4
3 Pasture sod suppression and renovation	5
4 Permanent grass pastures and established grass crops	5
5 Sorghum-sudan hybrids (forage types)	9
6 Alfalfa and clover—new plantings	9
7 Dormant, semidormant, or actively growing alfalfa and some clovers	10
8 Winter pastures for grazing only (wheat, oats, rye, barley, ryegrass, and mixtures thereof)	13
9 Grazing/hay restrictions for pasture herbicides	14
Boom sprayer calibration	15
Boomless sprayer calibration	15

Disclaimer

The suggestions contained herein are based primarily on herbicide labels and research conducted by the Texas A&M AgriLife Extension Service and Texas A&M AgriLife Research. The use of product names is not intended as an endorsement of the product or of a specific manufacturer, nor is there any implication that other formulations containing the same active chemical are not equally as effective. Product names are included solely to aid readers in locating and identifying the herbicides suggested.

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M AgriLife Extension Service is implied.

This publication is no substitute for the herbicide product labels. It is intended to serve only as a guide for controlling weeds in pasture and forages. Because labeled rates and restrictions change constantly, consult the product label before use.

Using an integrated approach that combines cultural, mechanical, and chemical methods can help you manage weeds in pastures and forages effectively, economically, and with little harm to the environment. Deciding which practice to use depends largely on the weed(s) being controlled and the infestation level. Also, the crop being planted plays a major role in determining when to use mechanical measures.

Cultural and mechanical weed control

- ◆ Remove light or spotty weed infestations by hand-hoeing or spot cultivation to prevent spreading weed rhizomes, roots, or seed.
- ◆ When plowing perennial weeds, take care to prevent transporting and spreading plant parts to other areas of the field.
- ◆ Use weed-free planting seed to prevent weed infestations in the row as well as the introduction of new weed species.

- ◆ Clean harvesting equipment before moving from one field to the next, and require it of the custom harvesters before they enter your fields.
- ◆ Before planting, use mechanical tillage to remove initial weed flushes; this practice can eliminate or reduce the potential for continued infestation.
- ◆ Consider the economics of using mechanical cultivation alone for weed control in the crop, especially where annual weed infestations are light.
- ◆ Rotate to crops that physically outcompete certain weeds, causing them to gradually decline.

The following tables summarize key information about herbicides commonly used on pastures in Texas. Each table presents information relevant to specific forage types and management scenarios. Select the table that best represents your needs and information desired.

Table 1. Bermudagrass pastures—newly sprigged

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Annual grasses and annual broadleaf weeds	Weedmaster (2,4-D + dicamba) Nufarm Outlaw Helena	1–2 qt	Preemergence 7–10 days after planting	Use after planting vegetative stolons of hybrid bermudagrass. Expect reduced control if weeds are allowed to reach 1 in. tall before application or if germination occurs 10 days after application. Consult Weedmaster supplemental label for further information.
Annual broadleaf weeds	Direx 4L (Diuron) MANA	0.8–2.4 qt	After planting and before emergence of bermudagrass or weeds	Do not pasture or mow for hay until 70 days after treatment.

Table 2. Dormant bermudagrass pastures

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Annual broadleaf and grass weeds including little barley	Gramoxone Inteon (paraquat dichloride) Syngenta	1.0–2.0 pt	Postemergence during dormancy	Do not pasture or mow for hay until 40 days after treatment. Gramoxone Inteon is a restricted-use herbicide and is poisonous. Using a surfactant improves the performance of this herbicide.
Annual grasses and weeds in bermudagrass	Roundup Ultra (glyphosate) Monsanto	1–4 pt	Active weed growth before bermudagrass growth (dormant bermudagrass)	Only one application per year per field. Apply at least 60 days before grazing or harvest. Use only on fields that have an established stand of bermudagrass where some temporary injury or discoloration can be tolerated. Do not use where cool-season legumes make up a major part of the forage.
Sandburs in dormant bermudagrass	Prowl H ₂ O (Pendimethalin) BASF	1.1–4.2 qt/A	Preemergent	Do not pasture or mow for hay until 40 days after treatment. Do not exceed 3.2 qt of Prowl H ₂ O per acre per year. Some stunting and chlorosis (pale discoloration of leaves) of bermudagrass may occur with postemergence applications.

