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Weed Management in Pastures and Rangeland - 2009[1]

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Effective weed control begins with good pasture or rangeland management. Weeds are seldom a serious problem in a well managed, vigorously growing grass. Good management begins with proper choice of the forage species and variety, adequate fertility and soil pH, proper grazing management, and control of pests, such as insects, diseases, and nematodes. If the grass dies or is not growing well, there is usually some weed that will tolerate the condition which caused the grass not to grow, and that weed will become established. Once a weed is established, mechanical or chemical methods are usually employed to control the weeds (Table 1). However, unless the basic management problem is corrected, the grass will not regrow in the area, and weeds will continue to infest the area.

Mechanical Control

Mowing is one of the most often used methods of weed control in pastures. Mowing improves the appearance of a pasture and if properly timed will prevent weeds from producing seed.

However, the effectiveness of mowing in terms of controlling weeds depends on several factors. The major consideration is the type of weed present. Mowing is generally more effective on broadleaf weeds than on grasses and more effective on annual weeds than on perennial weeds. Knowledge of the weed and its life cycle will generally indicate how effective mowing will be. Carefully consider the amount of energy required and anticipated the likely effectiveness before mowing; other methods of weed control may be more energy efficient. Another factor to consider prior to mowing is whether the plant can regenerate vegetatively. Mowing can spread weeds that can form new plants from the cut vegetative plant parts. Prickly pear is one example of a weed that can propagate vegetatively.

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Sanitation

In addition to controlling weeds in a pasture, efforts should be taken to prevent weeds from reinfesting the pasture. Knowledge of how weeds are dispersed is important.

Weeds may be dispersed by wind, carried by water, distributed in planting seed, in feed or hay, carried by animals including man, or moved by machinery. Animals grazing in a weed-infested pasture and then allowed to move directly to a clean pasture may move weed seed both internally and externally.

One of the most common problems is failure to control weeds in ditch banks, fence rows, and farm roads. Weeds growing in these areas produce seed and/or vegetative growth that reinfests the pastures. For more on this topic, see EDIS Publication SS-AGR-110, *Weed Management for Grazed Fence Rows and Non-Cropped Areas* (http://edis.ifas.ufl.edu/wg210) and EDIS Publication SS-AGR-111, *Weed Management for Fence Rows and Non-Cropped Areas* (http://edis.ifas.ufl.edu/wg068).

Fence rows are also a common area where poisonous plants are often left uncontrolled. Plants such as crotalaria, black nightshade, and lantana are commonly found poisonous plants in Florida.

Animals won't usually choose to graze most poisonous plants. However, if grass is limited in pastures due to poor growing conditions or overstocking, animals may try to eat poisonous plants. Some poisonous plants may become more palatable following herbicide application and then be more readily grazed. Therefore, if poisonous plants are present in fence rows, and pastures are in short supply, care should be taken and cattle watched closely.

When treating fence rows, it is often advisable to apply a foliar-applied herbicide to kill the existing vegetation along with a soil -pplied residual herbicide to prevent weeds from regrowing in the fence row.

Chemical Control

The herbicide and application rates are extremely important in chemical weed control. Rates too low will not give adequate weed control, and rates too high may injure the forage and result in only partial control of perennial weeds.

Time of application is also important with herbicides. Preemergence applications are made before the weeds germinate and emerge; therefore, knowledge of the life cycle of the weed becomes important. For example, a herbicide applied in October for crabgrass (a summer annual that germinates in early spring) would be wasted.

One of the most important factors in choosing a herbicide is proper weed identification. After identifying the weed, use tables 2 and 3 to choose the herbicide recommended for the particular weed.

Postemergence Applications

Postemergence applications are made after the weeds have emerged. Most effective applications are made when the weeds have recently germinated and are small. For perennial weeds (regrowing from storage organs) it is often advisable to allow them to grow for a short period of time before spraying. This allows a sufficient leaf surface for coverage and insures that the perennial is manufacturing food (through photosynthesis) and translocating it along with the herbicide back to the roots (which is the part of the plant you must kill).

