

SUGGESTIONS FOR WEED CONTROL IN PASTURES AND FORAGES

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Weeds can be controlled in croplands through cultural, mechanical, and chemical means. Judicious use of these individual methods (or a combination of them) manages weeds effectively without causing economic loss or harming the environment. Deciding which practice to use will depend on the weed(s) being controlled and the infestation level. Also, the crop being planted will immensely determine when to use mechanical measures.

CONSIDERATIONS FOR CULTURAL AND MECHANICAL WEED CONTROL INCLUDE:

1. Remove light or spotty infestations of weeds by hand-hoeing or spot cultivation to prevent spreading weed seed(s), rhizomes, or roots. Exercise caution when plowing perennial weeds—careful to prevent the transport and spread of plant parts to other areas of the field.
2. Use weed-free planting seed to protect against weed infestations in the row and the introduction of new weed species.
3. Thoroughly clean harvesting equipment before moving from one field to the next or require it of the custom harvesters before they are entering fields.
4. Use mechanical tillage to remove initial weed flushes prior to planting, thereby reducing or eliminating the potential for continued infestation.
5. Consider the economics of using mechanical cultivation alone for weed control in the crop, especially where annual weed infestations are light.
6. Practice rotation to crops that physically out-compete certain weeds, resulting in their gradual 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. Ensure that the table is selected that best represents personal needs and information desired.

The suggestions contained herein are based primarily on herbicide labels and research by the Texas A&M AgriLife Research and Extension Service. 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 following information 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 AgriLife Extension is implied.

This publication is not a substitute for the herbicide product labels. It is intended to serve only as a guide for controlling weeds in pasture and forages. Labeled rates and restrictions change constantly, therefore, consult the product label before use.

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Within each table, the first column contains lists of weeds controlled by a particular herbicide. The second column is the product (herbicide common name) used to control the weeds listed in the first column. The third column describes current available information on application rate for broadcast application. Always refer

to the herbicide label before use. This is followed by the recommended time of application based on forage growth stage or time of year. The “Remarks” column contains pertinent information, including haying and/or grazing restrictions, toxicity issues, max application rates, and other information.

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 to 2 qts.	Pre-emergence 7 to 10 days after planting.	For use after planting vegetative stolons of hybrid bermudagrass. Reduced control may be expected if weeds are allowed to reach 1 inch tall before application or if germination occurs 10 days after application. Consult the Weedmaster® supplemental label for further information.
Annual broadleaf weeds.	Direx® 4L (Diuron) ADAMA	0.8 to 2.4 qts.	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® SL 3.0 (Paraquat dichloride) Syngenta	0.7 to 1.3 pts.	Post-emergence during dormancy.	Do not pasture or mow for hay until 40 days after treatment. Gramoxone® SL 3.0 is a restricted use herbicide and is poisonous. Use of surfactant will improve the performance of this herbicide.
Annual grasses and weeds in bermudagrass.	Glyphosate (glyphosate) Several manufacturers	1 to 4 pts. (4 lb./gal. product)	Active weed growth before bermudagrass growth (dormant bermudagrass).	Only one application per year, per field. Application must be 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 are a major part of the forage component.
Sandburs in dormant bermudagrass.	Prowl H₂O® (Pendimethalin) BASF	1.1 to 4.2 qts.	Pre-emergent	Do not pasture or mow for hay until 40 days after treatment. Do not exceed 3.2 quarts of Prowl H ₂ O per acre, per year. Some stunting and chlorosis (pale discoloration of leaves) of bermudagrass may occur with post-emergence applications.
Sandburs, annual ryegrass, and crabgrass in dormant bermudagrass.	Rezilon® (indaziflam) Envu	3 to 5 oz.	Pre-emergent	DO NOT exceed 6 oz./acre of Rezilon in a 12-month period. When applied at a rate greater than 3 oz./acre, hay may not be harvested until 40 days after application. No grazing restrictions; 22-month minimum plant back interval for cereal crops; 22-month minimum plant back interval for root crops; 22-month minimum plant back interval for soybean.