Table 3. Pasture sod suppression and renovation

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Sod suppression	Gramoxone Inteon (paraquat dichloride) Syngenta	1.0–2.0 pt	Postemergence in late summer or early fall to sod not > 3 in. tall Before or at time of seeding winter annuals	Do not graze in treated areas until 60 days after treatment or until winter annuals seedlings are 9 in. tall. Gramoxone Inteon is a restricted-use herbicide and is poisonous. Using a surfactant improves the performance of this herbicide.
Broadleaf weeds	Roundup Ultra (glyphosate) Monsanto	0.5–5 qt	Before planting forage grasses and legumes	Use for pasture, hay crop renovation, and labeled weeds. Note: Remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.
Broadleaf weeds	Roundup Ultra (glyphosate) Monsanto	Spot treatment 1–2% solution (1–2 qt per 25 gal of water)	During active growth For perennials, during seedhead formation	Labeled for forage grasses and legumes, including bahiagrass, bermudagrass, bluegrass, fescue, ryegrass, alfalfa, and clover. Treat no more than one-tenth of any one acre at any time.

Table 4. Permanent grass pastures and established grass crops

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Annual and perennial grasses such as barnyard grass, large crabgrass, green foxtail, johnsongrass, nutsedge spp, Texas panicum, field sandbur, broadleaf signalgrass, vaseygrass, and numerous broadleaf weeds Suppression of bahiagrass, dallisgrass, and smutgrass	Plateau (imazapic) BASF	2–12 oz (refer to label for weed specifics)	Postemergence after 100% bermudagrass green up	Expect bermudagrass growth suppression after treatment. The severity and longevity of this suppression is minimized if bermudagrass is actively growing at the application time and good growing conditions prevail. Consult the label regarding varietal sensitivity. Application uniformity and accuracy is essential.

continued on next page

Table 4 continued

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Annual broadleaf weeds For Texas bullnettle, spray in early bloom stage. Check the label for specific perennial weeds.	2,4-D amine or low volatile ester (2,4-D) Several manufacturers	1 pt–1 qt (4 lb/gal product)	Postemergence when weeds are actively growing	Do not apply to newly seeded grasses until the grass is well established or after heading begins. Do not apply when grass is in boot to milk stage if producing grass seed is desired. Do not graze dairy animals on treated areas within 7 days after treatment. Using a surfactant improves the performance of this herbicide. Note: White and arrowleaf clovers have tolerated 0.5 lb/A of 2,4-D applied in February or March in East Texas. Either Weedmaster or Grazon P+D typically gives better control of perennial weeds than 2,4-D alone.
Annual broadleaf weeds For Texas bullnettle, spray in the early bloom stage. See label for specific perennial weeds.	Weedmaster (2,4-D + dicamba) Nufarm Outlaw Helena	1 pt–1 qt You can tank mix 0.25–0.5 pt of Banvel with 0.75–1.5 pt 2,4-D amine or low volatile ester (4 lb/gal form)	Postemergence when weeds are actively growing	As above. Do not graze meat animals in treated areas within 30 days of slaughter. Treated grasses may be harvested for hay, but do not harvest within 37 days of treatment. Banvel alone is labeled for use in grass pastures. Consult the label for specific recommendations. Using a surfactant improves the performance of this herbicide. Note: For Banvel alone in a rope wick, 1:3 water mixture is labeled.
Annual broadleaf weeds and selected perennial weeds (refer to label)	GrazonNext HL (aminopyralid + 2,4-D)	1.2–2.1 pt	Postemergence when weeds are actively growing	Use higher rates for perennial weeds. Do not plant forage legumes until a soil bioassay is conducted to determine if aminopyralid residues in the soil will adversely affect establishing legumes. Do not harvest forage for hay within 7 days of applying GrazonNext HL.
Annual broadleaf weeds and selected perennial weeds For Texas bullnettle, spray in the early bloom stage. See label for specific perennial weeds.	Grazon P + D (picloram + 2,4-D) Dow AgroSciences	1–4 pt You can tank mix 0.25–0.75 pt Tordon 22K with 1–3 pt 2,4-D amine or low volatile ester (4 lb/gal form)	As above	New legume seedlings may not be successful if planted within 1 year after applying herbicide. Do not transfer livestock onto broadleaf crop areas without first allowing 7 days of grazing on untreated grass pasture. Tordon 22K (Picloram) alone is labeled for grass pastures. Consult the label for specific recommendations. Using a surfactant improves the performance of this herbicide.

