

Forage

Weed Control in Pastures

Recommendations provided in this publication were current at the time of development, but herbicide labels change frequently. Obtain and read the product label, and follow the directions on that document for the conditions at the time of herbicide use. Refer to Extension Information Sheet 803 *Grain and Forage Sorghum Weed Control* for weed control recommendations for forage sorghum. Many herbicides currently labeled for application to turf cannot be applied to pasture or hay crops.

Light, water, and nutrients are the essential components for plant growth and development. Unfortunately, weeds have evolved to compete for these components and are often successful survivors, even when the supply of these elements is limiting for crop growth and development.

Weeds in forages may reduce the quantity and quality of hay harvested or forage grazed. Many grass weeds may be grazed with the forage, but broadleaf weeds usually are not grazed and, therefore, are often visible in the pasture. Certain weeds are more troublesome than others.

Several broadleaf weeds grow with forages and are toxic to livestock. Perilla mint (*Perilla frutescens*), common pokeweed (*Phytolacca americana*), dogbanes (*Apocynum* spp.), milkweed (*Asclepias* spp.), nightshades (*Solanum* spp.), hemlock and waterhemlock (*Cicuta* spp.), jimsonweed (*Datura stramonium*), bitter sneezeweed (*Helenium autumnale*), and boneset (*Eupatorium rugosum*) are a few of the broadleaf weeds that can be dangerous to livestock. Fortunately, livestock usually do not feed on these plants; however, if harvested in hay, the chances of consumption increase.

Broomsedge is a troublesome weed common in many Mississippi pastures and hay fields. Soil pH adjustment combined with proper fertilization and heavy grazing or mowing is often the most economical control tactic. Sedges and rushes are not grasses but do resemble grass plants. These plants are often found growing in wet areas in the pasture. They are not readily grazed by livestock and are, therefore, quite visible.

Winter weeds grow and produce seeds at the time many forages in Mississippi are dormant. Winter broadleaf weeds such as wild mustard, wild turnip, mayweed, dock, buttercup, primrose, thistle, henbit, pepperweed, prickly lettuce, and wild garlic are frequently seen in pastures and hay fields in late-winter months and early spring.

Summer weeds frequently emerge and begin to grow earlier than do warm-season forages. During summer, horse-nettle, dogfennel, smartweed, bitter sneezeweed, spiny amaranth (pigweed), woolly croton, jimsonweed, blue vervain, and hemp dogbane are frequently seen.

Methods of Weed Control

Competition from the forage is one of the most under-used methods of weed control. The pasture must be managed for maximum production to make the forage competitive with weeds. Soil pH and fertility must be monitored and maintained according to soil test recommendations. Most forages will not produce maximum yield in acidic (low pH) soils. A soil test is an inexpensive management tool that can enable the forage producer to harvest high-quality hay, if the recommendations are followed. Fertilize soils according to soil test recommendations to maintain readily available quantities of phosphorus, potassium, and other elements essential for forage growth. Add nitrogen as needed but with caution not to apply excess. Excess nitrogen may predispose the forage to attack by insects and diseases. Areas attacked by these pests may be killed or weakened, which will create ideal sites for weed invasion.

Grazing pressure is another component that must be managed properly. Overgrazing can weaken the forage and may lead to attack by insects, diseases, or weed encroachment. By comparison, proper grazing removes the apical dominance of the plant and encourages lateral branch growth. This will promote development of a thick pasture sod.

Mowing is a form of mechanical weed control. Annual weeds will be killed if mowed below the growing points. Perennial weeds will not be controlled unless mowed frequently enough to deplete all food reserves. Frequent mowing is not desirable for maximum hay production. Spot infestations of perennial weed such as horsenettle can be suppressed by frequent mowing.

Herbicide application is also a commonly used method of weed control. Use herbicides to provide supplemental control of weeds not controlled by other pasture management practices such as good fertilization and mowing. Herbicides are available to control most of the broadleaf weeds found in pastures and hay fields; however, few herbicides are registered for use in forages that will control grass weeds.