Herbicides may be applied broadcast over the entire pasture or may be applied as spot treatments to localized infestations of weeds. The lower cost and energy saved by spot treatment makes this a desirable method in many situations.

The attached table lists the currently recommended herbicides in pastures and rangelands in Florida. In all cases it is extremely important to carefully read the label of the herbicide before purchase to determine whether that herbicide will be effective in your situation.

The herbicides listed for use in pastures and rangelands are generally safe to use and offer minimal hazard to animals when used according to

label directions. Table 4 lists the grazing and haying restrictions for the recommended herbicides.

Precautions when Using Phenoxy or Benzoic Acid Herbicides

1. For information about growth-regulating herbicides not covered below, see IFAS Publication SS-AGR-12, *Florida's Organo-auxin Herbicide Rule* (http://edis.ifas.ufl.edu/WG051).

2. Application of other pesticides from sprayers previously used for 2,4-D, dicamba, or other phenoxy or benzoic acid herbicides to susceptible crops, may result in injury.

3. Legumes in pastures or rangelands will be injured or killed by these herbicides.

4. Avoid drift to susceptible crops by applying at low pressures and when wind speeds are low and blowing away from susceptible crops. The use of a drift-control additive is advisable.

5. Clean sprayer thoroughly with household ammonia as follows:

   a. Flush system with water. Drain.

   b. Flush the system with ammonia (1 qt ammonia per 25 gallons water); let it circulate for at least 15 minutes, then flush the system again. Drain again.

   c. Remove screens, strainers, and tips and clean in fresh water.

   d. Repeat step b.

   e. Thoroughly rinse the tank, hoses, booms, and nozzles.

   f. Be sure and clean all other associated application equipment.

Table 1. Weed control in pastures and rangeland.

Trade Name and Rate of Commercial Product Per Acre	Common Name and Rate in Pounds of Active Ingredient Per Acre	Remarks
DURING ESTABLISHMENT		
Preemergence to Weeds		
2,4-D Several Brands[1] (1.0 - 2.0 qt of 4 lb/gal formulation)	2,4-D amine **or** LV ester (1.0 - 2.0 lb)	**Bermudagrass and Stargrass only.** Apply after sprigging and before emergence of sprigged bermudagrass. Will not give complete weed control, however, short residual control of seedling broadleaves and certain grasses may be noted for 2 to 3 weeks if proper environmental conditions exist.
Diuron 4L - (Agriliance) 1.5 to 4.5 pt/A or Diuron 80 - (Drexel) 1 to 3 lb/A	Diuron (0.8 - 2.4 lb)	**Bermudagrass only**. Will provide fair to good control of crabgrass, crowfootgrass, and goosegrass. Plant sprigs 2 inches deep. If sprigs have emerged at time of application, bermudagrass injury will occur. Do not graze or cut hay within 70 days.
2,4-D + dicamba[1] (Weedmaster, others) 2 pt	dicamba + 2,4-D	**Bermudagrass and Stargrass only.** Similar to 2,4-D, but often provides greater weed control. Short residual control of seedling broadleaves and certain grasses may be noted for 2 to 3 weeks if proper environmental conditions exist. **Do not apply to limpograss (*Hemarthria*).**
Postemergence to Weeds		
2,4-D Several Brands[1] (0.5 - 1.0 qt of 4 lb/gal formulation)	2,4-D amine	**Do not apply to bahiagrass until plants are 5 to 6" tall. Do not apply to limpograss (*Hemarthria* sp.).** Bermudagrass can tolerate 2,4-D at any growth stage. Controls most seedling broadleaf weeds. Repeat application may be needed.
2,4-D + dicamba[1] (Weedmaster, others) 2 pt/A	dicamba + 2,4-D	Can be used during establishment of hybrid bermudagrass, stargrass, and Pangolagrass. Annual sedges and some grasses will be suppressed if less than 1 inch at time of application. Best results are seen if applications are made 7 - 10 days after planting. **Do not apply to limpograss (*Hemarthria*).**
Banvel, Clarity, Vanquish 1.5 - 2 pt/A	dicamba	Primarily used for establishment of Floralta limpograss (*Hemarthria*). Annual sedges and some grasses will be suppressed if less than 1 inch at time of appliation. Best results are seed if applications are made 7 - 10 days after planting.
ESTABLISHED STANDS		
Dormant Pastures		
Gramoxone Inteon 1 - 2 pt	paraquat	For **dormant** bermudagrass or bahiagrass. Apply in 20 to 30 gallons of water in late winter or early spring (probably in January or February) before grass begins spring green-up. Add 1 pt. surfactant (non-ionic) per 100 gal. spray mix. Do not mow for hay until 40 days after treatment. Can be mixed with 2,4-D or other herbicides for more broadspectrum control.
Roundup Weathermax 11 oz	glyphosate	Apply in mid- to late-winter months to bermudagrass or bahiagrass pastures and hayfields for the control of weedy grasses. Apply before new growth appears in the spring. Bermudagrass that is not dormant at the time of application may show a 2 to 4 week delay in green-up. No restrictions exist between application and grazing or haying.