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® SL 3.0 (Paraquat dichloride) Syngenta	0.7 to 1.3 pts.	Post-emergence in late summer or early fall to sod not > 3 inches tall. Apply 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 inches tall. Gramoxone® SL 3.0 is a restricted use herbicide and is poisonous. Using a surfactant will improve the performance of this herbicide.
Broadleaf weeds	Glyphosate (glyphosate) Several manufacturers	0.5 to 5 qts. (4 lb./gal. product)	Apply 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	Glyphosate (glyphosate) Several manufacturers	Spot treatment. 1 to 2 percent solution (1 to 2 qts. per 25 gals. of water)	Apply during active growth. For perennials, apply during seedhead formation.	Labeled for forage grasses and legumes, including bahiagrass, bermudagrass, bluegrass, fescue, ryegrass, alfalfa, and clover. No more than 1/10 of any 1 acre should be treated 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 field sandbur, large crabgrass, green foxtail, barnyardgrass, broadleaf signalgrass, Texas panicum, johnsongrass, vaseygrass, nutsedge spp, and numerous broadleaf weeds. Suppression of bahiagrass, dallisgrass, and smutgrass.	Plateau® (imazapic) BASF	2 to 12 oz. (Refer to label for weed specifics)	Post-emergence after 100 percent bermudagrass green-up.	Bermudagrass growth suppression after treatment should be expected. The severity and longevity of this suppression will be minimized if bermudagrass is actively growing at the time of application and good growing conditions prevail following application. Consult label regarding varietal sensitivity. Application uniformity and accuracy are essential.
Annual broadleaf weeds. For Texas bullnettle, spray in the early bloom stage. See label for specific perennial weeds.	2,4-D® amine or low volatile ester (2,4-D) Several manufacturers	1 pt. to 1 qt. (4 lb./gal. product)	Post-emergence 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 grass seed production is desired. Do not graze dairy animals on treated areas within 7 days after treatment. Using a surfactant will improve 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® will typically give better control of perennial weeds than 2,4-D® alone.
Annual broadleaf weeds. For Texas bullnettle, spray in early bloom stage. See label for specific perennial weeds.	Weedmaster® (2,4-D + dicamba) Nufarm Outlaw® Helena	1 pt. to 1 qt. Can tank mix 0.25 to 0.5 pt. of Banvel® with 0.75 to 1.5 pts. 2,4-D amine or low volatile ester (4 lbs./gal. form)	Post-emergence 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 label for specific recommendations. Using a surfactant will improve 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) Corteva	1.2 to 2.1 pts.	Post-emergence when weeds are actively growing.	Use higher rates for perennial weeds. Do not plant forage legumes until a soil bioassay has been conducted to determine if aminopyralid residues remaining in the soil will adversely affect the legume establishment. Do not harvest forage for hay within 7 days of GrazonNext HL® application.