continued on next page

Table 4 continued

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Hemp dogbane, johnsongrass, milkweed, silverleaf nightshade, ragweed, smutgrass, sunflower, vaseygrass	Roundup Ultra (glyphosate) Monsanto	Wick or other applicators 1:2, 1 gal in 2 gal of water	During active weed growth. For perennials, at seedhead formation	Remove domestic livestock after application and wait 14 days before grazing and harvesting. Treat no more than one-tenth of any acre at a time. Make further applications in the same area at 30-day intervals.
Bahiagrass, annual broadleaf weeds, and some perennial broadleaf weeds	Cimarron Plus (metsulfuron + chlorsulfuron) DuPont Cimarron MAX (metsulfuron + dicamba + 2,4-D) DuPont Cimarron Xtra (metsulfuron methyl + chlorsulfuron) DuPont	0.125 to 1.25 oz Consult label. Cimarron Max is a 2-part product used in a ratio of 5 oz of Cimarron MAX PART A to 2.5 gal of Cimarron MAX PART B which will treat 5 (Rate III), 10 (Rate II), or 20 (Rate I) acres. 0.5–2.0 oz/A	When weeds are actively growing Postemergence when weeds are actively growing	No grazing restriction. Has residual soil activity, so it may affect the following crops: alfalfa, clover, and ryegrass. Rate for Pensacola bahiagrass control is 0.375 oz/A. Using a surfactant improves the performance of this herbicide. Rate for Pensacola bahiagrass control is the equivalent of Cimarron MAX Part A at 0.33 oz/A and Cimarron MAX Part B at 1.33 pt/A. Wait at least 4 months before planting some clovers after applying Rate I. Check the label for other rotation restrictions. There is no waiting period between treatment and grazing for nonlactating dairy animals. There is a 37-day harvest restriction for dry hay. No grazing or hay harvest restrictions for Cimarron Xtra. Consult the label for bahiagrass control.
Smutgrass and other weeds in bermudagrass and bahiagrass	Velpar L (hexazinone) DuPont	2.75–4.5 pt	Warm and moist soil conditions—weeds actively growing	Only one application per year. Oak trees are very sensitive to Velpar L. Do not feed treated forage or hay within 38 days of application. Using a surfactant improves the performance of this herbicide. Some forage grass injury may occur.
Annual broadleaf weeds, annual brome grass, and annual ryegrass	Amber (triasulfuron) Syngenta	0.28–0.56 oz	Postemergence applications to pastures when weeds are in an early stage of active growth	No grazing restrictions. Has residual soil activity, so it may affect the following crops: alfalfa, brome grass, clover highly sensitive to Amber, and ryegrass. Amber can be tank-mixed with 2,4-D, Banvel, Grazon P + D, Weedmaster, and Weedone LV6 according to label. Using a surfactant improves the performance of this herbicide.

