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Weed Control in Alfalfa

This NebGuide describes how weeds can be controlled in alfalfa.

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Weeds can interfere with alfalfa from the time of seeding through the life of the crop. Increased weed density in new seedlings of alfalfa can decrease alfalfa stand. Weeds can also substantially reduce yield and quality of established alfalfa. In severe situations alfalfa yield can be reduced over 50 percent from weed competition (*Figure 1*). As weed content increases, the percentage of alfalfa in forage declines. Normally the quality of forage declines as the percentage of weeds increases.

First cutting alfalfa yield lb of dry matter/acre

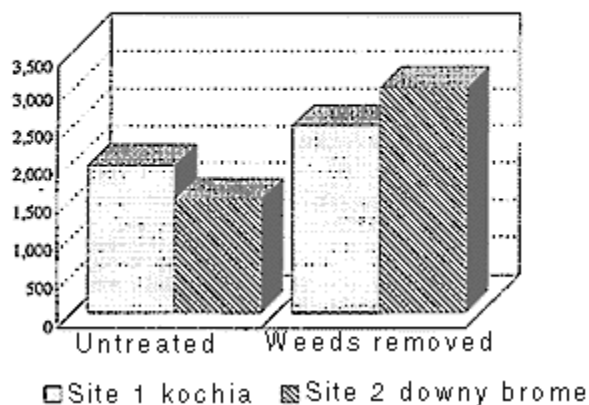


Figure 1. Effect of weed interference on established alfalfa yield.

Successful weed control involves effective cultural practices and may involve using a herbicide. Important cultural practices for new seedlings are: a properly prepared firm seedbed, free of weeds; the use of high quality adapted varieties free of weed seed; and fertilization according to soil tests. Also check the label of previously used herbicides to make sure they will not carryover and damage seedling alfalfa. Once the stand is established proper cutting management and timely irrigation are important management considerations. Vigorous alfalfa competes well with weeds and lessens the need for other controls.

Effective use of herbicides requires correct identification of problem weeds and a knowledge of their life cycle. Select herbicides that will control the weed species emerging with new seedlings or those that plague established alfalfa. Herbicides must be applied timely and according to label directions.

Controlling Weeds in New Seedings

Prepare a weed-free seedbed. The seedbed should have good tilth, be firm enough to retain soil moisture, but mellow enough for root penetration. Alfalfa can be planted in early to mid spring or late summer. Summer annual weeds generally are more prevalent in spring seedings but they usually are not a problem in late summer plantings. In contrast, downy brome and various mustards can be problems in late summer alfalfa plantings. Downy brome also can be a problem when alfalfa is planted into winter wheat or other small grain stubble. Companion crops help modify a spring weed problem in new seedings of alfalfa, reduce soil erosion, and help protect alfalfa from blowing soil. A companion crop of small grains will grow rapidly in the spring and reduce the development of weeds. Reduce the seeding rate of the companion crop about 50 percent as compared to a normal seeding rate for the small grain. This reduces competition for sunlight and moisture by the small grain on alfalfa. Dense or lodged companion crops may interfere with alfalfa growth and reduce alfalfa stand. Remove the small grain companion crop early by spraying with Poast Plus or cutting as hay or silage when the small grain is in the boot stage of growth.

Mowing can reduce broadleaf weed interference in alfalfa. Alfalfa should be mowed about 60 days after seeding. Mowers should be set to cut alfalfa and weeds 4 - 6 inches from the soil surface. Broadleaf weed clippings should be removed if they threaten to smother the alfalfa.

Preplant Incorporated Herbicides

Three herbicides can be applied before planting alfalfa to control weed seedlings during crop establishment. Balan and Eptam are excellent for controlling annual grass weeds and small seeded broadleaf weeds such as redroot pigweed, kochia, and common lambsquarters. Treflan provides weed control similar to Balan and Eptam but is only approved for forage legumes used in set-aside and the conservation reserve program. Information on weed response and other information on preplant herbicides is given in *Tables I and II*.

Table I. Weed response to selected alfalfa herbicides.

