

PERENNIAL GRASS INSECT CONTROL
(Including bermudagrasses, bahiagrasses, fescues, and other perennial pasture grasses)

Will Hudson, Extension Entomologist and David Buntin, Research Entomologist

PEST	MATERIAL AND FORMULATION ¹	AMOUNT PER ACRE	REMARKS AND PRECAUTIONS
Bahiagrass borer, billbug larvae, white grubs, whitefringed beetle larvae			No effective insecticides labeled for control of these insects in pastures. If practical, rotate fields to crops where preplant or at-planting insecticides can be used to control these insects. <u>Exception:</u> Deep turning of infested pastures usually reduces bahiagrass borer populations to the point that bahiagrass or other grasses can be reseeded into the pasture.
Chinch bug	Mow or burn.		<p align="center">WHEN TO TREAT FOR INSECTS IN PERENNIAL-GRASS PASTURES</p> <p>FOLIAGE FEEDING CATERPILLARS (armyworm, fall armyworm, moccis grassworms, sod webworms, yellowstriped armyworm): Treat when larval populations of these insects (any one or any combination) exceed 3 larvae (1/2 in long or larger) per square foot.</p> <p>APHIDS: Treat if heavy infestations are causing leaf discoloration over large areas of the field.</p> <p>CHINCH BUGS: Treat if populations are causing grass leaves to wilt over large areas of the field.</p> <p>CUTWORMS, FLEA BEETLES, GRASSHOPPERS: Treat if heavy populations appear to be defoliating grass excessively.</p> <p>FIRE ANTS: Treat in pastures where heavy livestock birthing will occur. In hay pastures, treat when mounds are so numerous they interfere with haying operations.</p> <p>GREEN JUNE BEETLE LARVAE: Treat when populations average 1 larva per square yard.</p> <p>LEAFHOPPERS: Treat if heavy infestations are causing the grass to appear off-color or unthrifty.</p> <p>SPITTLEBUGS: Treat when 1 or more adult spittlebug is found per square foot.</p> <p>THRIPS: Treat if heavy infestations are causing discolorations and damage over large areas of the field.</p>
	Karate	1.28 to 1.92 ozs.	
	zeta-cypermethrin (Mustang Max)	2.24 to 4.0 ozs.	
Cutworms	Materials applied for armyworms will give helpful control.		
Armyworm, Caterpillars, Fall armyworm, Striped Grasshopper	carbaryl (Sevin) 80S 50WP	1¼ to 1⅞ lbs. 2-3 lbs.	<p align="center">PESTICIDE USE PRECAUTIONS</p> <p>Apply any of the pesticides listed in this table with aerial or ground equipment as label directs. Where a range of rates is given for a material, use the low rate on low-growth grass or small larvae and the high rate on dense grass growth or large larvae.</p> <p><u>carbaryl (Sevin, etc.):</u> Do not graze or cut for hay for 14 days after application.</p> <p><u>cypermethrin:</u> 0 day PHI for hay or forage; Do not apply more than 0.10 lb. per acre per season.</p> <p><u>diflubenzuron (Dimilin):</u> 0 day for grazing; 1 day PHI for hay; no more than 2 ozs. per cutting.</p> <p><u>methomyl:</u> Do not cut for hay within 3 days, or graze or feed treated crop within 7 days days of last application. Do not apply more than 0.9 lb ai/acre/crop. Do not make more than 4 applications per crop.</p> <p><u>methyl parathion:</u> Do not graze or cut for hay within 15 days of application.</p> <p><u>spinosad (Tracer):</u> Do not harvest hay or fodder for 3 days. Do not graze until spray has dried. Do not apply more than 6 ozs. per season.</p> <p>CAUTION: Check all labels of all formulations of carbaryl (Sevin), diazinon, malathion, methoxychlor, methyl parathion, parathion, methyl parathion. Labelling on these products varies and not all formulations of a material can be used on pasture grasses.</p>
	cyfluthrin (Baythroid XL)	1.6 to 1.9 ozs. (armyworms) 2.6 to 2.8 (grasshoppers)	
	Karate	1.28 to 1.92 ozs.	
	methoxyfenozide (Intrepid) 2F	4 to 8 ozs.	
	spinosad (Tracer)	1 to 2 ozs.	
	methomyl (Lannate) 2.4LV 90SP (Use methomyl on bermudagrass only.)	1 to 2 pts. ¼ to ½ lb.	
	Dimilin 2L	1-2 ozs.	
	zeta-cypermethrin (Mustang Max)	2.24 to 4.0 ozs.	
Fire ants	Hydramethylnon (Amdro)	1-1½ lb.	
	Methoprene (Extinguish)		
	spinosad (Justice)	mound treatment only	
	fenoxycarb (Award)	horse pastures only	