continued on next page

Table 4 continued

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Bahiagrass, annual and perennial broadleaf weeds, large crabgrass, johnsongrass, and sandburs	Pastora (metsulfuron methyl; nicosulfuron) DuPont	1–1.5 oz/A	Postemergence when weeds are actively growing For sandbur control, when sandbur is less than 1.5" tall Sandbur greater than 1.5 in. tall may be suppressed, resulting in a reduction in sandbur seed heads	Do not apply more than 2.5 oz of Pastora/A per year. No grazing or hay harvest restrictions.
Annual and perennial broadleaf weeds	PasturAll HL (Aminopyralid + 2,4-D) Dow AgroSciences	1–4.5 pt/A	Postemergence when weeds are actively growing	Do not harvest forage for hay within 7 days of application. Do not make more than two applications per year. Do not apply within 30 days of previous application.
Annual and perennial broadleaf weeds	Pasturegard HL (triclopyr + fluroxypyr) Dow AgroSciences	1.5–4 pt/A	Postemergence when weeds are actively growing	Do not harvest hay within 14 days after application.
Annual and perennial broadleaf weeds and bahiagrass	Chaparral (metsulfuron methyl + aminopyralid) Dow AgroSciences	1.0–3.3 oz/A	Postemergence when weeds are actively growing	No grazing or hay harvesting restrictions.

Table 5. Sorghum-sudan hybrids (forage types)

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Annual weeds and grasses	AAtrex 4L AAtrex Nine-O (atrazine) Syngenta	3.2–4 pt 1.7–2.6 lb	Preemergence: During or shortly after planting Postemergence: 2.4 pt/A (4L) or 1.3 lbs/A (Nine-O) when sorghum is 6–12 in. tall Do not apply postemergence in liquid fertilizer solution.	Apply only on Texas Gulf Coast and Blackland areas. In case of planting failure, sorghum or corn may be replanted. Do not make a second application. If originally applied in a band and sorghum or corn is replanted in untreated row middles, this product may be applied in a band to the second planting. Use low rates where organic matter is 1–1.5% and high rates on soil with more than 1.5% organic matter. Use only on medium- and fine-textured soil. Note: Do not graze or feed forage from treated areas for 21 days after application. In sorghum sudan and millets, 2,4-D can be used postemergence for broadleaf weed control.
Annual broadleaf weeds	Weedmaster (2,4-D + dicamba) Nufarm	1 pt–1 qt	Postemergence when weeds are actively growing	Do not graze meat animals in treated areas within 30 days of slaughter. Do not graze lactating dairy animals in treated areas within 7 days of treatment. Do not harvest for hay within 37 days of treatment. Using a surfactant improves the performance of this herbicide.

Table 6. Alfalfa and clover—new plantings

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Annual grasses and some annual broadleaf weeds	Balan DF (benefin) Loveland products	2 lb/A on coarse and medium soils 2.5 lb/A on fine soils	Preplant; incorporate before seeding alfalfa	Incorporation equipment should be a tandem disc, PTO-driven tillers, cultivators, or hoes. Use only on alfalfa, birdsfoot trefoil, and clover (alsike, ladino, and red). Note: Balan is also labeled as a preplant treatment before planting alsike and ladino clovers.
Annual grasses and some annual broadleaf weeds	Eptam 7E (EPTC) Gowan	2.25–4.5 pt/A	Preplant; incorporate immediately following the application	Temporary crop stunting and sealing of the first leaves occurs if conditions for germination and growth are not optimum. Adequate rainfall or irrigation relieves crop symptoms. Do not use on white dutch clover. Do not apply within 14 days of harvesting or grazing alfalfa.

Table 7. Dormant, semidormant or actively growing alfalfa and some clovers (refer to product label)