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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 broadleaf weeds and selected perennial weeds. For Texas bullnettle, spray in early bloom stage. See label for specific perennial weeds.	Grazon P + D[®] (picloram + 2,4-D) Corteva	1 to 4 pts. Can tank mix 0.25 to 0.75 pt. Tordon 22K [®] with 1 to 3 pts. 2,4-D [®] amine or low volatile ester (4 lbs./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 label for specific recommendations. Using a surfactant will improve the performance of this herbicide.
Johnsongrass, smutgrass, vaseygrass, silverleaf nightshade, milkweed, hemp dogbane, ragweed, and sunflower.	Glyphosate (glyphosate) Several manufacturers	Wick or other applicators 1:2, 1 gal. in 2 gals. of water	During active weed growth. For perennials apply at seedhead formation.	Remove domestic livestock after application and wait 14 days after application before grazing and harvesting. No more than 1/10 of any acre should be treated at a time. Further applications may be made in the same area at 30-day intervals.
Annual broadleaf weeds, some perennial broadleaf weeds, and bahiagrass.	Cimarron Plus[®] (metsulfuron + chlorsulfuron) Envu	0.125 to 1.25 oz.	Apply when weeds are actively growing.	No grazing restriction. Has residual soil activity so it may affect the following crops: ryegrass, alfalfa, and clover. Rate for Pensacola bahiagrass control is 0.375 oz./A. Using a surfactant will improve the performance of this herbicide.
Smutgrass and other weeds in bermudagrass and bahiagrass.	Velpar[®] L (hexazinone) Nova Source	2.75 to 4.5 pts.	Warm and moist soil conditions (weeds actively growing).	Only one application per year. Oak trees are extremely sensitive to Velpar [®] L. Do not feed treated forage or hay within 38 days of application. Using a surfactant will improve the performance of this herbicide. Some forage grass injury may occur.
Annual broadleaf weeds, annual ryegrass, and annual brome grass.	Amber[®] (triasulfuron) Syngenta	0.28 to 0.56 oz.	Post-emergence applications to pastures when weeds are in an early stage of active growth.	No grazing restrictions. Has residual soil activity so it may affect following crops: ryegrass, brome grass, alfalfa, and clover; extremely sensitive to Amber [®] . Amber [®] can be tank-mixed with 2,4-D [®] , Banvel [®] , Grazon P + D [®] , Weedmaster [®] , and Weedone [®] LV6 according to label. Using a surfactant will improve the performance of this herbicide.
Annual and perennial broadleaf weeds, sandburs, johnsongrass, crabgrass (large), and bahiagrass.	Pastora[®] (<i>Metsulfuron methyl; nicosulfuron</i>) Envu	1 to 1.5 oz.	Post-emergence when weeds are actively growing. For sandbur control, apply when sandbur is less than 1.5 inches tall. Sandbur greater than 1.5 inches tall may be suppressed resulting in a reduction in sandbur seed heads.	Do not apply more than 2.5 oz. of Pastora [®] per acre, per year. No grazing or hay harvest restrictions.
Annual broadleaf weeds.	Sharpen[®] (saflufenacil) BASF	1 oz.	Post-emergence when weeds are actively growing.	No grazing or hay harvesting restrictions.
Annual and perennial broadleaf weeds.	PasturAll[®] HL (Aminopyralid + 2,4-D) Corteva	1 to 4.5 pts.	Post-emergence when weeds are actively growing.	Do not harvest forage for hay within 7 days of application. Do not make more than 2 applications per year. Do not apply within 30 days of previous application.
Annual and perennial broadleaf weeds.	Pasturegard[®] HL (triclopyr + fluroxypyr) Corteva	1.5 to 4 pts.	Post-emergence when weeds are actively growing.	Do not harvest hay within 14 days after application.
Annual and perennial broadleaf weeds and bahiagrass.	Chaparral[®] (<i>Metsulfuron methyl + aminopyralid</i>) Corteva	1.0 to 3.3 oz.	Post-emergence when weeds are actively growing.	No grazing or hay harvesting restrictions.
Annual and perennial broadleaf weeds.	Duracor[®] (aminopyralid + florpyrauxifen-benzyl) Corteva	12 to 20 oz.	Post-emergence 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 to 4 pts. 1.7 to 2.6 lbs.	Pre-emergence: Apply during or shortly after planting. Post-emergence: Apply 2.4 pts./A (4L) or 1.3 lbs./A (Nine-O) when sorghum is 6 to 12 inches tall. Do not apply post-emergence 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 brand 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 to 1.5 percent and high rates on soil with more than 1.5 percent 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. 2,4-D® can be used post-emergence for broadleaf weed control in sorghum sudan and millets.
Annual broadleaf weeds.	Weedmaster® (2,4-D + dicamba) Nufarm	1 pt. to 1 qt.	Post-emergence 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 will improve 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 lbs. on coarse and medium soils, 2.5 lbs. 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® DF 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 to 4.5 pts.	Preplant (incorporate immediately following the application).	Temporary crop stunting and sealing of the first leaves will occur if conditions for germination and growth are not optimum. Adequate rainfall or irrigation will relieve crop symptoms. Do not use on white Dutch clover. Do not apply within 14 days of harvesting or grazing alfalfa.