Table 1, continued. Weed control in pastures and rangeland.

Trade Name and Rate of Commercial Product Per Acre	Common Name and Rate in Pounds of Active Ingredient Per Acre	Remarks
Non-Dormant Pastures		
Aim 1 - 2 oz	carfentrazone	Aim provides control of small broadleaf (<2") weeds. In most cases Aim should not be applied alone, but tank-mixed with other pasture weed control products. Combining Aim with other herbicides often increases overall weed control and speed of kill. A 2-4% v/v liquid nitrogen fertilizer, 2-4 lb/acre spray-grade ammonium sulfate or an AMS replacement/water conditioning product should be added to water prior to the addition of Aim. Use caution when applying AMS to newly established grasses as crop injury could occur. When tank-mixing Aim with other herbicides, it is important that Aim is added to the nitrogen-water solution before other herbicides. A non-ionic surfactant at 0.25% v/v must be added. Do not apply >5.9 fl oz/acre/year and do not make more than 3 applications of Aim per year.
2,4-D Several Brands [1] (2.0 - 4.0 pt of 4 lb/gal formulation)	2,4-D amine **or** LV ester (1.0 - 2.0 lb)	**Broadleaf weeds.** Annual weeds should be treated soon after emergence for best control with lower rates. Perennial weeds should be allowed to obtain a leaf surface large enough to allow sufficient spray coverage (about 12"-18" tall). Use amine formulations during warm weather and LV esters during cool weather. Avoid drift. Applications of 2,4-D to limpograss (*Hemarthria* sp.) will cause significant injury during periods of high temperatures and humidity; much less injury has been observed during cool and dry conditions.
Banvel[1], Clarity, Vanquish (0.5 - 2.0 qt)	dicamba	**Broadleaf weeds.** Rate depends on weed species and size. Refer to the label for grazing restrictions. Avoid drift. *Hemarthria* sp. has generally exhibited more tolerance to dicamba than 2,4-D.
Cimarron Plus 0.125 to 1.25 oz/A or Cimarron Xtra 0.5 to 2.0 oz/A	metsulfuron + chlorsulfuron	Use on bermudagrass, pangolagrass, and stargrass. Controls several cool-season broadleaf weeds, pigweeds, and Pensacola bahiagrass. Bermudagrass should be established no less than 60 days prior to application. Add a non-ionic surfactant at 1-2 pts/100 gal of solution. Avoid application during spring green-up. Varieties and species of pasture grasses differ in their tolerance to herbicides.
Cimarron Max Part A (0.25 – 1.0 oz) Part B (1.0 – 4.0 pt)	Part A - metsulfuron Part B - 2,4-D + dicamba	Cimarron Max is a two part product that should be mixed at a ratio of 5 oz *Part A* to 2.5 gallons *Part B*. Depending on the weeds present and the rate range that is selected, this mix will treat between 5 to 20 acres. For specific information on rate selection, consult the product label.
Cleanwave 14 - 26.6 oz/A	fluroxypyr + aminopyralid	Excellent tank mix partner for 2,4-D, Forefront, and Remedy. Tank mix 14 oz with one of these products for dogfennel < 36"; 20 oz for dogfennel between 36 and 60"; 26.6 oz for dogfennel > 60". If tank-mixing with Milestone add 20 oz Cleanwave to dogfennel < 60" and 26.6 oz to dogfennel > 60". Cleanwave is safe on limpograss.
Forefront 2 - 2.6 pt	aminopyralid + 2,4-D	Excellent control of TSA, horsenettle, and other members of the nightshade family. Also control pigweeds and other broadleaf weeds including less than 20" dogfennel. Do not apply greater than 2.6 pt/A/yr. Do not apply to desirable forage legumes or severe injury and stand loss will occur. Do not apply to limpograss. Forefront will pass through animals and remain in the waste. Do not mulch sensitive crops with manure if animals have been grazing on Forefront-treated pastures. Avoid applications of this product to limpograss pastures during hot and humid conditions.