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Annual broadleaf weeds and annual grasses	Sinbar 80W (terbacil) NovaSource	0.5–1.5 lbs.	Before or after emergence of weeds but before they are 2 in. tall or across	<p>Treat only semidormant or dormant stands established for 1 year or more.</p> <p>Dormant alfalfa: Make a single application in the fall after plants become dormant or in the spring before new growth begins.</p> <p>Semidormant or nondormant varieties: Apply in fall or winter after last cutting or in spring before new growth starts.</p> <p>Note: Do not use on seedling alfalfa or alfalfa-grass mixtures. Do not apply to established stands after new growth starts in the spring. Do not apply on snow-covered or frozen ground as crop injury may result.</p>
Annual broadleaf weed	2,4-DB Several manufacturers	1–3 qt Use 1–2 qt. if weeds are less than 1 in. high, 2–3 qts if weeds are 1–3 inches high.	Postemergence when clovers have 2–4 trifoliolate leaves.	<p>Labeled for seedling and established alfalfa, seedling birdsfoot trefoils, seedling alsike clover, seedling ladino clover, and seedling red clover. Using a surfactant improves the performance of this herbicide.</p> <p>Note: Do not graze or feed seedling clovers within 60 days after application. Do not feed hay from treated crops to livestock within 30 days after application. Do not use on established clovers grown for seed.</p>
Grasses and certain broadleaf weeds	Kerb 50W (pronamide 0.5–0.75 lbs.) Dow AgroSciences	1–1.5 lb	Preemergence to weeds during fall or winter months in established legumes or in new plantings in trifoliolate leaf stage	<p>Effective with dependable rainfall or overhead irrigation. With low rainfall or furrow irrigation, increase rate 0.5 lb of product per acre.</p> <p>Note: Do not graze or harvest for forage or dehydration within 25 days after application.</p>
Annual grasses and broadleaf weeds	Treflan TR-10 Granules (trifluralin) Dow AgroSciences	20 lb	Preemergence to weeds after January 1	<p>Follow application with ½ inch of sprinkler irrigation or rainfall or flood irrigation within 3 days. If this has not occurred, then perform shallow cultivation to activate and uniformly distribute the herbicide, taking care not to cause severe injury to the alfalfa.</p>

Table 7 continued

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Annual grasses and broadleaf weeds	Gramoxone Extra (paraquat dichloride) Syngenta	12.8 oz	Between cuttings in established stands	Do not treat more than 5 days after cutting. Do not cut or harvest within 30 days of application. Gramoxone Extra is a restricted-use herbicide and is poisonous. Using a surfactant improves the performance of this herbicide.
Annual grasses and broadleaf weeds	Pursuit DG (imazathapyr) BASF	1.08–2.16 oz	Postemergence to seedling alfalfa (2nd trifoliolate or larger) or established alfalfa	Make established alfalfa applications when the alfalfa is dormant, semidormant (less than 3 in. of regrowth), or between cuttings. Weeds should be 1–3 in. tall at application. Add a surfactant or crop oil concentrate and a liquid fertilizer solution to the spray mixture. Application rate depends on weed species and size. Do not apply more than 2.16 oz per year.
Annual broadleaf weeds and certain annual grasses	Karmex DF (diruon) MANA	1.5–2 lbs Do not exceed 3 lbs per acre per year	Preemergence in March or early April, but before spring growth begins on the alfalfa	Treat dormant stands of alfalfa established for 1 year or more. Do not apply to seedling alfalfa or to alfalfa-grass mixtures; do not apply to alfalfa under stress from disease, insect damage, shallow root penetration, or alkali spots; do not apply to flooded fields or to snow-covered or frozen ground because crop injury may result. Note: Do not graze or feed forage or hay to livestock within 30 days following application.
Annual grasses and broadleaf weeds	Velpar (hexazinone) Velpar 90W (hexazinone) DuPont	1–3.0 qt on soils with less than 1% organic matter: consult label for rates on specific soil textures. 0.5–1.5 lb: consult label as above.	Preemergence or early postemergence to the weeds in the fall or winter after alfalfa becomes dormant or in the spring before new growth begins	Treat dormant stands of alfalfa established for 1 year or for 1 growing season. Do not apply to actively growing alfalfa or to stubble between cuttings. Do not apply to snow-covered, frozen ground. Note: Do not graze or feed forage or hay to livestock within 30 days following application.
Annual broadleaf weeds and grasses	Metribuzin 75 (metribuzin) Loveland	½–1.33 lb/A	When weeds are less than 2 in. tall or before weed foliage is 2 in. in diameter Do not apply metribuzin during the first growing season after seeding.	Treat only dormant, established alfalfa. Injury may occur if metribuzin is applied earlier than 12 months after seeding. Apply metribuzin after growth ceases in the fall or before it begins in the spring. Note: Do not graze or harvest within 28 days after application.

