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Weed Management in Alfalfa Stands

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Weed infestations can reduce the yield, quality, and longevity of alfalfa stands. Low soil pH conditions, inadequate fertility, poorly timed insect management, or improper mowing can result in reduced growth or death of alfalfa plants, leading to open areas and weak alfalfa stands which invite weed infestations. The most effective weed management programs begin with crop management practices that encourage a healthy alfalfa stand.

Even healthy alfalfa stands may need additional weed management. The most common weed control practices for alfalfa are with mechanical and chemical means. Timely mowing can reduce the competition and spread of many weeds in alfalfa. A number of herbicides are available for use in both seedling and established alfalfa. Several factors must be considered in selecting herbicides for alfalfa including:

(1) Stand age. Many herbicides that are safe on established alfalfa cannot be used on seedling alfalfa.

(2) Weed identification. Careful identification of weed problems will permit proper selection of herbicide programs.

(3) Herbicide application timing. Proper application timing will improve weed control, prevent conflicts with harvest restrictions, and avoid crop injury. Herbicides such as Balan® or Eptam® must be incorporated into the soil prior to seeding. Poast®, Poast Plus®, Pursuit®, and Select® can be applied to actively growing alfalfa for control of emerged weeds. Roundup Ultra® must be applied to actively growing weeds to be effective, but will also kill any actively growing alfalfa plants it contacts. Sencor®, Lexone®, and Sinbar® can only be applied in dormant, established alfalfa stands. For more information concerning herbicides labeled for alfalfa, see Tables 1, 2 and 3.

(4) Soil conditions. Soil properties such as texture, pH, and organic matter content influence herbicide efficacy and therefore are determinants of application rate.

(5) Crop and land use restrictions. The length of time between herbicide application and forage harvest (Pre-Harvest Interval, PHI) may influence herbicide selections. Most herbicide labels restrict forage harvest from 7 to 30 days after herbicide application. Crop rotation restrictions can be as long as 36 months after herbicide application, which can impact long-term field planning.

Seedling Alfalfa Stands

Perennial weed management. Weed management in a new alfalfa stand should begin well in advance of seeding. Perennial weeds (including bindweed, Canada thistle, curly dock, dandelion, johnsongrass, hemp dogbane, quackgrass, and others) are a primary concern since management options for controlling them in established alfalfa are limited. Most herbicides applied during alfalfa production do not effectively control the root systems of perennial weeds. Therefore, perennial weeds should be intensively managed beginning one or two years before alfalfa establishment. Multiple applications of nonselective, translocated herbicides, such as Roundup Ultra® or Touchdown®, will effectively control the root systems of most perennial weeds.

A possible strategy for fields targeted for late summer seeding of alfalfa is: Roundup Ready® soybeans with multiple POST applications of Roundup Ultra® or

Touchdown®, followed by wheat with multiple post-harvest applications of Roundup Ultra® or Touchdown® prior to field preparation for alfalfa planting. A possible strategy for spring-seeded alfalfa is: to use the same approach with additional fall herbicide treatment prior to seeding.

Options for controlling perennial weeds after alfalfa establishment are often more expensive, more difficult to implement, and less effective than control before stand establishment. Poast®, Poast Plus®, or Select® can be used for control of johnsongrass, quackgrass, and other perennial grasses after alfalfa establishment. Although repeated mowing of Canada thistle and other thistles is very effective over time, several years of mowing are usually needed for adequate control; however, detrimental effects to the alfalfa stand usually occur much quicker. Perennial weed patches can be effectively managed in-season with spot treatments of Roundup Ultra® or Touchdown®, but only by sacrificing the alfalfa stand in those areas. Reseeding alfalfa in those open areas is limited to first year seedling stands only due to chemicals produced in older alfalfa plants that inhibit the germination and growth of alfalfa seedlings. A potential consequence of spot treating with herbicides is leaving open areas for other weeds to grow and reproduce throughout the life of the stand.

Annual weed management. A number of herbicides are available for managing summer and winter annual weeds in alfalfa. Winter annuals are most likely to invade during periods of alfalfa dormancy. Weed control in the first dormant period is critical for stand establishment. Winter annual weeds are first noticed as a problem in the spring just before the first harvest. At that time, the most effective control is mowing. However, if winter annuals are an anticipated problem, most (including henbit, purple deadnettle, common chickweed, and brome grasses) can be adequately controlled with Balan® or Eptam® applied preplant incorporated. Pursuit® can be applied postemergence to dormant or actively growing alfalfa past the second trifoliate leaf stage. Pursuit® will control many winter annual weeds when applied in the fall to small emerging weeds or as a preemergence treatment before weed emergence and will provide residual soil activity throughout the spring. Pursuit® is also very effective on many summer annual broadleaf and grassy weeds that invade open areas left by winter annual weeds in seedling alfalfa stands. Poast®, Poast Plus®, and Select® can be used to control summer and winter annual grasses throughout the year.