Preemergence herbicides must be applied before weed emergence for satisfactory control. By comparison, post-emergence herbicides should be applied to emerged, small, actively growing weeds for optimum control. Generally,

small weeds are more effectively controlled than are large weeds. Seedling weeds should have at least two true leaves before herbicide application, since herbicide activity on weed seedlings with no true leaves (cotyledon or seed leaves only) may be less than desired.

Apply postemergence herbicides in at least 10 gallons of spray volume per acre. Adequate coverage to provide acceptable control may not be obtained with a low spray volume. Adequate coverage for postemergence weed control can be obtained with 20 gallons spray volume per acre for most herbicides. However, some product labels may recommend a larger minimum spray volume per acre.

Many postemergence herbicides require the addition of 0.25 to 0.5 percent by volume spray surfactant. A nonionic surfactant of at least 80 percent active ingredient is recommended. Certain herbicide labels may suggest the use of crop oil concentrate in lieu of a nonionic surfactant. Generally, crop oil concentrates are applied at 1 quart per acre. **Always read and follow the label directions.**

Table 1. Replanting Restrictions for Forages (See product labels for crops not listed.¹)

Product	Legumes		Pasture Grasses			
	Alfalfa	Clover	Bahia	Bermuda	Fescue	Rye
Ally	4 m	4 m	-	4 m	4 m	4 m
Crossbow	3 w	3 w	3 w	3 w	3 w	3 w
diuron	2 y	2 y	2 y	2 y	2 y	2 y
Grazon P+D	1 y	1 y	3 w	3 w	3 w	3 w
Remedy	3 w	3 w	3 w	3 w	3 w	3 w
Velpar	2 y	2 y	2 y	2 y	2 y	2 y

¹D, m, w, and y following numbers in this table indicate days, months, weeks, and years, respectively.

Table 2. Pasture herbicides classified as Restricted Use

Herbicide	Classification
Gramoxone Max	Restricted Use
Grazon P + D	Restricted Use
Kerb	Restricted Use

Table 3. Forage herbicide recommendations.

Crop, weed, or situation and active chemical per treated land acre	Formulation needed for 1 acre treated broadcast	Time of application	Weeds controlled	Special instructions and remarks
Preplant				
<i>Alfalfa</i>				
benefin at 1.1 to 1.5 lb/A	1.5 lb/gal formulation Balan at 6 to 8 pt in 10 to 20 gal water.	Incorporate immediately after application fall or spring.	Certain annual grasses and broadleaves.	Do not use if grain or grass crop is to be planted with alfalfa. See label.
Preemergence				
<i>Bermudagrass, at planting</i>				
diuron at 0.8 to 2.4 lb/A	80 WP at 1 to 3 lb, or 4L at 1.6 to 4.8 pt/A in 25 gal water.	At sprigging.	Many annuals including signalgrass and some seedling perennials.	May temporarily burn emerged bermuda and permanently injure Alicia. For control of small emerged weeds, use low rate plus surfactant.
<i>Sorghum-sudan hybrids</i>				
atrazine at 1.6 lb/A	1.8 lb 90DF or 2 lb 80WP or 3.2 pt 4L in 25 gal water.	Sorghum should be completely germinated and emerged and weeds not more than 1.5 inches high.	Annual grass and broadleaf weeds.	Do not use on sand or loamy sand. May injure winter annuals that follow high rates.
Postemergence				
<i>Alfalfa seedling</i>				
bromoxynil at 0.25 to 0.37 lb/A	Buctril at 1 to 1.5 pt/A.	Fall or spring when majority of alfalfa has a minimum of 4 trifoliolate leaves.	Annual broadleaf weeds.	Do not add surfactant or crop oil unless specifically recommended.
<i>Alfalfa only</i>				
imazethapyr at 0.05-0.09 lb/A	Pursuit DG at 0.72 to 1.08 oz/A with 0.25% nonionic surfactant or 1 qt/A crop oil concentrate and 1-2 qt/A liquid N fertilizer or 2.5 lb/A spray grade ammonium sulfate.	Seedling alfalfa with at least 2 fully expanded trifoliolate leaves or established, dormant or semi-dormant alfalfa or between cuttings.	Broadleaf weeds and certain grasses.	Do not exceed 6 oz per acre per year. Do not apply during the last year of the stand. Do not feed, graze, or harvest alfalfa within 30 days of application. In the event of stand failure, do not reseed alfalfa within 4 months after application.
<i>Alfalfa, Clover, Birdsfoot Trefoil, seedling and established</i>				
2,4-DB	2 to 4 pt/A of 2 lb/gal material.	Where weeds are young and actively growing.	Most small annual broadleaf weeds.	Do not use on sweet clover nor on clover grown for seed. Apply before weeds are 3 inches high.

Crop, weed, or situation and active chemical per treated land acre	Formulation needed for 1 acre treated broadcast	Time of application	Weeds controlled	Special instructions and remarks
sethoxydim at 0.19 to 0.47 lb/A	Poast 1.5E at 1 to 2.5 pt in up to 20 gal water at 40-60 psi by ground. Add 2 pt/A oil concentrate.	To actively growing grasses.	Most grasses.	Apply no more than 5 pt/A in one season.
<i>Alfalfa, established</i> metribuzin at 0.38 to 0.75 lb/A	Sencor 75DF at 0.5 to 1.0 lb or 4L at 0.8 to 1.5 pt in 20 to 40 gal water.	Winter dormant established	Chickweed, henbit and other winter annuals.	Apply only to winter dormant alfalfa no earlier than 12 months after seedling.
paraquat at 0.25 lb/A	Gramoxone Max (3.0 lb/gal formulation) 10.7 oz/A in 20 gal water. Add 1 pt surfactant per 100 gal spray.	After cuttings.	Annual grasses and broadleaf weeds.	Apply to stands at least one year old and within 5 days after cutting. Add 1 qt of non-ionic surfactant per 100 gal spray solution.
<i>Grass pastures, established</i> 2,4-D at 0.5 to 1.0 lb/A	1 to 2 pt/A (4 lb/gal formulation) in 10 to 20 gal water.	To actively growing weeds.	Buttercup, bitter weed, woolly croton, and others except dogfennel, horsenettle, and smartweed.	Do not treat during long droughts and to annual legumes until after seed production.
2,4-D LV ester at 0.5 to 1.0 lb/A	1 to 2 pt/A (4 lb/gal formulation) in 10 to 20 gal water.	Nov. to March when crop is well established, weeds are young, but before flowering of weeds.	Mustard, turnips, dock, buttercup, and others.	Apply during clear, warm, sunny period when weeds are young and tender. May injure young, tender ryegrass. Add .05 to 1.0 qt of surfactant per 100 gal spray solution for improved control especially when applied during cool weather.
2,4-D at 0.38 to 0.75 lb/A plus dicamba at 0.12 to 0.25 lb/A	Weedmaster at 1 to 2 pt/A.	When weeds are young and actively growing.	Most broadleaf weeds and some hard-to-control weeds such as dogfennel and smartweed.	Weeds should be less than 10 inches tall for lower rates. Same precautions as for dicamba alone. Clipping large weeds not dead in 2 to 3 weeks will improve control.
dicamba at 0.25 to 1.0 lb/A	Clarity at 0.5 to 2.0 pt in 20 to 40 gal water.	When weeds are young and actively growing.	Most broadleaf weeds and small brush.	Do not broadcast spray more than 1 qt/A in one season. Do not exceed 1 pt/A on small grains grown for pasture.
2,4-D at 0.24 to 1.0 lb/A plus picloram at 0.06 to 0.25 lb/A	Grazon P+D 1 to 4 pt/A.	When weeds are young and actively growing.	Most broadleaf weeds and some hard-to-control weeds such as dogfennel and horsenettle.	Use lower rates early in the season when weeds are very small.