Table 1, continued. Weed control in pastures and rangeland.

Trade Name and Rate of Commercial Product Per Acre	Common Name and Rate in Pounds of Active Ingredient Per Acre	Remarks
Impose or Panoramic 4 to 12 fl. oz/A	imazapic	DO NOT apply to bahiagrass. DO NOT apply during spring transition or severe bermudagrass or stargrass injury will occur. In summer months, expect 3 to 4 weeks of bermudagrass stunting after application, followed by quick recovery and rapid growth. This will reduce harvest yields of that cutting by 30 to 50%. If this yield reduction is not acceptable, do not use these herbicides. Yield reductions of subsequent cuttings have not been observed. For control of crabgrass, sandspur, nutsedges, and vaseygrass, use 4 oz/A. For suppression of bahiagrass, use 12 oz/A.
Journey (10.6 - 16 fl. oz)	imazapic + glyphosate	Similar to Impose and Panoramic.
Milestone (3 - 7 oz)	aminopryalid	Excellent control of tropical soda apple, horsenettle and other members of the nightshade family. Controls pigweeds and other broadleaf weeds, but does not control blackberry or dogfennel. Can be safely applied under trees. Do not apply more than 7 oz/A/yr. Do not apply to desirable forage legumes or loss of stand will occur. The use of a non-ionic surfactant is recommended. Milestone will pass through animals and remain in the waste. Do not mulch sensitive crops with manure if animals have been feeding on Milestone treated pastures. Safe on limpograss.
Outrider (1.0 - 1.33 oz)	sulfosulfuron	**Established bahiagrass and bermudagrass only.** Provides excellent control of annual and perennial sedges. Provides some suppression of vaseygrass.
PastureGard[1] (2 - 4 pt)	triclopyr + fluroxypyr	Provides excellent control of dogfennel, blackberry, teaweed, and other broadleaf weeds. Less effective on tropical soda apple than Remedy alone. Forage legumes will be severely injured or lost if present at time of application. Applications of 2 pt/A may result in less than desirable weed control. Do not apply more than 8 pts/A per season. Surfactant should be added to spray mixture at 0.25% v/v.
Remedy Ultra 2 pt	triclopyr	Provides excellent control of herbacious and certain woody plants in pasture and rangeland. For best results, apply in 30 or 40 gallons of water per acre. The addition of a nonionic surfactant at 0.25% v/v will increase control. Applications at air temperatures >85F may cause moderate to severe bermudagrass injury for 2 to 3 weeks.
Roundup Weathermax 8 - 11 fl. oz/A	glyphosate	For control of annual grasses in bermudagrass and stargrass. Apply immediately after hay removal, but prior to regrowth. Applications made after regrowth has occurred will cause stunting. Application rates as low as 6 oz/A are often effective for crabgrass and other small annual grass weeds. Do not apply more than 2 qt/A/year. If Roundup Weathermax is applied to a dormant pasture, it can not be sprayed again that season.
Telar 0.1 - 1.0 oz	chlorsulfuron	For use on established warm-season forage grass species. Telar will control blackberry, pigweeds, wild radish, and selected winter weeds. Not effective on ragweed, tropical soda apple and other common weeds. Ryegrasses will be severely injured or killed by Telar. Do not apply more than 1.3 oz/A/yr. There are no grazing restrictions for any animals.
2,4-D + dicamba[1] (Weedmaster, others) 0.5 - 4.0 pt	dicamba + 2,4-D amine	See remarks for 2,4-D and dicamba above. This mixture is usually more effective than either herbicide used alone.

Table 1, continued. Weed control in pastures and rangeland.

Trade Name and Rate of Commercial Product Per Acre	Common Name and Rate in Pounds of Active Ingredient Per Acre	Remarks
Hard-To-Kill Perennial Grasses		
glyphosate (1 to 4 oz per gal)	glyphosate (1-3% solution for hand sprayer)	**Spot treatment.** Apply when perennial weeds are actively growing. Surrounding forage will be killed if sprayed.
glyphosate (4 to 8 qt to 2 gal water)	glyphosate (33-50% solution)	**Wiper application.** Apply at speeds up to 5 MPH. Two passes in opposite directions. No more than 10% of any acre should be treated at one time.
Smutgrass		
Velpar L (2.75 - 4.5 pt) **or** Velpar DF (0.9 - 1.5 lb)	hexazinone	Apply Velpar to established stands of bermudagrass or bahiagrass when soil conditions are warm and moist and weeds are actively growing. Best control of smutgrass is usually achieved in late spring to early summer when regular rainfall occurs. Some temporary yellowing of the bermuda or bahiagrass will be noted, but plants will soon outgrow this effect. Apply Velpar by ground equipment only, and only **one** application is allowed per year. **KEEP SPRAYS WELL AWAY (AT LEAST 100 FT) FROM THE BASE OF DESIRABLE TREES, ESPECIALLY OAKS.** Check label instructions for further precautions and safe use suggestions. Control at either time of year will be enhanced with a nonionic surfactant at 0.25% v/v.
Pensacola Bahiagrass		
Cimarron Plus 0.5 oz/A or Cimarron Xtra 1.0 oz/A	metsulfuron + chlorsulfuron	Apply to bermudagrass hay fields early in the season, after bahiagrass green-up but prior to seed head formation. Early applications are often most effective; fall applications rarely control bahiagrass. Do not apply with liquid fertilizer solutions as poor control may occur. Prolonged periods of dry weather prior to application will greatly decrease herbicide effectiveness. Always include a nonionic surfactant at a rate of 0.25% v/v. 'Common' or 'Argentine' bahiagrass will not be effectively controlled. Pasture legumes will be severely injured or killed.
Tropical Soda Apple		
Forefront (2 - 2.6 pt)	aminopyralid + 2,4-D	Excellent control of tropical soda apple. Provides preemergence control TSA seedlings for approximately 6 months after application. The 2 pt/a rate is highly effective on emerged TSA plants, but the 2.6 pt/a rate will provide the greatest length of residual control. Do not apply more than 2.6 pt/a/yr. Will severely injure desirable forage legumes. Do not apply to limpograss. There are no grazing restrictions, but do not harvest for silage or hay for 7 days.
Milestone (5 - 7 oz)	aminopryalid	Excellent control of tropical soda apple. Provides preemergence control of TSA seedlings for approximately 6 months after application. The 5 oz rate is highly effective on emerged plants, but the 7 oz rate will provide the greatest length of residual control. Do not apply more than 7 oz/A/yr. Do not apply to desirable forage legumes or loss of stand will occur. Volatility is low. The use of a non-ionic surfactant at 0.25% v/v is recommended.
Remedy Ultra [1] (1.0 qt)	triclopyr	Apply in late spring through summer as a broadcast spray for control of this species. Best results will occur when plants are adequately covered with spray solutions. Thirty to forty gal/A application will be more effective than 20 or lower. The addition of a nonionic surfactant at 0.25% v/v will increase control. Retreatment will be required as new seedlings emerge. Spot spray rate is 0.5 - 1.0% v/v.

Table 1, continued. Weed control in pastures and rangeland.

Trade Name and Rate of Commercial Product Per Acre	Common Name and Rate in Pounds of Active Ingredient Per Acre	Remarks
	Prickly Pear Cactus	
Remedy Ultra [1] (20%) **+** diesel fuel or basal oil (80%)	triclopyr (20%) diesel fuel or basal oil (80%) (Spot treatment)	Apply as a spot treatment directly to prickly pear pads during spring and summer. Grass will be burned in treated spots but will recover. The addition of diesel fuel drastically enhances herbicide uptake which will lead to prickly pear control. Prickly pear will die slowly over a period of 6-8 months with a few plants requiring retreatment.
Cleanwave 50 oz	fluroxypyr + aminopyralid	Apply Cleanwave at 50 oz/A as a broadcast treatment in water. The use of a surfactant is required. For spot treatment, use a 2% Cleanwave solution. Control is very slow and it often takes more than 1 year to see satisfactory results.
	Blackberry	
Cimarron Plus 0.75 oz/A or Cimarron Xtra 2.0 oz/A	metsulfuron + Chlorsulfuron	Cimarron will provide good to excellent control of blackberry. Results are best when applied at blooming or late in the fall. Do not mow within 1 yr prior to application or control will be reduced. **DO NOT** apply to bahiagrass pastures.
PastureGard[1] 4 pt	triclopyr + fluroxypyr	Control similar to Remedy.
Remedy Ultra [1] 2 pt	triclopyr	For best control of blackberry, apply 2 pt when blooming and do not mow within 1 yr prior to application. Remedy does not control dewberry. The addition of a nonionic surfactant at 0.25% v/v will increase control. Applications made during prolonged periods of dry weather can greatly decrease control. Fall applications often provide more consistent blackberry control.
Telar 0.75 oz	chlorsulfuron	Similar to control with Cimarron. Telar can safely be applied to bahiagrass or bermudagrass.
	Dogfennel	
2,4-D + dicamba[1] (Weedmaster, others) 2 to 3 pt	dicamba + 2,4-D	Apply when plants reach a height of 12-18". Weedmaster is most effective approximately 1 month after dogfennel transition from winter dormancy. Refer to previous comments for dicamba and 2,4-D above.
PastureGard[1] (3 pt)	triclopyr + fluroxypyr	For control of larger dogfennel that has reached 40 inches or more in height.
Forefront (2 pt)	aminopyralid + 2,4-D	Apply when plants are less than 30" tall. If plants are larger than 30", tank mix Forefront with 3 pt/A 2,4-D, 1 pt/A Pasturegard, or see comments for Cleanwave herbicide.
Cleanwave (14 - 26.6 fl oz)	fluroxypyr + aminopyralid	Excellent tank mix partner for 2,4-D, Forefront, and Remedy. Tank mix 14 oz with one of these products for dogfennel < 36"; 20 oz for dogfennel between 36 and 60"; 26.6 oz for dogfennel > 60". If tank-mixing with Milestone add 20 oz Cleanwave to dogfennel < 60" and 26.6 oz to dogfennel > 60". Cleanwave is safe on limpograss.
	Mixed Stands: Grass - Clover/Lespedeza Pastures	
2,4-D amine[1] (0.5 - 1.0 pt)	2,4-D (0.25 **+** 0.5 lb)	Apply only one treatment per year to established perennial clover. Slight to moderate injury may occur. See label of specific use information
	Thistles	
2,4-D (2 qt)	2,4-D (2 lb)	Highly effective if applied to thistles in the rosette stage. 2,4-D is not effective on thistles that have bolted or flowered. During cool temperatures, the ester formulation of 2,4-D will be most effective.

Table 1, continued. Weed control in pastures and rangeland.

Trade Name and Rate of Commercial Product Per Acre	Common Name and Rate in Pounds of Active Ingredient Per Acre	Remarks
Milestone (3 - 5 fl. oz)	aminopyralid	Excellent control of thistles at any stage of growth.
2,4-D + dicamba[1] (Weedmaster, others) 1.0 - 2.0 qt	dicamba + 2,4-D	Apply late fall to early spring when daytime temperatures are >50F. Applications are most effective if applied before flower stalks elongate. The addition of crop oil will increase herbicidal activity. Refer to previous comments for dicamba and 2,4-D above. For small rosettes 1 qt/A rate is sufficient. For larger rosettes, 1.5 to 2 qt/A will be required.