continued on next page

Table 7 continued

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Annual grasses and some annual broadleaf weeds	Eptam 7E (EPTC) Gowan	2.25–3.5 pt/A	Meter into the irrigation water applied to established stands before weed emergence.	Use the lower rate on very coarse soils. Limit use to one application per cutting. Do not use on white dutch clover. Do not apply within 14 days of harvesting or grazing alfalfa.
Annual broadleaf weeds	2,4-DB Several manufacturers	1–3 qt	When weeds are less than 3 in. high Treat weeds in the rosette stage when the rosettes are less than 3 in. across.	Treat alfalfa when plants have 2–4 trifoliolate leaves. For irrigated crops, apply herbicide as soon as possible after irrigation. Delay next irrigation for at least 7–10 days after spraying to avoid washing the chemical into the root zone. 2,4-DB is a restricted-use herbicide. Using a surfactant improves the performance of this herbicide. Note: Do not graze treated crop or feed hay from treated crop to livestock within 60 days after application.
Annual and perennial grasses	Poast Plus (sethoxydim) BASF	1.5–2.25 pt	When grass weeds are actively growing and 4–25 in. tall Consult label for specific weed recommendations.	During active growth, Poast Plus is absorbed through the leaves and translocated to roots and buds. Minimum time from application to harvest is 14 days for hay or 7 days for grazing or green chop. Always add 1 pt/A of DASH or 1 qt/A of crop oil concentrate to enhance herbicide performance. Consult label use rate and application timing specifications for different parts of Texas.

Table 8. Winter pastures for grazing only (wheat, oats, rye, barley, ryegrass, and mixtures thereof)

Weeds controlled	Product (Herbicide common name) Company	Application rate per acre (broadcast)	Times to apply	Remarks
Annual broadleaf weeds (Refer to label for specific weeds controlled.)	Metsulfuron 60EG AG (Metsulfuron methyl) Arysta LifeScience	0.1 oz/A	Postemergence after 2-leaf stage but before boot stage of wheat or barley	If ryegrass is present, slight to severe injury may occur. Metsulfuron may be combined with other herbicides for expanded broadleaf weed control. Metsulfuron has no grazing restriction in labeled crops. Using a surfactant improves the performance of this herbicide.
Annual broadleaf weeds (Refer to label for specific weeds controlled.)	Amber (triasulfuron) Syngenta	0.28–0.56 oz	Postemergence on wheat up to preboot stage or barley from 2-leaf to pre-boot stage	Amber is labeled for use in wheat and barley only. Applications to ryegrass or other winter forages may result in severe damage. Amber may be combined with other herbicides for expanded weed control. Refer to the label for additional precautions and recommendations. Amber has no grazing restriction on labeled crops. Using a surfactant improves the performance of this herbicide.
Annual broadleaf weeds and some biennial and perennial broadleaf weeds (Refer to the label for specific weeds controlled.)	MCPA Several manufacturers	0.5–1.5 pt	Postemergence after grain is in 3- to 4-leaf stage, or fully tillered for the 1.5 pt rate	Use higher rates for biennial and perennial weeds. Do not graze or harvest for livestock feed for 7 days. Refer to the specific MCPA product label for additional restrictions and precautions. Using a surfactant improves the performance of this herbicide.
Annual broadleaf weeds and some biennial and perennial broadleaf weeds (Refer to label for specific weeds controlled.)	2,4-D Several manufacturers	0.5–1.5 pts.	Postemergence after grain is fully tillered	Most 2,4-D products are labeled for use in wheat, barley, and rye. Application timings other than those recommended on the individual 2,4-D product label may result in small grain injury. Use the higher rate range for biennial and perennial weeds. Consult individual product label for additional precautions and use restrictions. Using a surfactant improves the performance of this herbicide.

The following table contains all products previously listed in this publication and any grazing, haying, or slaughter restrictions.