Crop, weed, or situation and active chemical per treated land acre	Formulation needed for 1 acre treated broadcast	Time of application	Weeds controlled	Special instructions and remarks
triclopyr 1.0 lb/A	4.0 lb/gal formulation Remedy 2 pt.	When weeds are actively growing.	Broadleaf herbaceous and woody.	May be mixed with 2,4-D.
triclopyr at 0.42 to 1.1 lb/A + clopyralid at 0.14 to 0.38 lb/A	Redeem R&P at 1.5 to 4 pt/A	To actively growing grasses.	Broadleaf weeds.	Use lower rates for weeds such as bitter sneezeweed, ragweed, thistle, marshelder, croton; higher rates for spiny pigweed, horsenettle, dogfennel.
triclopyr 0.25 to 1.5 + 2,4-D 0.5 to 3.0 lb/A	Crossbow 2 to 12 pt.	When weeds are actively growing.	Several woody annual and perennial broad leaf species.	
<i>Bermuda and Bahiagrass, established</i>				
hexazinone 0.69 to 1.13 lb/A	Velpar L 2 3/4 to 4 1/2 pt/A.	To actively growing smutgrass from May to October 15.	Smutgrass and many broadleaf weeds.	Do not apply near the root system of desirable woody plants such as oak trees. Apply with 1.0 qt surfactant per 100 gal of water.
<i>Bermudagrass, established</i>				
metsulfuron methyl 0.0038 to 0.0113 lb/A	Cimarron 0.1 to 0.3 oz/A in a minimum of 10 gal/A.	To actively growing weeds. For bahiagrass control, use 0.3 oz after green-up and before seedhead formation.	Pensacola bahia, wild garlic, buttercup, bitter sneezeweed, pigweed, woolly croton.	Add 0.5 to 1.0 qt nonionic per 100 gal spray solution surfactant. Will not control Argentine bahiagrass. Do not apply to Bahiagrass pastures.
<i>Bermudagrass, dormant</i>				
paraquat at 0.25 lb/A	Gramoxone Max (3.0 lb/gal) at 10.7 oz in 20 gal water.	Mid-March.	Emerged annual broadleaf weeds and grasses in dormant bermuda.	Add 1.0 qt of nonionic surfactant per 100 gal of spray solution. Must be applied prior to seed head emergence for satisfactory control of little barley.
<i>Bermudagrass and Bahiagrass, sod suppression</i>				
paraquat at 0.25 lb/A	Gramoxone Max (3.0 lb/gal) at 10.7 oz in 20 gal water. Add 0.25% surfactant (v/v).	Early fall to sods not exceeding 3 inches in height.	Suppresses summer grass while winter annuals establish.	Add 1.0 qt nonionic surfactant per 100 gal spray.
<i>Endophyte Fescue Destruction</i>				
paraquat 0.25 to 0.47 lb/A	Gramoxone Max (3.0 lb/gal) at 10.7 to 21.4 oz in 20 gal water.	When fescue is actively growing.	Endophyte-infected fescue and annuals.	Add 0.5 qt or 1 qt nonionic surfactant per 100 gal of spray solution. If new growth appears within 10-14 days, make a second application. Do not exceed 3 pt/A.
glyphosate at 0.75 lb/A	Glyphosate 4/5 lb/gal at 2/1.2 pt in 3 to 10 gal water plus 0.5 to 1.0% surfactant	When fescue is actively growing in the fall and plants are 6- to 12-inches tall.	Endophyte infected fescue and other annual plants.	A sequential application of 1 pint plus surfactant will improve long-term control.