PERENNIAL GRASS INSECT CONTROL (continued)

PEST	MATERIAL AND FORMULATION ¹	AMOUNT PER ACRE	REMARKS AND PRECAUTIONS
Flea beetles	Carbaryl (Sevin) as applied for armyworm may give helpful control.		
	Karate	1.28 to 1.92 ozs.	
Grasshoppers	malathion 8EC	20 fl. ozs.	
	cyfluthrin (Baythroid XL)	1.6 to 1.9 ozs. (armyworms) 2.6 to 2.8 (grasshoppers)	
	Karate	1.28 to 1.92 ozs.	
	Sevin 4L Sevin 80S	1 qt. 1.5 lbs.	
	zeta-cypermethrin (Mustang Max)	2.24 to 4.0 ozs.	
Green June beetle larvae	carbaryl (Sevin) 80S 50WP	1 7/8 lbs. 3 lbs.	
Leafhoppers	Karate	1.28 to 1.92 ozs.	
	zeta-cypermethrin (Mustang Max)	2.24 to 4.0 ozs.	
Mole crickets	No economically effective materials currently labeled.		
Sod webworms	carbaryl (Sevin) 80S 50WP	1 1/4 lb. 2 lbs.	
	Dimilin 2L	1-2 ozs.	
	Karate	1.28 to 1.92 ozs.	
Spittlebug adults	carbaryl (Sevin) as applied for armyworm may give helpful control. (Control of immatures may require cut and burn approach.)		
	Karate	1.28 to 1.92 ozs.	
	zeta-cypermethrin (Mustang Max)	2.24 to 4.0 ozs.	
¹ Abbreviations used are: EC = emulsifiable concentrate, M = microencapsulated material, SP = soluble powder, L = liquid, S = sprayable powder, WP = wettable powder Numbers following liquid formulations indicate lbs. active ingredient per gallon; those following solids indicate percent active ingredient.			

WEED CONTROL IN GRASS PASTURES AND HAYFIELDS

(Including bermudagrass, bahiagrass, fescue, and other perennial pasture grasses)

Tim R. Murphy, Extension Agronomist-Weed Science

USE STAGE/ HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS												
	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT													
NEWLY SPRIGGED BERMUDAGRASS															
diuron (Direx 4L) (Diuron 4L) (Diuron 4L) (Diuron 80)	0.8 - 2.4 qts. 0.8 - 2.4 qts. 0.8 - 2.4 qts. 1.0 - 3.0 lbs.	0.8 - 2.4 lbs.	Preemergence applications of diuron provide fair to good control of crabgrass, crowfootgrass and goosegrass. Also provides residual control of certain annual broadleaf weeds. Diuron should be applied immediately after sprigging before weeds emerge. Bermuda sprigs should be planted 2 inches deep to lessen chance of injury. Emerged bermuda at the time of treatment may be temporarily injured. Do not graze or feed treated foliage for 70 days after diuron application. Diuron is not labeled in established forage bermudagrass.												
2,4-D (Esteron 99C) 4 lbs./gal. (2,4-D LV 4 Ester) (2,4-D LV 6 Ester)	1.0 - 2.0 qts. 1.0 - 2.0 qts. 1.3 - 3.0 pts.	1.0 - 2.0	Apply to emerged broadleaf weeds 3-4 inches tall. Provides poor preemergence control of crabgrass. Refer to specific herbicide label for use information.												
ESTABLISHED DORMANT BERMUDAGRASS															
paraquat (Firestorm) 3.0 lbs.gal. (Gramoxone Inteon) 2.0 lbs./gal.	0.7 - 1.3 pts. 1.0 - 2.0 pts.	0.25 - 0.5	Apply in 20 to 30 gallons of water in late winter or early spring (probably in February or March) before bermudagrass begins spring green-up. Add 1 pt. surfactant (non-ionic) per 100 gal. spray mix. Do not pasture or mow for hay until 40 days after treatment.												
glyphosate (Roundup WeatherMax) 5.5 lbs./gal.	11 fl. oz.	0.47	Apply in mid- to late-winter months to bermudagrass pastures and hayfields for the control of little barley, cheat, and to suppress Italian (annual) ryegrass. Apply before new growth appears in the spring. Bermudagrass that is not dormant at the time of application may show a slight (2 to 4 week) delay in green-up. Do not pasture or mow for hay for 60 days after application. A winter application prior to spring green-up and an application following the first cutting of hay may not be made on the field during the same year.												
ESTABLISHED FORAGE GRASSES															
2,4-D (various trade names) 4 lbs./gal.	1 qt.-2 qts.	1.0 - 2.0	Apply to weeds 2-4 inches tall. Use low rates for small weeds, high rates for larger weeds. Apply low volatile esters from October through March. Apply only non-volatile AMINE or ACID formulations from late March through September. Do not graze lactating dairy animals for 14 days after treatment, or cut for hay for all types of livestock for 30 days after treatment. (Grazing and haying restrictions may vary - refer to product label). If thistles are present, apply while they are in the rosette stage of growth.												
2,4-D (mixed amines) Hi-Dep (3.8 lbs./gal.)	1.0 - 2.0 qts.	0.95 to 1.9	Hi-Dep consists of dimethylamine and diethanolamine salts of 2,4-D formulated for low spray volume applications. DO NOT graze dairy cattle for 7 days after application. DO NOT cut for hay for 30 days after applications.												
dicamba (Banvel) 4 lbs./gal. (Clarity) 4 lbs./gal.	1-3 pts. 1-3 pts.	0.5 - 1.5 0.5 - 1.5	Controls a wide range of broadleaf weeds. There are no grazing restrictions for animals other than lactating dairy animals. Restrict grazing for lactating dairy animals as follows: <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Days Before Grazing</u></th> <th style="text-align: center;"><u>Days Before Hay Harvest</u></th> </tr> </thead> <tbody> <tr> <td>Up to 1 pint</td> <td style="text-align: center;">7</td> <td style="text-align: center;">37</td> </tr> <tr> <td>Up to 1 quart</td> <td style="text-align: center;">21</td> <td style="text-align: center;">51</td> </tr> <tr> <td>Up to 2 quarts</td> <td style="text-align: center;">40</td> <td style="text-align: center;">70</td> </tr> </tbody> </table> Remove meat animals from treated areas 30 days prior to slaughter. If thistles are present, apply while they are in the rosette stage of growth. This treatment will severely injure or kill clovers and alfalfa.		<u>Days Before Grazing</u>	<u>Days Before Hay Harvest</u>	Up to 1 pint	7	37	Up to 1 quart	21	51	Up to 2 quarts	40	70
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Up to 1 pint	7	37													
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WEED CONTROL IN GRASS PASTURES AND HAY FIELDS (continued)