Table 9. Grazing/hay restrictions for pasture herbicides in days¹

Herbicide	Lactating dairy		Non-lactating		Meat animals		Slaughter
	Graze	Hay	Graze	Hay	Graze	Hay	
Amber	0	30	0	30	0	30	NL ²
Banvel							
0.5 qt/A	7	37	0	37	0	37	30
0.5–1qt/A	21	51	0	37	0	37	30
1–2 qt/A	40	70	0	37	0	37	30
Cimarron MAX	7	37	7	37	7	37	NL
Cimarron PLUS	0	0	0	0	0	0	NL
Cimarron EXTRA	0	0	0	0	0	0	NL
Diurex 4L	70	70	70	70	70	70	NL
GrazonNext HL	0	7	0	7	0	7	NL
Grazon P+D	7	30	0	30	0	30	3
PasturAll HL	0	7	0	7	0	7	NL
Pasturegard HL	0	14	0	14	0	14	3
Plateau	NL	7	NL	7	NL	7	NL
Prowl H2O	40	40	40	40	40	40	NL
Reclaim	0	0	0	0	0	0	0
Remedy							
< 2 qt/A	14	NS	0	7	0	7	3
2–6 qt/A	NS ³	NS	14	14 – NS ⁴	14	14 – NS ⁴	3
Roundup Ultra							
Spot (0.1/A)	14	14	14	14	14	14	NL
Renovation 1	56	56	56	56	56	56	NL
Tordon 22K	14	0 (<1 qt)	0	0 (<1 qt)	0	0 (<1 qt)	3
Velpar L	0	38	0	38	0	38	NL
Weedmaster	7	37	0	37	0	37	30
2,4-D amine	7	30	7	30	7	30	3
2,4-D ester	7	30	7	30	7	30	3

¹This table is only intended to be used as a guideline for these restrictions. Always refer to the most current label for up-to-date recommendations.

²NL=No restrictions listed on label

³NS=Next season

⁴Refer to label for specific time interval based upon use rate.

Boom Sprayer Calibration

- ◆ Determine nozzle spacing.
- ◆ Refer to the table below for the length of the calibration course.
- ◆ Mark off the calibration course on the area to be sprayed.
- ◆ Record the time required to drive the calibration course at the desired field gear and rpm to be used while spraying.
- ◆ Park the tractor, maintain rpm used to drive the course, turn on the sprayer, and set it at the proper pressure for desired nozzle tips.
- ◆ Catch water from one nozzle for the time equal to that required to drive the calibration course.

- ◆ Ounces of water caught = gallons per acre.
- ◆ Divide gallons per acre into the number of gallons in the spray tank to determine how many acres will be sprayed. Add the appropriate amount of herbicide for the number of acres to be sprayed.

Chart for Nozzle Spacing and Length of Calibration Course

Nozzle spacing (in.)	18	20	30	40
Length of calibration course* (linear ft)	227	204	136	102

* To determine the calibration course for a nozzle spacing not listed, divide the spacing expressed in feet into 340 (340 sq. ft. = 1/128). Example: Calibration distance for 19-inch nozzle spacing = $340 \div 19/12 = 215$ feet.

Boomless Sprayer Calibration

- ◆ Determine the swath width.
- ◆ Refer to the table below for the length of the calibration course.
- ◆ Mark off the calibration course.
- ◆ Record the time required to drive the calibration course at the desired field gear and rpm.
- ◆ Park the tractor, maintain rpm used to drive course, turn on the sprayer.
- ◆ Catch water for the time equal to that required to drive the calibration course.
- ◆ Pints of water caught = gallons per acre.

- ◆ Divide gallons per acre into the number of gallons in the spray tank to determine how many acres will be sprayed. Add the appropriate amount of herbicide for the number of acres to be sprayed.

Chart for Nozzle Spacing and Length of Calibration Course

Effective Swath Width (feet)	25	30	35	40	45	50
Length of calibration course* (linear feet)	218	182	156	136	121	109

* To determine the calibration course for a swath width not listed, divide the swath width expressed in feet into 5460 (5460 sq. ft. = 1/8 of an acre). Example: Calibration distance for 32-foot swath width = $5460 \div 32 = 171$ feet.

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M AgriLife Extension Service is implied.

Texas A&M AgriLife Extension Service

AgriLifeExtension.tamu.edu

More Extension publications can be found at *AgriLifeBookstore.org*

Educational programs of the Texas A&M AgriLife Extension Service are open to all people without regard to race, color, sex, religion, national origin, age, disability, genetic information, or veteran status.

The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating.