

Weed Management in Alfalfa¹

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Table 1. Weed Management in Alfalfa.

Herbicide Active Ingredient (Trade/Product Names)	Mode of Action Group (MoA)	Application rate per Acre (Total rate per season or year)	Reentry Interval (REI)	Specific Comments/Remarks
Preplant Incorporated (PPI)				
benefin (Balan DF)	15	1.5 lb (1.5 lb)	12 hours	Research has shown significant injury as stand reduction from Balan. Injury would be expected to be less when used on fall than on spring planted alfalfa. The yield of the first cutting may be reduced when treated with Balan.
EPTC (Eptam 7E)	8	2.25 to 4.5 pt (4.5 pt)	12 hours	Incorporate 2–3 inches deep before planting for grass control. EPTC may provide better broad spectrum weed control. Some epinastic injury to alfalfa usually occurs from EPTC, however, injury is normally temporary. Do not use if grain or grass crop is to be planted with alfalfa. Do not use if atrazine was applied within the previous 12 months.
Preemergence—Seedling Alfalfa (First Season)				
pendimethalin (Prowl H ₂ O)	3	to 2.1 pt (2.1 pt)	24 hours	Can be applied after seedling alfalfa has reached 2 nd trifoliate growth stage, but prior to alfalfa reaches 6-inches in growth. Applications made after 6-inch heights may result in poor weed control because of reduced spray coverage to the soil.
norflurazon (Solicam DF)	12	1.25 lb (2.5 lb)	12 hours	Apply to seedling alfalfa after it has been actively growing for 3 months or more. DO NOT apply Solicam within 28 days of harvest. Use the low rate on sandy soils. Do not apply to alfalfa planted with small grains or grasses, severe injury will occur to non-alfalfa crops.
Postemergence—Seedling Alfalfa (First Season)				
2,4-DB (2,4-DB 200, etc.)	4	1 to 3 qt (3 qt)	48 hours	Apply in fall or spring after alfalfa has two to four trifoliate leaves. Controls emerged annual broadleaf weeds less than 3 inches tall. Do not graze or cut for hay for 60 days after application. Rainfall or irrigation within 7 to 10 days after treatment may cause injury. DO NOT add wetting agents or surfactants to the spray solution. Be sure to read the label prior to purchase as not all 2,4-DB products are labeled for use in Alfalfa.