USE STAGE/ HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
ESTABLISHED FORAGE GRASSES (continued)			
2,4-D + dicamba (Weedmaster) 2.87 lbs. + 1 lb./gal.	2.0 pts. to 4.0 pts.	0.72 + 0.25 to 1.44 + 0.5	For control of a broad spectrum of weeds, apply in late spring or early summer to annual or perennial broadleaf weeds before flowering. Do not graze lactating dairy animals within 7 days. There is no restriction between application and grazing for non-lactating animals. Do not cut for hay within 37 days after treatment. Do not graze meat animals in treated areas within 30 days of slaughter. If thistles are present, apply while they are in the rosette stage of growth. For horsenettle, use the high rate. Weedmaster and Outlaw will severely injure or kill clovers or alfalfa.
Outlaw 1.45 + 1.1 lbs./gal	2.0 pts. to 4.0 pts.	0.36 + 0.27 to 0.72 + 0.55	
2,4-D + picloram (Grazon P+D) (GunSlinger) 2 lbs. + 0.54 lb./gal.	2.0 pts. to 4.0 pts.	0.5 + 0.13 to 1.0 + 0.26	Controls annual and perennial broadleaf weeds. Use only in PERMANENT GRASS PASTURES AND HAYFIELDS. 2,4-D + picloram may also be applied at 4.0 pts./acre or less to permanent pastures that will be seeded with cool-season grasses (ryegrass, tall fescue). Delay planting for 21 days after application. Small grains should not be planted in treated areas for 60 days after application. For permanent pastures that have been over seeded with small grains or ryegrass, do not apply at rates in excess of 1.5 pts./acre and until over seeded ryegrass or small grains are well-established and at the tillering stage of growth. Clover seeding restrictions are as follows: fall-seeding is permitted if Grazon P+D at 2 pts./acre or less is applied no later than June (4 month plant back). Spring (Feb. – Mar.) seeding is permitted the following spring for Grazon P+D at 2 to 3 pts./acre if applied no later than Sept. 15 the previous year. The Gunslinger label indicates that legume establishment may not be successful if done within 12 months of application. 2,4-D + picloram may be used at 1.5 pts./acre after establishment of newly-sprigged bermudagrass once stolons have reached 6 inches in length. This herbicide is not recommended for use in rotational systems that utilize broadleaf crops or in temporary summer or winter grazing grass systems unless temporary grass is seeded into a permanent pasture. Do not graze lactating dairy animals on treated areas within 7 days after application. There are no grazing restrictions for non-lactating dairy animals, horses, sheep, goats and other types of livestock. Do not harvest grass cut for hay from treated areas for 30 days. Do not use hay from treated areas for composting or mulching of susceptible broadleaf crops. Withdraw meat animals from treated forage at least 3 days before slaughter. Do not transfer livestock from treated areas, or from 2,4-D + picloram treated hay feeding areas on to broadleaf crop areas without first allowing livestock to graze for 7 days on an untreated grass pasture. Do not store or feed 2,4-D + picloram treated hay on fields that will be planted to broadleaf crops. Do not use manure from livestock grazing on 2,4-D + picloram treated areas on gardens, broadleaf crops or orchards. 2,4-D + picloram will injure or kill legumes such as clovers and alfalfa. Restricted Use Herbicide.
picloram + fluroxypyr (Surmount) 1.2 + 0.96 lb./gal.	1.5 pts. to 6.0 pts.	0.22 + 0.18 to 0.9 + 0.72	Controls a wide range of herbaceous and woody broadleaf plants. Use 1.5 to 2.0 pts./acre for herbaceous broadleaf weeds. Use 3.0 to 6.0 pts./acre for woody brush and trees. Use only in PERMANENT GRASS PASTURES AND HAYFIELDS. This herbicide is not recommended for use in rotational systems that utilize broadleaf crops or in temporary summer or winter grazing grass systems unless temporary grass is seeded into a permanent pasture. Do not graze lactating dairy animals on treated areas within 14 days after application. There are no grazing restrictions for non-lactating dairy animals, horses, sheep, goats and other types of livestock. Do not harvest grass cut for hay from treated areas for 7 days. Do not use hay from treated areas for composting or mulching of susceptible broadleaf crops. Withdraw meat animals from treated forage at least 3 days before slaughter. Do not transfer livestock from treated areas, or from Surmount treated hay feeding areas on to broadleaf crop areas without first allowing livestock to graze for 7 days on an untreated grass pasture. Do not store or feed Surmount treated hay on fields that will be planted to broadleaf crops. Do not use manure from livestock grazing on Surmount treated areas on gardens, broadleaf crops or orchards. Surmount will injure or kill legumes such as clovers and alfalfa. New legume plantings may not be successful if seeded within one year of application. Restricted Use Herbicide.