Table 4. Weed Response Ratings for Forage Herbicides

Herbicides	Weeds																												
	Crabgrass	Foxtail	Smutgrass	Little Barley	Horseweed	Smooth Pigweed	Smartweed	Bullthistle	Curly Dock	Buttercup	Goldenrod	Horsenettle	Wild Garlic	Dogfennel	Bitterweed	Red Sorrel	Common Ragweed	Lanceleaf Ragweed	Chickweed	Henbit	Tall Fescue	Bahiagrass	Mullein	Groundsel	Multiflora Rose	Osage Orange	Blackberry	Tropical soda apple	
Preplant Incorporated																													
Balan	H	H	N	R	N	H	R	N	N	N	N	N	N	N	N	N	R	N	H	R	N	N	N	N	N	N	N	N	N
Preemergence																													
Karmex	H	H	N	H	H	H	H	N	N	H	N	N	N	N	H	R	H	N	H	H	N	N	N	N	N	N	N	N	N
Postemergence																													
2,4-D amine	N	N	N	N	R	R	R	H	R	H	R	N	N	N	H	N	H	R	N	R	N	N	N	N	N	N	R*	N	N
2,4-D ester	N	N	N	N	R	R	R	H	R	H	R	N	R	N	H	N	H	R	R	R	N	N	N	N	N	R	R	N	N
2,4-DB	N	N	N	N	N	R	N	R	R	R	N	N	N	N	R	N	R	N	R	N	N	N	N	N	N	N	N	N	N
Clarity	N	N	N	N	H	H	H	H	H	H	H	R	N	H	H	H	H	R	H	H	N	N	N	N	N	R	R	R	N
Buctril	N	N	N	N	N	N	R	N	N	R	N	N	N	N	N	R	R	N	R	N	N	N	N	N	N	N	N	N	N
Weedmaster	N	N	N	N	H	H	H	H	H	H	H	R	R	H	H	R	H	H	H	H	N	N	R	N	R	N	R	N	N
Gramoxone	N	H	N	H	N	N	N	N	N	H	N	N	H	N	N	N	R	N	H	H	H	N	N	N	N	N	N	N	N
Karmex	R	R	N	R	N	N	N	N	N	N	N	N	N	N	N	N	N	R	N	N	N	N	N	N	N	N	N	N	N
Cimarron	N	N	N	N	R	R	H	R	H	H	N	N	H	N	H	H	N	N	H	H	N	H	H	H	H	N	R	N	N
glyphosate	R	R	R	R	R	R	R	N	R	R	N	N	H	R	R	R	R	N	R	N	H	H	N	N	R	N	R	R	R
Poast	R	R	N	R	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	R	N	N	N	N	N	N	N	N
Crossbow	N	N	N	N	H	H	H	H	H	H	H	R	N	R	H	R	H	R	R	R	N	N	N	N	R	N	R	N	N
Velpar	N	N	H	N	N	N	N	N	N	R	N	N	N	N	N	N	N	N	R	R	N	N	N	N	H	R	R	R	R
Grazon P+ D	N	N	N	N	H	H	H	H	H	H	H	R	R	H	H	H	R	R	R	R	N	N	R	R	R	H	R	R	R
Remedy	N	N	N	N	N	N	N	N	N	N	N	R	N	R	N	N	N	N	N	N	N	N	N	R	H	R	R	R	R

H = Highly recommended
R = Recommended
N = Not recommended

*Cut surface treatment.

Table 5. Haying, Grazing, and Slaughter Restrictions for Livestock

Haying, Grazing, and Slaughter Restrictions for Livestock							
Product	Dairy Animals						Slaughter
	Lactating		Nonlactating		Meat Animals		
	Grazing	Haying	Grazing	Haying	Grazing	Haying	
------(days)-----							
Buctril							
spring treatment	30	30	30	30	30	30	-
fall/winter treatment	60	60	60	60	60	60	-
Butyrac							
established alfalfa	30	30	30	30	30	30	-
seedling alfalfa, clover	60	60	60	60	60	60	-
Cimarron	0	0	0	0	0	0	-
Clarity							
1/2 qt or less/A	7	37	0	0	0	0	-
1/2-1 qt/A	21	51	0	0	0	0	-
Crossbow							
2 gal or less/A	14	NS ¹	0	7	0	7	3
2-4 gal/A	NS	NS	14 ²	14	14 ²	14	3
diuron	70	70	70	70	70	70	-
Gramoxone Max							
alfalfa	-	30	-	30	-	30	-
dormant bermudagrass	-	40	-	40	-	40	-
Grazon P+D	7	30	0	30	0	30	3
metribuzin	28	28	28	28	28	28	-
Poast	7	20	7	20	7	20	-
Remedy							
2 qt or less/A	14	NS	0	7	0	7	3
2-4 qt/A	NS	NS	14 ²	14	14 ²	14	3
4-6 qt/A	NS	NS	14 ²	NS	14 ²	NS	3
Glyphosate							
Renovation	56	56	56	56	5	56	-
Spot or wiper treatment	14	14	14	14	14	14	-
Velpar	37	37	37	37	37	37	-
Weedmaster	7	37	0	37	0	37	30
2,4-D amine ³	7	30	7	30	0	30	3
2,4-D ester ³	7	30	7	30	7	30	3

¹NS indicates next season.

²If the area treated is less than 25 percent of grazing area, there is no restriction for nonlactating or meat animals.

³Restrictions vary among manufactured products. Refer to particular product label for specific restrictions.

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