[1] For state rules pertaining to application of organo-auxin herbicides in Florida, see EDIS Publication SS-AGR-12, *Florida Organo-Auxin Herbicide Rule* (http://edis.ifas.ufl.edu/WG051) .

Herbicide recommendations in this report are contingent upon their registration by the U.S. Environmental Protection Agency. If an herbicide's EPA registration is canceled, the herbicide is no longer recommended.

Table 2. Estimated effectiveness of herbicides on common broadleaf weeds in pastures and hayfields[1].

Weed Name	2,4-D	Cimarron Plus or Xtra	Banvel or others	Cleanwave	Diuron	Forefront	Impose/ Panoramic
bitter sneezeweed	E	E	E	-	G	E	-
blackberry	P	G-E	F-G	F-G	P	P-F	P
bracken fern	P	-	G	-	P	-	-
bullrush	G	-	G	P	P	P	-
chickweed	F	E	E	-	P	F	-
crotalaria, showy	G	-	G	G	-	G	-
cudweed	F	G	E	-	-	E	-
curly dock	F	E	E	-	P	E	-
dodder	P	-	P	-	P	-	-
dogfennel	F-G	F	F-G	G	P	G	-
evening primrose	E	G	E	-	G	E	-
Florida pusley	P	-	P-F	P	E	G-E	-
gallberry	G	-	E	-	P	-	-
goatweed	G	G	F-G	P-F	-	-	P
goldenrod	F	P	G		P	G	-
honeysuckle	-	-	E	-	P	-	-
horsenettle	P	P-F	G	F	P	E	-
horseweed	F	F	E	-	P	E	-
kudzu	P-F	P-F	G	P	P	G	P
maypop	P	P	P	-	-	-	-
stinging nettle - fireweed	P	-	-	G-E	-	E	P
palmetto	P	P	F	G	P	P	P
persimmon	P	-	F-G	-	P	P	P
pigweed	F	E	E	P	F	E	G
plantains	E	E	E	-		-	-
pokeberry	G	-	E	P	P	P	-
prickly pear	P	P	F	G	P	P	P
ragweed	E	G	E	G	G	E	F
red sorrel	P	E	E	-	F	-	-
shepherdspurse	E	-	E	-	G	-	-
sicklepod	G	G	E	G	F	G	F-G
thistles	E	F	G	G	F	E	-
tropical soda apple	P	P	F-G	F	P	E	P
Virginia pepperweed	G	-	E	G	G	-	-
wax myrtle	P	-	P-F	-	P	P	-
wild garlic	G-E	G	E	-	P	-	-
wild radish	G	G-E	E	-	P	G	-

Table 2, continued. Estimated effectiveness of herbicides on common broadleaf weeds in pastures and hayfields[1].

Weed Name	Journey or others	Milestone	Outrider	PastureGard	Remedy	Velpar	WeedMaster others
bitter sneezeweed	-	E	-	E	E	-	E
blackberry	-	P	P	G-E	G-E	F	P-F
bracken fern	-	-	-	F	G	F	-
bullrush	-	P	-	P	G	-	-
chickweed	-	-	-	F	E	E	E
crotalaria, showy	-	-	-	E	E	-	G
cudweed	-	E	-	G	E	-	G
curly dock	-	E	-	F	E	P	E
dodder	-	-	-	P	P	-	P-F
dogfennel	-	P-F	P	E	G-E	G	G
evening primrose	-	E	-	G	E	E	E
Florida pusley	P	-	-	G	-	-	F
gallberry	-	-	-	E	E	P	G
goatweed	F	-	-	F	F	-	G
goldenrod	-	G	-	G	G	-	G-E
honeysuckle	-	-	-	P	P	-	E
horsenettle	P	E	-	F	F-G	-	F
horseweed	P	E	-	G	G	-	E
kudzu	P	G	P	F	F	-	F
maypop	P	-	P	G	F	-	P-F
stinging nettle - fireweed	-	E	P	E	E	-	F
palmetto	P	P	P	G	F	P	P-F
persimmon	P	P	P	F-G	F-G	F	P-F
pigweed	E	E	-	F	E	G	E
plantains	-	P	-	-	-	-	E
pokeberry	-	F	-	P	P	-	E
prickly pear	P	P	P	F	G[2]	P	P-F
ragweed	F-G	E	-	E	E	F	E
red sorrel	-	-	-	F	E	-	G
shepherdspurse	-	-	-	G	E	E	E
sicklepod	E	-	-	G-E	E	-	E
thistles	-	E	-	G-E	E	E	E
tropical soda apple	P	E	P	G	G-E	F-G	F-G
Virginai pepperweed	-	-	-	G	P	E	E
wax myrtle	P	P	-	F-G	G	P	P-F
wild garlic	-	P	-	P	-	-	E
wild radish	E	P	-	G-E	E	E	E