WEED CONTROL IN GRASS PASTURES AND HAY FIELDS (continued)

USE STAGE/ HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
ESTABLISHED FORAGE GRASSES (continued)			
triclopyr + fluroxypyr (PastureGard) 1.5 + 0.5 lbs./gal.	1.5 to 8.0 pts.	0.3 + 0.1 to 1.5 + 0.5	Controls a wide range of herbaceous and woody broadleaf plants. Use 1.5 to 3.0 pts./acre for herbaceous broadleaf weeds. Use 2.0 to 8.0 pts./acre for woody brush and trees. Do not graze lactating dairy animals on treated areas during the same growing season following application. There are no grazing restrictions for non-lactating dairy animals, horses, sheep, goats and other types of livestock. Do not harvest grass cut for hay from treated areas for 14 days. Withdraw meat animals from treated forage at least 3 days before slaughter. Legumes may be planted 30 days after application. Do not reseed forage grasses for 21 days after application.
aminopyralid (Milestone) 2.0 lbs./gal.	4.0 to 7.0 fl. ozs.	0.06 to 0.11	Apply to permanent grass pastures and hayfields. Controls numerous annual and perennial broadleaf weeds - particularly effective for the control of horsenettle and tropical soda apple. There are no grazing or haying restrictions for Milestone for any type of livestock. Do not transfer livestock from treated pastures, or from Milestone treated hay feeding areas on to broadleaf crop areas without first allowing livestock to graze for 3 days on an untreated grass pasture. Do not store or feed Milestone treated hay on fields that will be planted to broadleaf crops. Do not use manure from livestock grazing on Milestone treated areas on gardens, broadleaf crops or orchards. Milestone will injure or kill legumes such as clovers and alfalfa. Do not plant legumes or broadleaf crops until a field bioassay has shown that the aminopyralid concentration in the soil is not at a level that will injure broadleaf crops (see label for instructions on conducting field bioassay).
aminopyralid + 2,4-D (ForeFront) 0.33 + 2.67 lbs./gal.	1.5 to 2.6 pts.	0.06 + 0.5 to 0.11 + 0.9	Apply to permanent grass pastures and hayfields. Controls numerous annual and perennial broadleaf weeds - particularly effective for the control of horsenettle and tropical soda apple. Controls a wider spectrum of weed species than Milestone. There are no grazing restrictions for ForeFront for any type of livestock. Do not harvest for hay within 7 days of application (all types of livestock). Do not transfer livestock from treated pastures, or from ForeFront treated hay feeding areas on to broadleaf crop areas without first allowing livestock to graze for 3 days on an untreated grass pasture. Do not store or feed ForeFront treated hay on fields that will be planted to broadleaf crops. Do not use manure from livestock grazing on ForeFront treated areas on gardens, broadleaf crops or orchards. ForeFront will injure or kill legumes such as clovers and alfalfa. Do not plant legumes or broadleaf crops until a field bioassay has shown that the aminopyralid concentration in the soil is not at a level that will injure broadleaf crops (see label for instructions on conducting field bioassay).
2,4-D + triclopyr (Crossbow) 2 lbs. + 1 lb./gal.	1 to 6 qts.		Apply to established grass pastures for control of broadleaf weeds and woody plants. Woody plant control requires 6 qts./A. or higher rate. Desirable forage broadleaf plants such as clover or alfalfa may be killed if sprayed. Grazing and haying restrictions: Grazing or harvesting of green forage: (1) Lactating dairy animals - Two gallons/acre or less; Do not graze or harvest green forage from treated area for 14 days after treatment. Greater than 2 gallons to 4 gallons/acre: Do not graze or harvest green forage until next growing season. (2) Other livestock - Two gallons/acre or less: No grazing restrictions. Greater than 2 gallons to 4 gallons/acre: Do not graze or harvest green forage from treated areas for 14 days after treatment. Note: If less than 25% of a grazed area is treated, there is no grazing restriction. Haying (harvesting of dried forage): (1) Lactating dairy animals: Do not harvest hay until next growing season. (2) Other livestock: Two gallons/acre or less: Do not harvest hay for 7 days after treatment. Greater than 2 gallons to 4 gallons/acre: Do not harvest hay for 14 days after treatment.