Established Alfalfa Stands

Perennial weed management. Perennial broadleaf weed management options for established alfalfa stands are very limited. A good alfalfa stand coupled with repeated mowing over several years can effectively deplete the root reserve of perennials such as bindweed, Canada thistle, hemp dogbane, johnsongrass and milkweed. Although mowing schedules and mowing heights should be based on sound management practices, they should also help eliminate any potential spread of weed seed.

Poast®, Poast Plus®, and Select® are labeled for perennial (i.e. johnsongrass, and quackgrass) as well as annual (i.e. foxtail, crabgrass, barnyardgrass, etc.) grass control in established alfalfa stands. Select® is generally better for control of perennial grasses, while all three products provide acceptable control of annual grasses.

Annual weed management. Most herbicides for controlling summer annual weeds in established alfalfa stands are labeled for dormant or post-harvest applications only. Although these herbicides are affective, careful planning is needed to ensure their timely applications. Sencor®, Lexone®, and Sinbar® are effective for controlling many broadleaf weeds but must be applied to dormant alfalfa. Pursuit® is labeled for broadcast application to actively growing alfalfa, but has a 30-day pre-harvest interval that may not fit with aggressive mowing schedules.

Your local Extension office has many resources available to assist in management decisions including:

- Stand Establishment: **Forage Selection and Seeding Guide for Indiana (AY-253)**
- Fertility: **Tri-State Fertility Recommendations for Corn, Soybeans, Wheat & Alfalfa** (Michigan State University publication E-2557)
- Insect Management:
  - **Potato Leafhopper on Alfalfa** (E-36)
  - **Alfalfa Weevil** (E-38)
  - **Common Forage Legume Insects** (E-87)

Table 1. Estimated Levels of Weed Control Normally Expected with Alfalfa Herbicides[a]

	Broadleaf Weeds																	Grass Weeds								
Herbicide	Canada Thistle	Chickweed	Dandelion	Dock, Curly	Field Pennycress	Henbit	Lambsquarters	Mustard, Wild	Nightshade, Black	Pigweed	Plantain	Ragweed, Common	Ragweed, Giant	Shepherdspurse	Smartweed	Wild Radish	Yellow Rocket	Barnyardgrass	Crabgrass	Downy Bromegrass	Fall Panicum	Foxtails	Orchardgrass	Quackgrass	Volunteer Grain	Yellow Nutsedge
Balan	0	8	0	0	0	5	**9**	0	0	**9**	0	0	0	0	0	0	0	**9**	**9**	**9**	**9**	**9**	5	5	8	0
Buctril	6	6	0	0	8	8	**9**	8	**9**	8	0	**9**	8	**9**	**9**	0	7	0	0	0	0	0	0	0	0	0
Butyrac 200	0	6	8	5	**9**	6	8	**9**	2	8	2	**9**	**9**	**9**	6	0	8	0	0	0	0	0	0	0	0	0
Eptam	0	7	0	0	6	**9**	**9**	6	8	**9**	0	5	0	7	5	0	7	**9**	**9**	**9**	**9**	**9**	6	8	8	8
Gramoxone Max	0	8	0	0	**9**	**9**	8	**9**	**9**	**9**	5	**9**	**9**	**9**	**9**	8	8	8	7	**9**	**9**	**9**	5	5	6	0
Kerb	0	8	0	0	5	8	6	5	6	6	0	5	5	5	5	0	0	8	8	**9**	6	8	7	8	**9**	0
Poast/Poast Plus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**9**	**9**	**9**	**9**	**9**	6	7	8	0
Pursuit	6	8	0	0	8	8	6	**9**	**9**	**9**	-	6	7	**9**	**9**	-	8	6	7	3	7	8	0	0	0	5
Roundup Ultra	**9**	**9**	8	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	8	**9**	**9**	**9**	**9**	**9**	**9**	8	**9**	**9**	7
Select	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**9**	**9**	**9**	**9**	**9**	6	**9**	8	0
Sencor	0	**9**	7	6	**9**	**9**	**9**	**9**	5	**9**	8	8	5	**9**	**9**	**9**	**9**	6	5	**9**	6	6	5	5	5	0
Sinbar	0	**9**	6	6	**9**	**9**	**9**	**9**	6	8	7	8	5	**9**	8	**9**	7	6	7	**9**	6	7	5	5	5	0
Velpar	0	**9**	8	6	**9**	8	**9**	**9**	6	**9**	8	8	5	**9**	8	**9**	**9**	7	7	8	6	7	6	5	5	0

[a] Rating scale: 0 no control; 5 or less poor; 6 poor-fair; 7 fair; 8 fair-good; 9 good. Ratings assume the herbicides are applied in the manner suggested in the guidelines and according to the label under optimum growing conditions. This information was compiled from The Ohio State University Weed Control Guide, 2001 Edition.