Herbicides	Barnyardgrass	Nightsshade	Common Sunflower	Curly Dock	Dandelion	Downy Brome	Field Pennycress	10 - (96-100%)		6 - (70-79%)		Tansy Mustard	Crop Tolerance ^e	Re-crop interval in months when changing to non-labeled crop ^b	Interval in days from treatments until alfalfa may be harvested				
								9 - (90-95%)	8 - (85-90%)	5 - (60-69%)	4-2 - less than 60%								
								Foxtail	Kochia	Kochia-Triazine Resistant	Lambquarters	Pigweed	Russian Thistle	Sonchur	Shepherdspurse				
								Preplant											
Balan	9	4	5	1	2	9	2	10	8	8	9	6	10	8	2	2	2	12	0
Eptam	6	7	3	1	2	9	2	9	7	7	6	5	4	8	2	2	3	2	0
Treflan (CRP only) ^f set-aside	9	4	1	1	2	9	2	10	8	8	9	6	10	8	2	2	4	18	— ^c
								Seedling											
Buctril (seedling only)	2	6	6	2	2	1	7	2	7	7	10	6	10	1	9	6	3	0	30
Butyrac/Butoxone	2	6	6	2	2	1	5	2	6	5	6	3	5	1	5	5	2	1	60
Poast Plus	9	1	1	1	1	7	1	8	1	1	1	1	1	8	1	1	1	0	14
Pursuit	5	8	7	2	2	1	7	6	8	8	6	9	8	2	6	6	2	26	30
								Established											
Gramoxone Extra	-	-	-	2	2	8	4	-	6	6	-	-	6	-	4	4	4	0	60
Karmex	9	8	8	1	3	5	7	7	10	7	7	7	8	6	10	10	2	24	0
Kerb	6	4	4	1	2	8	5	5	6	6	5	5	5	5	2	4	1	9	25
Lexone/Sencor	8	5	8	2	8	9	9	2	9	3	8	8	7	3	10	10	3	4	28
Poast Plus	6	1	1	1	1	5	1	5	1	1	1	1	1	6	1	1	1	0	14
Pursuit	5	8	7	2	2	1	7	6	8	8	6	9	8	2	6	6	2	26	30
Sinbar	5	8	8	2	6	9	9	3	10	3	8	8	7	6	10	10	3	24	0
Velpar	5	6	6	4	6	10	8	3	8	3	7	7	8	6	10	10	3	12-24	0

^aCrop ratings of 3 or less result in no yield loss.

^bValues will vary with soil texture, pH, organic matter, rainfall or irrigation, rotational crop and herbicide rate.

^cTreflan is for use only on land enrolled in the conservation reserve.

Alfalfa may suffer some early injury in the form of stunting from Balan, Eptam or Treflan. None of these herbicides should be used if a companion crop such as oats or if a mixture of perennial grass and alfalfa are planted. These herbicides control grasses and would injure or kill the grass companion crop.

Apply Balan, Eptam, and Treflan to dry surface soil and incorporate immediately into the upper 2 to 3 inches of the soil with a tandem disk, field cultivator or roller harrow. Delayed incorporation will allow the herbicide to volatilize or be broken down by sunlight and reduce its ability to control weeds. Apply herbicides as near to planting as possible to ensure optimum performance.

Postemergence Herbicides. Several herbicides can control broadleaf weeds and grasses after alfalfa emergence. Broadleaf weeds and grasses should be treated when they are small (less than 3 inches) and alfalfa is in the two to four trifoliate leaf stage. Poast Plus can control annual and perennial grasses in seedling alfalfa. Pursuit can control selected broadleaf and grass weeds while 2,4-DB (Butyrac or Butoxone) and Buctril suppress broadleaf weeds. Weed control may be poor if temperatures are below 50°F and weeds are under drought stress. Follow directions on the herbicide label in regards to adding adjuvants, wetting agents, crop oil, and liquid nitrogen to the spray solution. Information on weed response and other information on postemergence herbicides is given in *Tables I and II*.

Table II. Herbicides which can be used for selective weed control in alfalfa.