WEED CONTROL IN GRASS PASTURES AND HAY FIELDS (continued)

USE STAGE/ HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
ESTABLISHED FORAGE GRASSES (continued)			
triclopyr + clopyralid (Redeem) 2.25 lbs. + 0.75 lb./gal.	1.5 to 4.0 pts.	0.38 to 1.12 + 0.14 to 0.38	Apply for control of broadleaf weeds. Use 2.5 to 4.0 pts./acre to control dogfennel, spiny amaranth and horsenettle. Desirable forage broadleaf plants such as clover or alfalfa may be killed if sprayed. Do not apply to newly-seeded or sprigged grasses until they are well established as evidenced by tillering, development of a secondary root system and vigorous growth. Grazing and haying restrictions: Grazing or harvesting of green forage: (1) Lactating dairy animals - Do not graze or harvest green forage from treated area for 14 days after treatment. (2) Other livestock - No grazing restrictions. Haying (harvesting of dried forage): (1) Lactating dairy animals: Do not harvest hay until next growing season. (2) Other livestock: Do not harvest hay for 7 days after treatment.
imazapic (Impose) (Panoramic) 2.0 lbs./gal.	4.0 - 8.0 fl. ozs.	0.063 - 0.125	Apply to established bermudagrass. Do not apply to other forage grass species. Provides postemergence control of crabgrass, sandbur, broadleaf signalgrass, johnsongrass, vaseygrass, nutsedge and certain other weeds. This herbicide does not control pricklypear cactus, dallisgrass and goosegrass. Apply in late spring to mid-summer time frame after bermudagrass has reached 100% green-up growth stage. Do not apply during spring transition or to dormant bermudagrass. Imazapic is not recommended on newly-sprigged or seedling bermudagrass during the grow-in period. Research has shown that imazapic will moderately injure (yellowing of bermudagrass foliage), and suppress bermudagrass growth for approximately 20 to 40 days after application. Additionally, bermudagrass hay yields may be reduced 30 to 50% at the first hay harvest (usually 30 days) following application. Imazapic should not be applied unless a bermudagrass yield reduction is acceptable. No bermudagrass hay yield reduction has been observed at the 2 nd , 3 rd and 4 th hay harvest following an application at 4.0 fl. ozs./acre. Add a nonionic surfactant (preferred) at 0.25% v/v or methylated seed oil at 1.5 to 2.0 pts./acre to the spray mix. The use of 2 to 3 pts./acre of 28% N, 32% N, 10-34-0 or ammonium sulfate in combination with the recommended rate of surfactant may increase control. Liquid fertilizer may be used as the sole spray carrier for imazapic, but control may be reduced. Do not add a surfactant or methylated seed oil if liquid fertilizer is used as the sole spray carrier. Annual ryegrass may be seeded 60 days after application. There is no grazing restriction for imazapic any type of livestock. Do not cut for hay for 7 days after application.
sulfosulfuron (OutRider) 75DF	1.33 ozs.	0.062	Recommended for the control of emerged johnsongrass and sedge species in bermudagrass and bahiagrass forage systems. DO NOT use OutRider on other forage grass species such as tall fescue. OutRider does not control annual grasses such as crabgrass and sandbur, or perennial grasses such as dallisgrass and vaseygrass. Apply to johnsongrass a minimum of 18 in. tall up to the heading stage. Apply to sedges 6 to 10 inches tall. Add a nonionic surfactant at 0.25% v/v. OutRider may be tank-mixed with other pasture herbicides; however amine formulations may reduce johnsongrass control. Grazing may occur immediately before or after application; however, control may be reduced by grazing of johnsongrass foliage. For best results, do not graze or mow for two weeks before or after application.
hexazinone (Velpar) 75DF (Velpar) 2L	0.9 - 1.5 lbs. 2.75 - 4.5 pts.	0.67 - 1.12 0.67 - 1.12	Controls smutgrass in established bermudagrass and bahiagrass pastures and hayfields. Use low rate on coarse sandy soils, and high rate on fine-textured soils. Not recommended for use on tall fescue. Make only one application per year with ground equipment at a minimum spray volume of 25 gpa. Make application in April to late July time frame, when soil moisture is good, humidity is high, and when air temperatures are above 80° F. Best results occur when one-half inch of rain fall occurs within two weeks of application. Hexazinone will moderately to severely injure bermudagrass and may eliminate the first cutting of hay. Bahiagrass and bermudagrass will recover from temporary burn and yellowing within two to four weeks of application. Use only on bermudagrass and bahiagrass that has been established one year or more. DO NOT apply hexazinone near oak trees. DO NOT graze or feed treated forage or hay within 60 days after application.

WEED CONTROL IN GRASS PASTURES AND HAY FIELDS (continued)

USE STAGE/ HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
ESTABLISHED FORAGE GRASSES (continued)			
triclopyr (Remedy) 4 lbs./gal.	1.0 - 2.0 pts.	0.5 - 1.0	Apply to established grass pastures for control of broadleaf weeds and brush. Triclopyr may be tank-mixed with 2,4-D for broader spectrum weed control and control of sensitive woody species. Desirable forage broadleaf plants such as clover or alfalfa may be killed if sprayed. Applications at air temperatures > 85 F. may cause moderate to severe bermudagrass injury for two to three weeks. Grazing restrictions: Grazing or harvesting green forage: (1) Lactating dairy animals: Two quarts/acre or less; do not graze or harvest green forage from treated area for 14 days after treatment. (2) Other livestock: Two quarts/acre or less; no grazing restrictions. Haying restriction: (1) Lactating dairy animals: Do not harvest hay until the next growing season. (2) Other livestock: Two quarts/acre or less; Do not harvest hay for 7 days after treatment. Slaughter Restrictions: Withdraw livestock from grazing treated grass or consumption of treated hay at least 3 days before slaughter.
glyphosate (Roundup WeatherMax) 5.5 lbs./gal.	11 fl. oz.	0.47	Apply after the first bermudagrass cutting when bermudagrass has not yet initiated regrowth. Controls crabgrass, field sandbur, seedling johnsongrass and most annual grasses. Applications made after regrowth has begun will damage bermudagrass. DO NOT graze or cut for hay for 28 days after application. Make only one application per year. DO NOT make an application after the first cutting if the field has previously received a glyphosate application during the winter months.
diflufenzopyr + dicamba (Overdrive) 76.4% DF 0.2 lbs. + 0.5 lbs./gal.	4.0 ozs. to 8.0 ozs.	0.05 + 0.125 to 0.1 + 0.25	Controls annual and perennial broadleaf weeds. Add a nonionic surfactant at 0.25% v/v or methylated seed oil at 2.0 pts./acre to the spray mix. Diflufenzopyr has been shown to improve the activity of "auxin-like" herbicides such as triclopyr, clopyralid and picloram. May be tank-mixed with Grazon P+D, Remedy, Redeem, 2,4-D and Cimarron to increase spectrum of weed species controlled. Overdrive is rainfast within 4 hours after application. DO NOT plant any rotational crop within 30 days of an Overdrive application. There are no grazing or haying restrictions for Overdrive for any type of livestock.
metsulfuron (MSM E-Pro) 60DF (Patriot) 60DF	0.1 - 1.0 oz.	0.004 - 0.04	Apply to established bermudagrass for the control of 'Pensacola' bahiagrass and certain broadleaf weeds. Bermudagrass should be established for 60 days and tall fescue for two years prior to use. <u>Apply 1 pt.-1 qt. nonionic surfactant per 100 gal. of spray mix.</u> On tall fescue, applications in the early spring may suppress seedhead production and reduce hay yield. To minimize injury to tall fescue; a) tank-mix 2,4-D with metsulfuron, b) use the lowest recommended rate for the target weeds, c) use a 1/16 to 1/8% v/v surfactant concentration, d) make applications in the late spring or fall months, e) do not exceed 0.2 oz. product/acre and f) do not add a surfactant when applied with liquid N. Metsulfuron tank-mixes with liquid fertilizer are not recommended for 'Pensacola' bahiagrass control. Not effective for the control of 'Common' and 'Argentine' bahiagrass. Spot treatments of metsulfuron at 1.0 oz. product per 100 gal. of water may be used for the control of multiflora rose and blackberry. Pasture legumes will be severely injured or killed by metsulfuron. There is no grazing or haying restriction for metsulfuron. Metsulfuron may be tank-mixed with Grazon P+D, Banvel, 2,4-D, Weedmaster, Milestone, ForeFront and Remedy or purchased as a co-pack product with 2,4-D + dicamba.