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Herbicide Active Ingredient (Trade/Product Names)	Mode of Action Group (MoA)	Application rate per Acre (Total rate per season or year)	Reentry Interval (REI)	Specific Comments/Remarks
bromoxynil (Maestro 4EC)	6	0.5 to 0.75 pt (1 pt/A)	24 hours	Apply to seedling alfalfa that has a minimum of four trifoliate leaves. Spray winter annual broadleaf weeds that do not exceed the 4-leaf stage or 2 inches in height, or have rosettes greater than 1.5 inches in diameter. DO NOT apply when temperatures exceed 70°F or unacceptable crop injury may occur. DO NOT add a surfactant or crop oil. DO NOT cut for feed or graze spring treated alfalfa for 30 days after application. DO NOT cut for feed or graze fall or winter treated alfalfa for 60 days after application. Tank mixing with 2,4-DB can result severe leaf burn in warm, humid weather conditions.
glyphosate (Various products) 3 lb formulation Or 4.5 lb formulation	9	32 to 64 fl oz Or 22 to 44 fl oz	4 hours	Apply only on the RoundUp Ready Alfalfa varieties. Can be applied on alfalfa seedling from emergence up to 5 days before cutting.
imazethapyr (Pursuit)	2	3 to 6 fl oz (6 fl oz)	4 hours	Apply to seedling alfalfa with a minimum of two trifoliate leaves and when weeds are 1 to 3 inches tall or before rosette forming weeds exceed 3 inches in diameter. Pursuit requires a 1-hour rain free period. Pursuit may cause a temporary reduction in height or slight leaf yellowing. DO NOT feed, graze, or harvest alfalfa for 30 days after application. Add a nonionic surfactant at 0.25% v/v or a crop oil concentrate at 1.5 to 2.0 pts/A to the spray solution. If replanting is necessary in a field treated with Pursuit, do not plant alfalfa for 4 months following the application of Pursuit.
imazamox (Raptor)	2	4 to 6 fl oz (6 fl oz)	4 hours	Apply after the 2nd trifoliate stage, or larger, when weeds are 3" in height or less. For prostrate growing weeds such as mustards apply when weeds are less than 3 inches in diameter. There may be temporary reduction in growth, but alfalfa will quickly recover. Add a nonionic surfactant at 0.25% v/v or a crop oil concentrate at 1% v/v to the spray solution. Do not make more than one application for year. DO NOT harvest alfalfa hay for 20 days, or graze for 70 days, after application. A maximum total of 6 fl. oz./A of Raptor may be applied per year.
Pronamide (Kerb 50 SC)	3	1.25 to 5 pt	24 hours	Spray preemergence or early postemergence for control of winter annual weeds after the alfalfa has reached the trifoliate leaf stage. Do not graze or cut for hay for 120 days after treatment.
sethoxydim (Poast - 1.5 lb gal)	1	1 to 1.5 pt	12 hours	Apply 1 pt. of Poast with 2 pts. of crop oil concentrate/A for control of annual grasses up to 8 inches tall (varies with species). Use 2 ½ pts./A of Poast if rhizome johnsongrass is to be controlled, followed by a second application to regrowth or new plants. Do not apply to grass or alfalfa under stress. Apply before the grass has been cut. Do not apply Poast within 7 days of feeding, grazing or harvesting undried forage, or within 14 days of cutting for dry hay.
clethodim (Select Max) or (Select 2EC, Arrow, others)	1	9 to 32 fl oz or 10 to 16 fl oz	12 hours	Apply with a crop oil concentrate at 1% v/v for the control of most annual grasses up to 6 to 8 inches tall. Select Max can be applied with either crop oil or non-ionic surfactant. Also, has good activity on johnsongrass and suppresses common bermudagrass. Consider adding AMS for difficult to control grasses. DO NOT apply within 15 days of grazing, feeding, or harvesting alfalfa for forage or hay. May be tank-mixed with 2,4-DB; however, the risk of temporary injury to alfalfa will increase.
Postemergence—1st year planting (Between Cuttings)				
imazamox (Raptor)	2	4 to 6 fl oz	4 hours	Apply when weeds are 3" in height or less. See above for additional surfactant and grazing information.

Herbicide Active Ingredient (Trade/Product Names)	Mode of Action Group (MoA)	Application rate per Acre (Total rate per season or year)	Reentry Interval (REI)	Specific Comments/Remarks
paraquat (Gramoxone SL)	22	1 pt	12 hours	Apply to small emerged annual grass and broadleaf weeds in first year alfalfa immediately after removing hay between cuttings. Do not treat more than 5 days after cutting. Add a nonionic surfactant at 1 pt./100 gals. of water. Do not make more than two applications during the growing season. Apply in 20–40 gals. of water/A. Weeds much beyond the seedling stage and stubble of those cut off during harvest will be less affected by the treatment. Do not graze, cut or harvest within 30 days of application.
Postemergence—Established Dormant Alfalfa (greater than 1 year old)				
carfentrazone (Aim)	14	0.5 to 2.5 fl oz (2.5 fl oz)	12 hours	Applied on dormant crop stubble alone or in combination with other registered herbicides for post emergence control of weeds. Use a nonionic surfactant at 0.25% v/v or crop oil concentrate at 0.5 to 1.0% v/v; the addition of liquid nitrogen at 2 to 4% v/v or 2 to 4 lb/acre ammonium sulfate is allowed. Do not apply more than 2.5 fl oz per acre per season. Do not apply within 21 days of harvest for stands grown for forage and hay.
metribuzin (Glory 4L, others)	5	12 fl oz	12 hours	See product label for rates, weeds controlled and precautions related to soil textures. Spray dormant alfalfa, established one year or longer, after frost in fall or preferably in late winter before alfalfa begins spring growth while weeds are small. Provides preemergence and early postemergence weed control when surfactant is added. Do not use these treatments on alfalfa-grass mixtures. Do not use metribuzin or Velpar on sands. The higher rate of Velpar may cause crop damage. Do not graze or cut for hay within 28 days after metribuzin treatment. Do not graze or cut for hay within 30 days after Velpar treatment. Do not tank-mix any of these herbicides.
hexazinone (Velpar L)	5	2 to 3 pt/A	48 hours	Make a single application after alfalfa is dormant and prior to 2 inches of new growth in the spring. If weeds have already emerged, using surfactants provides better control. Where weeds have emerged, use a surfactant. Do not apply more than 6 pt/A per year. Do not apply more than if soil type is sandy loam or loamy sand soils with 1% or less organic matter. Do not apply more than 2 pt/A if soil type is sandy loam or loamy sand soils with 1–2% organic matter.
pronamide (Kerb 50 SC)	3	1.25 to 5 pt	24 hours	Apply in January at lower rate for most annual winter grasses, except higher rate for annual ryegrass or orchardgrass. Do not graze or cut for hay for 120 days after treatment. Provides preemergence and early postemergence control. Do not tank mix with other herbicides.
imazamox (Raptor)	2	4 to 6 fl oz	4 hours	Apply when weeds are 3" in height or less. See above for additional surfactant and grazing information.
saflufenacil (Sharpen)	14	1 to 2 fl oz	12 hours	Use in dormant season only. Must be applied 28 days prior to harvest. Use methylated seed oil at 1% v/v plus 1 to 2% w/v (8.5 to 17 lbs/100 gallons) AMS or UAN at 1.25 to 2.5% v/v. Do not apply more than 2 fl oz/acre during the dormant season. Do not harvest for 28 days after application.

Herbicide Active Ingredient (Trade/Product Names)	Mode of Action Group (MoA)	Application rate per Acre (Total rate per season or year)	Reentry Interval (REI)	Specific Comments/Remarks
paraquat (Gramoxone SL)	22	1 to 2 pt/A	12 hours	Apply during the winter months when established alfalfa is dormant. DO NOT apply dormant treatments to seedling alfalfa less than 6 months old. Controls Italian ryegrass (less than 6 in. tall), chickweed and most other winter annual weeds. Green alfalfa foliage present at time of application will become necrotic (brown). DO NOT apply after the initiation of new spring growth. Add a nonionic surfactant at 1.0 pt./100 gals. of spray solution. DO NOT graze or harvest within 60 days of application. Make only one application per season.
Preemergence—Established Alfalfa				
flumioxazin (Chateau SW)	14	2 to 4 oz/A	12 hours	Apply 2 to 4 oz per acre after cutting and before alfalfa regrowth reaches 6 inches to limit injury to alfalfa. Activating rainfall is necessary for residual control. Do not apply more than 4 oz per acre during a single application nor 8 oz per acre in a single growing season. If tank-mixing to control emerged weeds only use an adjuvant or herbicide formulated as an emulsifiable concentrate; crop burn and or stunting should be expected and accepted if Chateau is used with an adjuvant, a tank mix partner formulated as an emulsifiable concentrate, or a tank mix partner formulated with an adjuvant. Do not apply within 25 days of harvest or grazing.
pendimethalin (Prowl H ₂ O)	3	to 4.2 qt (4.2 qt)	24 hours	Apply to seedling alfalfa at 1.2 to 2.1 pt/A only after second trifoliate growth stage. Apply to established alfalfa after 1 st cutting in a single or sequential application at a rate of 1.1 to 4.2 quarts per acre prior to weed germination. Applications before alfalfa reaches 6 inches will result in best residual control. Do not harvest forage and hay for 14 days and do not harvest seed for 90 days after application.
norflurazon (Solicam DF)	12	1.25 to 2.5 lb	12 hours	Apply to established alfalfa in spring or early fall for the control of annual grasses and annual broadleaf weeds such as tropic croton and prickly sida. May be applied to dormant and actively-growing alfalfa. Apply to actively-growing alfalfa following hay removal to ensure spray penetration to the soil surface. DO NOT apply to seedling alfalfa earlier than 5 months after emergence. DO NOT apply Solicam within 28 days of harvest. Use the low rate on sandy soils. Zorial Rapid 80 may be tank-mixed with Gramoxone Extra, Poast, Kerb, Sencor, Lexone and 2,4-DB. For 16 months following application rotate only to cotton, soybeans or peanuts. Do not apply more than 2.5 lb/A per year.
Postemergence—Established Alfalfa				
2,4-DB (Butyrac, etc.)	4	2 to 3 qt	48 hours	Spray established dormant or non-dormant alfalfa in late fall through spring for control of emerged weeds that emerge in the fall and over winter in the rosette stage. Do not graze or cut for hay within 30 days after treatment. Overhead irrigation or rainfall within a few days after use may wash chemical into the root zone possibly causing some twisting of stems and malformation of leaves. Do not add wetting agents or surfactants to the spray mix.
carfentrazone (Aim)	14	0.5 to 2.5 fl oz	12 hours	May be applied at 0.5 to 2.5 fl oz on dormant crop stubble alone or in combination with other registered herbicides for post emergence control of weeds. Use a non-ionic surfactant at 0.25% v/v or crop oil concentrate at 0.5 to 1.0% v/v; the addition of liquid nitrogen at 2 to 4% v/v or 2 to 4 lb/acre ammonium sulfate is allowed. Do not apply more than 2.5 fl oz per acre per season. Do not apply within 21 days of harvest for stands grown for forage and hay.

Herbicide Active Ingredient (Trade/Product Names)	Mode of Action Group (MoA)	Application rate per Acre (Total rate per season or year)	Reentry Interval (REI)	Specific Comments/Remarks
imazethapyr (Pursuit)	2	3 to 6 fl oz	4 hours	Apply to established alfalfa in the fall, or in the spring to dormant or semi-dormant alfalfa. Spring treatments should be made before excessive alfalfa growth (less than 3 inches of new growth) to reduce spray interference. Apply when weeds are 1 to 3 inches tall or before rosette forming weeds exceed 3 inches in diameter. DO NOT feed, graze, or harvest alfalfa for 30 days after application. A maximum total of 6 fl oz/A of Pursuit may be applied per year. Add a nonionic surfactant at 0.25% v/v or a crop oil concentrate at 1.5 to 2.0 pts/A to the spray solution. If replanting is necessary in a field treated with Pursuit, do not plant alfalfa for 4 months following the application of Pursuit. Do not apply more than 4 fl oz during the last year of the stand.
imazamox (Raptor)	2	4 to 6 fl oz	4 hours	Apply when weeds are 3" in height or less. Do not apply Raptor herbicide after Pursuit herbicide (or vice-versa) within 60 days of application. See above for additional surfactant and grazing information.
sethoxydim (Poast - 1.5 lb gal)	1	1 to 2.5 pt	12 hours	Apply 1 pt. of Poast or 1.5 pts. with 2 pts. of crop oil concentrate/A for control of annual grasses up to 8 inches tall (varies with species). Use 2 ½ pts./A of Poast if rhizome johnsongrass is to be controlled, followed by a second application to regrowth or new plants. Do not apply to grass or alfalfa under stress. Apply before the grass has been cut. Do not apply Poast within 7 days of feeding, grazing or harvesting undried forage, or within 14 days of cutting for dry hay.
clethodim (Select 2EC, or Arrow)	1	6 to 8 fl oz	12 hours	Apply with a crop oil concentrate at 1% v/v for the control of most annual grasses up to 6 to 8 inches tall. Also, has good activity on johnsongrass and suppresses common bermudagrass. DO NOT apply within 15 days of grazing, feeding, or harvesting alfalfa for forage or hay. May be tank-mixed with 2,4-DB; however, the risk of temporary injury to alfalfa will increase.
Postemergence—Established Alfalfa (Between Cuttings)				
imazethapyr (Pursuit)	2	3 to 6 fl oz	4 hours	Apply as a between cut treatment. Remove hay from the field and apply before excessive alfalfa regrowth. Apply when weeds are 1 to 3 inches tall or before rosette forming weeds exceed 3 inches in diameter. DO NOT feed, graze, or harvest alfalfa for 30 days after application. A maximum total of 6 fl oz/A of Pursuit may be applied per year. Add a nonionic surfactant at 0.25% v/v or a crop oil concentrate at 1.5 to 2.0 pts/A to the spray solution. If replanting is necessary in a field treated with Pursuit, do not plant alfalfa for 4 months following the application of Pursuit. Do not apply more than 4 fl oz/A during the last year of the stand.
imazamox (Raptor)	2	4 to 6 fl oz	4 hours	Apply when weeds are 3" in height or less. See above for additional surfactant and grazing information.
paraquat (Gramoxone SL)	22	1 to 2 pt	12 hours	Apply to established stands (at least one year old) immediately after alfalfa has been removed for silage or hay. Do not treat more than 5 days after cutting. Add surfactant at 1 pt./100 gals. of spray mix. DO NOT graze, cut or harvest within 30 days of application. Make 1 to 3 applications as needed during the cutting season. Apply in 20 to 40 gals. of water/A. Weeds much beyond the seedling stage and stubble of those cut off during harvest will be less affected by the treatment.

Table 2. Estimated effectiveness of recommended herbicides on common weeds in Florida Alfalfa.

Time of Application	PPI	PPI	PRE	POT	POT
	Balan	EPTC – Eptam	Kerb	Poast or Select	Pursuit or Raptor
bahiagrass	P	P	P	F	--
bermuda grass	P	P	P	F–G	P
bitter sneezeweed	P	P	P	P	--
blackberry	P	P	P	P	--
bracken fern	P	P	P	P	--
briars (Smilax)	P	P	P	P	--
broomsedge	P	P	P	P	--
bulrush	P	P	P	P	--
buttercup	P	P	P	P	--
chickweed	F	E	G	P	E
crabgrass	E	G	F	G–E	F
cudweed	P	P	P	P	--
curly dock	P	P	P	P	F
dallisgrass	P	P	P	P	--
dandelion	P	G	P	P	--
dodder	P	P	E	P	--
dogfennel	P	P	P	P	--
evening primrose	F	F–G	P	P	--
foxtails	G	G	P	E	G
gallberry	P	P	P	P	--
goldenrod	P	P	P	P	--
henbit	F	G	P	P	E
honeysuckle	P	P	P	P	--
horsenettle	P	P	P	P	--
horseweed	P	P	P	P	--
Italian ryegrass	G	E	G	E	P
johnson grass	P	P	P	G	P
kudzu	P	P	P	P	--
little barley	G	G	E	F	--
mayweed	--	--	P	P	--
nettle, stinging	P	P	P	P	--
nutsedge	P	F	P	P	F
palmetto	P	P	P	P	--
perilla mint	P	P	--	P	--
persimmon	P	P	P	P	--
pigweed species	G	G	--	P	G
pokeberry	P	P	P	P	--
prickly pear	P	P	P	P	--
ragweed	P	P	P	P	F
red sorrel	P	P	P	P	--
sandbur	E	G	P	G	--
shepherds- purse	P	G	G	P	E
sicklepod	P	F	P	P	--
smutgrass	P	P	P	P	--