<i>Area or Use</i>	<i>Herbicide</i>	<i>Commercial Product per Acre</i>	<i>Application Time</i>	<i>Remarks and Approximate Cost/A Broadcast</i>
ALFALFA (Establishing new stands)	BALAN	3-4 qt	Preplant	Apply to dry surface soil and immediately incorporate by cross tandem discing or equivalent soil mixing. Use lower rate on sandy soil. Early legume injury may occur. Controls primarily annual grasses.
	EPTAM	2.5-3.5 pt		
	TREFLAN (set-aside only)	1-1.5 pt		
	BUCTRIL	1-1.5 pt	Weeds less than 2" tall. Alfalfa at least 2 trifoliolate leaves	Do not treat when temperature is above 70° F or is expected to exceed 70° F 3 days following application.
	POAST PLUS	1-2 pt	Grasses 4" or less	Good coverage necessary. Use higher rate for sandbur, volunteer cereals, or winter annual grasses. Poast will not control overwintered downy brome. Add COC to spray solution.
ALFALFA (Seedling or established)	BUTYRAC or BUTOXONE (2,4-DB) or BUTYRAC 200	1-3 qt	Postemergence. Weeds less than 3" tall; alfalfa 2-4 trifoliolate leaves	DO NOT USE treated forage for 60 days after treatment on new stands and 30 days on established stands. Use when temperature is above 50° F.
	KERB 50W	1-1.5 lb	Pre or post to winter annual grasses Oct.-Mar.	Controls downy brome and volunteer cereals.
	PURSUIT	3-6 oz	Postemergence. Weeds less than 3" tall Seedling alfalfa should have 2 trifoliolate leaves Established alfalfa may be dormant to 3" tall.	The addition of a nonionic surfactant and liquid nitrogen to the spray mixture improves weed control.
ALFALFA (Established one year or more)	GRAMOXONE EXTRA	1.5-2 pt	Dormant alfalfa	Do not cut or harvest within 60 days of application.
	KARMEX 80W	1.5-3 lb	Late fall to early spring to dormant alfalfa.	Primarily for winter annual weeds such as pennycress and other mustards. Sinbar, Velpar, and Lexone/Sencor also control downy brome. Do not use on sand; use lowest rates on soils with less than 1% organic matter. Spring application of Karmex controls annual warm season grasses such as foxtail and barnyardgrass.
	LEXONE/ SENCOR DF	0.5-1 lb		
	SINBAR 80W	0.5-1 lb		
	VELPARL	1-1.5 qt	Late fall to early spring dormant alfalfa	The 1 qt/Acre rate of Velpar is for low organic matter soils for downy brome control.

Controlling Weeds in Established Alfalfa

Tillage has been used in some areas to remove annual weeds from established alfalfa. It should be done in early spring before alfalfa breaks dormancy to reduce injury to the alfalfa plant. If tillage is too vigorous or practiced too late in the spring it may damage alfalfa crowns and allow disease organisms to invade the plant's root system. The spring tooth harrow effectively reduces weed density. Spring tillage is more effective on seedling summer annual weeds such as kochia than on winter annual weeds such as downy brome. If alfalfa is infested with winter annual weeds such as downy brome and mustards, the first cutting could be taken early when winter annuals are heading and the alfalfa is at least 10 inches tall. Early cutting will reduce weed seed production. Future alfalfa cuttings should be at the one-tenth bloom stage of growth to maintain vigor and yield quality alfalfa.

Herbicides. Karmex, Lexone/Sencor, Sinbar, and Velpar can control winter and summer annual broadleaf and grassy weeds in alfalfa that has been established for at least 12 months. Apply these herbicides in the fall after alfalfa has gone dormant (preferred time of application) or in the early spring before new growth starts. Rain, melting snow, or irrigation water is important following treatment to move the herbicide into the weed root zone. Lexone/Sencor, Sinbar, and Velpar are excellent for

controlling downy brome and other mustards in established alfalfa (*Tables I and II*).

Alfalfa may be injured on sandy soils or soils with less than 1 percent organic matter, so exercise care in using these products on sandy soils. Use the lowest recommended herbicide rate and pay close attention to shut off sprayers when turning around to avoid over-dosage. Karmex, Sinbar, and Velpar may remain in the soil for several years and may injure sensitive crops the next year. Consult the herbicide label to determine chemical persistence and crop rotation options.

Apply Pursuit to established alfalfa in the fall, in the spring to dormant alfalfa, or between cuttings. Do not apply Pursuit to alfalfa during the last year of the stand because of potential carryover of the herbicide to following crops. Apply Poast Plus to established, actively growing alfalfa for grass control. The effectiveness of Poast Plus on grasses depends on absorption and movement of the herbicide within the plant. If grasses are under stress from cutting associated with alfalfa harvest, herbicide effectiveness will be reduced. Poast Plus has not been effective on small grains or downy brome that have overwintered.

Kerb can be used for winter annual grass or volunteer cereal control in established or seedling alfalfa. The herbicidal activity of Kerb is mainly through root absorption in sensitive weed species. Rain, melting snow or irrigation water is essential following treatment to move the herbicide into the weed root zone. When soil temperatures are less than 55°F Kerb remains active in the soil; as soil temperatures increase soil organisms degrade the herbicide and reduce its effectiveness. Thus apply Kerb in late fall, winter, or early spring when soil temperatures are below 55°F.

Gramoxone Extra can be applied to dormant alfalfa in the early spring for downy brome control. The application period for this treatment is generally short (March). Alfalfa should be dormant; if new growth is present at the time of herbicide application it will be injured which may reduce the first cutting yield.

Remember, weeds compete with alfalfa. Cultural practices and herbicides help reduce weed competition, but use them judiciously.

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