WEED CONTROL IN GRASS PASTURES AND HAY FIELDS (continued)

USE STAGE/ HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
ESTABLISHED FORAGE GRASSES (continued)			
metsulfuron (48%) + chlorsulfuron (15%) (Cimarron Plus) 63 DF	0.125 - 1.25 ozs.	0.004 - 0.04 + 0.001 - 0.01	Apply to established bermudagrass for the control of 'Pensacola' bahiagrass and certain broadleaf weeds. Bermudagrass should be established for 60 days and tall fescue for two years prior to use. <u>Apply 1 pt.-1 qt. nonionic surfactant per 100 gal. of spray mix.</u> On tall fescue, applications in the early spring may suppress seedhead production and reduce hay yield. To minimize injury to tall fescue; a) do not use more than 0.5 oz. product/acre, b) use the lowest recommended rate for the target weeds, c) use a 1/16 to 1/8% v/v surfactant concentration, d) make applications in the late spring or fall months, e) do not exceed 0.3 oz. product/acre and f) do not add a surfactant when applied with liquid N. Cimarron Plus tank-mixes with liquid fertilizer are not recommended for 'Pensacola' bahiagrass control. Not effective for the control of 'Common' and 'Argentine' bahiagrass. Pasture legumes will be severely injured or killed by Cimarron Plus. There is no grazing or haying restriction for Cimarron Plus. Cimarron Plus may be tank-mixed with Grazon P+D, Banvel, 2,4-D, Weedmaster and Remedy.
metsulfuron (60 DF) + 2,4-D + dicamba 2.9 + 1.0 lbs./gal (Cimarron Max)	0.25 oz. + 1.0 pt.	0.009 + 0.4 + 0.125.	Cimarron Max is a 2 part (co-pack) product used for annual and perennial broadleaf weed control in bermudagrass pastures. Also controls 'Pensacola' bahiagrass. Bermudagrass should be established for 60 days and tall fescue for two years prior to use. <u>Apply 1 pt.-1 qt. nonionic surfactant per 100 gal. of spray mix.</u> On tall fescue only, applications in the early spring may suppress seedhead production and reduce hay yield. To minimize injury to tall fescue; a) use the lowest recommended rate for the target weeds, b) use a 1/16 to 1/8% v/v surfactant concentration, c) make applications in the late spring or fall months, and d) do not add a surfactant when applied with liquid N. Cimarron Max tank-mixes with liquid fertilizer are not recommended for 'Pensacola' bahiagrass control. Not effective for the control of 'Common' and 'Argentine' bahiagrass. Pasture legumes will be severely injured or killed by Cimarron Max. There is no grazing restriction for non-lactating animals for Cimarron Max. The grazing restriction for lactating dairy animals is 7 days. Do not harvest for hay for 37 days after treatment. Remove meat animals from treated areas 30 days prior to slaughter.
POSTEMERGENCE - Spot or Wiper Applications			
glyphosate (Roundup WeatherMax) 5.5 lbs./gal. (Roundup Original) 4.0 lbs./gal.	Rate varies with species and application	Rate varies with species and application	Glyphosate may be applied in wiper applicators to weeds emerged above the forage grass, or applied as a spot treatment to no more than one-tenth of any acre at one time. Further applications may be made in the same area at 30-day intervals. <u>Forage grasses, alfalfa, or clover coming in contact with the glyphosate will be injured or killed.</u> Remove domestic livestock before application and <u>wait 7 days</u> after application before grazing livestock or harvesting.
tebuthiuron (Spike 20P) 20% pellet	See label		Spike 20P pellets may be applied as a spot treatment in perennial summer grass pastures for control of individual trees or scattered stands of brush. Apply 0.75 ounce per 100 square feet of soil surface over the root systems of clumps of brush. Apply in early spring. Stands of cool season grasses such as fescue may be reduced by Spike application. Applications to or near pine trees will cause injury or death of the tree. Do not cut for hay for one year after application. Grazing is allowed after application if 20 pounds per acre or less is used.
MIXTURES - Grass-Lespedeza, Grass-Clover			
2,4-D amine (4 lbs./gal.)	0.5 - 1 pt.	0.25 - 0.5	Apply only one treatment per year to perennial clovers. 2,4-D amine will cause slight to moderate injury to legumes. Refer to specific herbicide label for use information.