[1]Estimated effectiveness based on rates recommended in this report. Effectiveness may vary depending on factors such as herbicide rate, size of weeds, time of application, soil type, and weather conditions.

[2]When applied as spot-treatment in basal oil.

Weed control symbols: E = 90-100% control; G = 80-90% control; F = 60-80% control; P = <60% control.

Table 3. Estimated effectiveness of herbicides on commong grass and sedges in pastures and hayfields.

Herbicide	bahia-grass	bermuda-grass	broom-sedge	crab-grass	dallis-grass	guinea-grass	johnson-grass	rye-grass	sandbur	smut-grass	vasey-grass	nutsedge
2,4-D	P	P	P	P	P	P	P	P	P	P	P	P
Banvel or others	P	P	P	P	P	P	P	P	P	P	P	P
Cimarron Plus or Xtra	G	P	P	P	P		-	P	P	P	P	P
Cleanwave	P	P	P	P	P	P	P	P	P	P	P	P
Diuron	P	P	P	F-G	P	P	P	P	G	P	P	P
Forefront	P	P	P	P	P	P	P	P	P	P	P	P
Impose/ Panoramic	P-F	P	P	E	F	-	G	F	G-F	P	P-G	G-E
Journey or others	P-F	P	P	G	F	-	G	F	G-E	P	G	G-E
Milestone	P	P	P	P	P	P	P	P	P	P	P	P
Outrider	P	P	P	P	P	P	E	-	-	P	F-G	E
PastureGard	P	P	P	P	P	P	P	P	P	P	P	P
Remedy	P	P	P	P	P	P	P	P	P	P	P	P
Velpar	P	P	P	P	-	-	-	G	-	E	-	P
Weedmaster or others	P	P	P	P	P	P	P	P	P	P	P	P

[1]Estimated effectiveness based on rates recommended in this report. Effectiveness may vary depending on factors such as herbicide rate, size of weeds, time of application, soil type, and weather conditions.

Weed control symbols: E = 90-100% control; G = 80-90% control; F = 60-80% control; P = <60% control.15594

Table 4. Days between herbicide application to forage or pasture for feeding, grazing or animal slaughter.

Herbicide	Non-lactating Cattle			Lactating Dairy Cattle		Horses
	Grazing	Hay Cutting	Slaughter	Grazing	Hay Cutting	
Aim	0	0	0	0	0	0
Banvel						
Up to 1 pt	0	0	30	7	37	0
Up to 1 qt	0	0	30	21	51	0
Up to 2 qt	0	0	30	40	70	0
Cimarron Plus and **Cimarron Xtra**	0	0	0	0	0	0
Cleanwave	0	7	0	0	7	0
2,4-D	0	30	3	7	30	0
Forefront	0	7	0	0	7	0
Impose or Panoramic	0	7	0	0	7	0
Journey	0	7	0	0	7	0
Milestone	0	0	0	0	0	0
Outrider	0	14	0	0	14	0
PastureGard	0	14	3	1 season	1 season	0
Remedy Ultra	0	14	3	1 season	14	0
Roundup WeatherMax						
Dormant application	0	0	0	0	0	0
Between cuttings	0	0	0	0	0	0
Pasture renovation	56	56	56	56	56	56
Telar	0	0	0	0	0	0
Velpar	60	60	0	60	60	60
2,-D + dicamba (Weedmaster, others)	0	37	30	7	37	0