Time of Application	PPI	PPI	PRE	POT	POT
	Balan	EPTC – Eptam	Kerb	Poast or Select	Pursuit or Raptor
swinecress	P	G	F	P	--
Texas panicum	G–E	G	P	E	--
thistles	P	E	P	P	P
tropical soda apple	P	P	P	P	--
vaseygrass	P	P	P	P	--
Virginia pepperweed	P	G	P	P	--
wax myrtle	P	P	P	P	--
wild cherry	P	P	P	P	--
wild garlic	P	P	P	P	--
wild radish	P	P-F	P	P	G-E
wild plum	P	P	P	P	--
wild rose	P	P	P	P	--
wooly croton	P	P	P	P	P

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 = less than 60% control.

Time of Application Symbols: PPI = preplant incorporated; PRE = preemergence; POT = postemergence over the top; -- = insufficient observations.

Table 3. Estimated effectiveness of recommended herbicides on common weeds in Florida Alfalfa.

Time of Application	POT	POT	POT	POT	POT	POT
	Velpar	Sencor or Lexone	Paraquat	Buctril	2,4-D	2,4-DB
bahiagrass	P	P	P	P	P	P
bermuda grass	P	P	P	P	P	P
bitter sneezeweed	--	--	--	--	E	G
blackberry	F	P	P	P	F	P
bracken fern	F	--	P	--	P	P
briars (Smilax)	F	P	P	P	P	P
broomsedge	P	P	P	P	P	P
bulrush	--	--	P	P	G	P
buttercup	G	G	G	--	E	F
chickweed	E	E	E	F	F	P
crabgrass	P	F	F	P	P-F	P
cudweed	--	--	G	P	F	--
curly dock	P	--	P	--	F	P
dallisgrass	--	P	P	P	P	P
dandelion	E	G	G	P	E	G
dodder	--	--	G-E	--	P	P
dogfennel	--	--	P	P	F	P
evening primrose	E	G	P-F	--	E	G
foxtails	--	P	F	P	P	P
gallberry	P	P	P	P	G	P
goldenrod	--	--	P	P	F	P
henbit	E	E	G	F	F	P
honeysuckle	--	P	P	P	E	P
horsenettle	--	P	P	P	P	P
horseweed	--	P	P	P	F	P
Italian ryegrass	G	P	G-E	P	P	P
johnson grass	--	P	P	P	P	P
kudzu	--	P	P	P	P-F	P
little barley	E	P	G-E	P	P	P
mayweed	F-G	--	E	--	F	P
nettle, stinging	--	--	--	--	P	P
nutsedge	P	P	P	P	P	P
palmetto	P	P	P	P	P	P
perilla mint	--	--	--	--	P	--
persimmon	F	P	P	P	P	P
pigweed	G	G	G	F	F	G
pokeberry	--	--	--	P	E	G
prickly pear	P	P	P	P	P	P
ragweed	F	G	G	F	E	G
red sorrel	--	--	P-F	--	P	P
sandbur	--	F	G	P	P	P
shepherds-purse	E	E	G	G	E	G
sicklepod	--	F	F-G	--	G	F

Time of Application	POT	POT	POT	POT	POT	POT
	Velpar	Sencor or Lexone	Paraquat	Buctril	2,4-D	2,4-DB
smutgrass	G	P	P	P	P	P
swinecress	E	E	E	E	E	F
Texas panicum	--	P-F	G	P	P	P
thistles	E	G	G	P	E	F
tropical soda apple	G	P	P	P	P-F	P
vaseygrass	--	P	P	P	P	P
Virginia pepperweed	E	G	G	G	G	E
wax myrtle	P	P	P	P	G	P
wild cherry	E	P	P	P	E	P
wild garlic	--	P	E	P	G-E	P
wild radish	E	E	P	F-G	G	P
wild plum	E	P	P	P	E	P
wild rose	--	P	P	P	G	P
wooly croton	P	P	P	P	G	P

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 = less than 60% control.

Time of Application Symbols: POT = Postemergence over the top.