WEED CONTROL IN GRASS PASTURES AND HAY FIELDS (continued)

USE STAGE/ HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
CONVERSION TO FUNGUS-FREE FESCUE			
paraquat (Firestorm) 3.0 lbs./gal.	0.7 - 1.3 pts.	0.25 - 0.5	Apply paraquat in the fall to actively-growing, endophyte-infected fescue 2 to 3 weeks prior to planting endophyte-free fescue. Apply paraquat again at planting. Apply in 20 to 40 gal. of water per acre. Always add surfactant when using paraquat. DO NOT graze the new planting for 60 days or until the new growth is 6 inches tall.
(Gramoxone Inteon) 2.0 lbs./gal.	1.0 - 2.0 pts.		
glyphosate (RoundupWeatherMax) 5.5 lbs./gal.	See remarks	See remarks	Apply Roundup Ultra in the fall at 22 fl. ozs./A to endophyte-infected fescue 3-4 weeks prior to planting endophyte-free fescue. Tall fescue should have 6 or 12 inches of new growth before the first application. Apply again at planting at 11 fl. ozs./A. This treatment provides some suppression of common bermudagrass also. Wait 8 weeks after application before grazing or harvesting.

PERENNIAL PEANUT WEED CONTROL

Tim R. Murphy, Extension Agronomist-Weed Science

USE STAGE/ AND HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
POSTEMERGENCE			
2,4-D amine Weed Killer (EPA Reg. No. 1386-43-72693)	1.0 pt.	0.5	For control of many annual broadleaf species such as Mexican tea (Jerusalem oak), pigweeds, cutleaf eveningprimrose, etc. Can be applied any time during the season as long as the 30 day restriction on hay cutting is observed. May lead to slight yield decrease in "Florigraze", but "Arbrook" is more tolerant. Mixing 8 fl. oz of 2,4-D amine Weed Killer with 4 fl. oz. of Impose has been found to be an effective combination. 2,4-D amine Weed Killer (Universal Crop Production Alliance, LLC) is the product that has been officially approved for use. Use this particular product rather than other non-approved 2,4-D herbicides.
imazapic (Impose) 2.0 lbs./gal	4.0 fl. ozs.	0.063	Impose is effective on crabgrass, nutsedges, johnsongrass, and numerous broadleaf weeds. Add a surfactant at 0.25% v/v to the spray mix. There are no grazing restrictions for this herbicide. DO NOT cut for hay for 7 days after application. Other herbicides with the same active ingredient such as "Cadre" can not be legally applied to perennial peanuts.
clethodim (Select Max) 0.97 lbs./gal. (Intensity One) 0.97 lbs./gal.	9.0 to 32.0 fl. ozs.	0.07 to 0.24	Clethodim will provide excellent control of annual and perennial grasses, but will not control broadleaf weeds or sedges. Clethodim may be applied up to 32 fl. oz/A in a single treatment, but should not exceed a total of 64 fl. oz/A/year. Use the low rate on annual grasses, and the high rate on perennial grasses (see label). This product requires the addition of a surfactant at 0.25% v/v or crop oil concentrate at 1.0% v/v. DO NOT cut for hay or graze for 40 days after application..

NOTE: The Georgia Department of Agriculture has ruled that the above herbicides may be legally applied to perennial peanuts. This crop is classified as a forage. Additionally, the site of application is classified as a pasture or hay field. DO NOT apply 2,4-D amine to peanuts being grown for seed or nuts. Perennial peanuts are not listed on either the 2,4-D amine or Impose label. Users are advised that in the event of poor weed control, adverse crop injury, or any other issues that might arise, the manufacturers of Impose and 2,4-D amine may not warrant the application. Thus, while an application of these herbicide is legal, the end user assumes all responsibility with issues associated with an application. The University of Florida has conducted numerous experiments with these herbicides; however, there has been only limited testing of 2,4-D amine at 0.5 lbs. ai/acre on perennial peanut in Georgia. End users are advised to evaluate the use of 2,4-D amine on a limited basis, and then make a decision if spraying an entire field is advisable.