Table 7. Dormant, Semi-dormant, 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 to 1.5 lbs.	Before or after emergence of weeds, but before they are 2 inches tall or across.	Treat only semi-dormant or dormant stands established for 1 year or more. Dormant alfalfa: Make a single application in the fall after plants become dormant or in the spring before new growth begin. Semi-dormant or non-dormant varieties: Apply in fall or winter after last cutting or in spring before new growth starts. 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.
Annual broadleaf weed.	2,4-DB® Several manufacturers	1 to 3 qts. Use 1 to 2 qts. if weeds are less than 1-inch high, 2 to 3 qts. if weeds are 1 to 3 inches high.	Post-emergence when clovers have 2 to 4 trifoliate leaves.	Labeled for seedling and established alfalfa, seedling birdsfoot trefoils, seedling alsike clover, seedling ladino clover, and seedling red clover. Using a surfactant will improve the performance of this herbicide. 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.
Grasses and certain broadleaf weeds.	Kerb® 50W (pronamide; 0.5 to 0.75 lbs.) Corteva	1 to 1.5 lbs.	Pre-emergence to weeds during fall or winter months in established legumes or in new plantings in trifoliate leaf stage.	Effective with dependable rainfall or overhead irrigation. With low rainfall or furrow irrigation, increase rate 0.5 lb. of product per acre. Note: Do not graze or harvest for forage or dehydration within 25 days after application.
Annual grasses and broadleaf weeds.	Treflan TR-10® Granules (trifluralin) Corteva	20 lbs.	Pre-emergence to weeds after January 1.	Application must be followed by 1/2-inch of sprinkler irrigation or rainfall, or flood irrigation, within 3 days. If this has not occurred, then shallow cultivation must be performed to activate and uniformly distribute the herbicide, taking care not to cause severe injury to the alfalfa.
Annual grasses and broadleaf weeds.	Pursuit DG® (imazathapyr) BASF	1.08 to 2.16 oz.	Post-emergence to seedling alfalfa (Second trifoliate or larger) or established alfalfa.	Established alfalfa applications must be made when alfalfa is dormant, semi-dormant (less than 3 inches of regrowth) or between cuttings. Weeds should be 1 to 3 inches tall at application and a surfactant or crop oil concentrate and a liquid fertilizer solution should be added to the spray mixture. Application rate will depend 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) ADAMA	1.5 to 2 lbs. Do not exceed 3 lbs. per acre, per year.	Pre-emergence 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 (as 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 L® (hexazinone) NovaSource Velpar DF CU® (hexazinone) NovaSource	1 to 3.0 qts. on soils with less than 1 percent organic matter. Consult label for rates on specific soil textures. 0.33 to 2 lbs. (Consult label as above.)	Pre-emergence or early post-emergence 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 one 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.

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Table 7. Dormant, Semi-dormant, 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 grasses.	Metribuzin® 75 (metribuzin) Loveland	0.5 to 1.33 lb./acre	Apply when weeds are less than 2 inches tall or before weed foliage is 2 inches 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 growth begins in the spring. Note: Do not graze or harvest within 28 days after application.
Annual grasses and some annual broadleaf weeds.	Eptam® 7E (EPTC) Gowan	2.25 to 3.5 pts.	Meter into the irrigation water applied to established stands prior to 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 to 3 qts.	When weeds are less than 3 inches high. Weeds in the rosette stage should be treated when rosettes are less than 3 inches across.	Treat alfalfa when plants have 2 to 4 trifoliolate leaves. For irrigated crops, apply herbicide as soon as possible after irrigation. Delay next irrigation for at least 7 to 10 days after spraying to avoid washing the chemical into the root zone. 2,4-DB® is a restricted use herbicide. Use of surfactant will improve 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 to 2.25 pts.	When grass weeds are actively growing and 4 to 25 inches tall. Consult label for specific weed recommendations.	Poast Plus® is absorbed through the leaves and translocated to roots and buds. Active growth is required. 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).	Patriot® (Metsulfuron methyl) Nufarm	0.1 oz.	Post-emergence after two-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. Use of surfactant will improve the performance of this herbicide.
Annual broadleaf weeds (Refer to label for specific weeds controlled).	Amber® (triasulfuron) Syngenta	0.28 to 0.56 oz.	Post-emergence on wheat up to pre-boot stage or barley from two-leaf to pre-boot stage.	Amber® is labeled only 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 Amber® label for additional precautions and recommendations. Amber® has no grazing restriction on labeled crops. Use of surfactant will improve the performance of this herbicide.
Annual broadleaf weeds and some biennial and perennial broadleaf weeds (Refer to label for specific weeds controlled).	MCPA® Several manufacturers	0.5 to 1.5 pts.	Post-emergence 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. Use of surfactant will improve 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 to 1.5 pts.	Post-emergence 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. Use of surfactant will improve the performance of this herbicide.

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

Table 9. Grazing/hay Restrictions for Pasture Herbicides in Days. ¹							
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 to 1 qt./A	21	51	0	37	0	37	30
1 to 2 qts./A	40	70	0	37	0	37	30
Cimarron PLUS [®]	0	0	0	0	0	0	NL
Diurex [®] 4L	70	70	70	70	70	70	NL
Duracor [®]	0	14	0	14	0	14	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 H ₂ O [®]	0	0	0	0	0	0	NL
Reclaim [®]	0	0	0	0	0	0	0
Remedy [®]							
< 2 qts./A	14	NS	0	7	0	7	3
2 to 6 qts./A	NS ³	NS	14	14-NS ⁴	14	14-NS ⁴	3
Rezilon [®]	0	0-40 ⁴	0	0-40 ⁴	0	0-40 ⁴	NL
Roundup Ultra [®]							
Spot (0.1/A)	14	14	14	14	14	14	NL
Renovation 1	56	56	56	56	56	56	NL
Sharpen [®]	0	0	0	0	0	0	0
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	7	0	7	0	7	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

1. Determine nozzle spacing.
2. Refer to the table below for length of calibration course.
3. Mark off the calibration course on the actual area to be sprayed.
4. Record the time required to drive the calibration course at the desired field gear and RPM to be used while spraying.
5. Park tractor, maintain RPM used to drive course, turn on the sprayer, and set it at proper pressure for desired nozzle tips.
6. Catch water from one nozzle for the time equal to that required to drive the calibration course.
7. Ounces of water caught = gallons per acre.
8. Divide gallons per acre into the number of gallons in 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 (inches)	18	20	30	40
Length of calibration course* (linear feet)	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 = $340 \div 19/12 = 215$ ft.

BOOMLESS SPRAYER CALIBRATION

1. Determine swath width.
2. Refer to the table below for the length of the calibration course.
3. Mark off the calibration course.
4. Record the time required to drive the calibration course at the desired field gear and RPM.
5. Park the tractor, maintain RPM used to drive course, and turn on the sprayer.
6. Catch water for the time equal to that required to drive the calibration course.
7. Pints of water caught = gallons per acre.
8. Divide gallons per acre into the number of gallons in 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 5,460 (5,460 sq. ft. = 1/8 of an acre). Example: Calibration distance for 32-ft. swath width = $5,460 \div 32 = 171$ ft.