Table 2. Herbicides for Seedling Alfalfa Stands

Trade Name, Formulation, & App. Rate	Other Trade Names	Active Ingredient(s)	Application Timing	Other Labeled Forages	Special Instructions and Remarks
Balan 1.5 lb/gal EC 3 to 4 qt/A	None	benefin	Preplant Incorporated	birdsfoot trefoil & red, ladino, & alsike clover	**Do not** use small grains as a companion crop. **Do not** use on soils high in organic matter.
Buctril 2EC 2 lb/gal EC 1 to 1.5 pt/A	Buctril 4EC Moxy 2E	bromoxynil	Postemergence	None	**Do not** apply if temperatures are to exceed 70° F at application or for 3 days after application. **Do not** apply to stressed crop. **Do not** graze or harvest spring-treated alfalfa for 30 days and fall-treated for 60 days after treatment. Apply in fall or spring to seedling alfalfa with at least 4 trifoliate leaves and to weeds at or before the 4-leaf stage or 2 inches in height (whichever is first).
Butyrac 200 2 lb/gal S 1 to 3 qt/A	None	2,4-DB	Postemergence	birdsfoot trefoil & red ladino, & alsike clover	**Do not** harvest or graze for 60 days after treatment. **Do not** apply to sweet clover. Use on weeds less than 3 inches tall (3 inches across for rosettes). Use higher rates for seedling smartweed or curly dock.
Eptam 7-E 7lb/gal EC 2.5 to 4.5 pt/A	Eptam 20-G	EPTC	Preplant Incorporated	birdsfoot trefoil, lespedeza, & clovers	**Do not** use small grains as a companion crop. **Do not** use on white Dutch clover
Gramoxone Max 3 lb/gal S 0.75 to 1.3 pt/A for dormant stands 0.75 pt/A for between cutting applications	None	paraquat	Dormant stands less than 1 year old or Between Cuttings	None	For dormant-season applications, apply after last fall cutting or before spring growth is 2 inch tall. **Do not** harvest or graze for 60 days after dormant-season application. **Do not** apply more than 1 dormant-season application in a season. For between-cuttings applications, apply within 5 days after cutting **and** before alfalfa regrowth is 2 inches tall. **Do not** harvest or graze for 30 days after between-cutting applications. **Do not** exceed 2 between-cutting applications during seedling year. Restricted Use Pesticide.
Kerb 50W 50% WP 1 to 3 lb/A	None	pronamide	Postemergence	birdsfoot trefoil, crownvetch, & clovers	**Do not** graze or harvest for 120 days after application. In fall-seeded legumes, apply after trifoliate stage. In spring-seeded legumes, apply the following fall. Restricted Use Pesticide.
Poast 1.5 lb/gal EC 0.75 to 2.5 pt/A	Poast Plus	sethoxydim	Postemergence	birdsfoot trefoil	**Do not** apply within 7 days of grazing, feeding or harvesting undried forage, or within 14 days of harvesting dry hay. **Do not** apply more than 6.5 pts/acre/season. Best grass control is achieved when application is made prior to mowing. If tank-mixed with 2,4-DB, follow the 2,4-DB harvest and grazing restrictions.
Pursuit 2AS 2 lb/gal AS 3 to 6 fl. oz./A	Pursuit 70 DG	imazethapyr	Postemergence	None	**Do not** feed, graze or harvest for 30 days after application. Apply to alfalfa in 2nd or larger trifoliate leaf stage and to weeds 1 to 3 inches tall (3 inches across for rosettes) Add nonionic surfactant **or** COC **plus** 28% N. May temporarily reduce alfalfa height.
Select 2 EC 2 lb/gal EC 8 to 16 fl. oz/A	Prism	clethodim	Postemergence	birdsfoot trefoil	**Do not** apply within 15 days of grazing, feeding, or harvesting forage. **Do not** plant rotational crops within 30 days after application. **Do not** apply a broadleaf herbicide within 1 day following Select application. Best grass control is achieved when application is made prior to mowing. If tank-mixed with 2,4-DB, follow the 2,4-DB harvest and grazing restrictions. Always use COC.

Any person using products listed in this handout assumes full responsibility for their use in accordance with current directions of the manufacturer.

Table 3. Herbicides for Established Alfalfa Stands

Trade Name, Formulation, & App. Rate	Other Trade Names	Active Ingredient(s)	Application Timing	Other Labeled Forages	Special Instructions and Remarks
Butyrac 200 2 lb/gal S 1 to 3 qt/A	Butoxone 175 Butoxone 200 Butoxone 7500	2,4-DB	Growing	None	**Do not** harvest or graze for 30 days after treatment. **Do not** use on sweetclover. Use when weeds are less than 3 inches tall (3 inches across for rosettes). Use higher rates for seedling smartweed or curly dock.
Gramoxone Max 3 lb/gal S 1.5 to 2 pt/A for dormant stands 0.75/A for between cutting applications	None	paraquat	Dormant stands at least 1 year old or Between Cuttings	None	For dormant-season applications, **do not** apply if regrowth following the last fall cutting is more than 6 inches tall in the fall or more than 2 inches tall in the spring. **Do not** apply more than 1 dormant-season application per season. **Do not** graze or harvest within 42 days after a dormant-season application and for 30 days after between cutting applications. **Do not** apply more than 3 between-cutting applications per season. Between-cutting treatments should be applied within 5 days after cutting. Weeds should be succulent and growing at the time of application. Restricted Use Pesticide
Kerb 50W 50% WP 1 to 3 lb/A	None	pronamide	Growing or Dormant	birdsfoot trefoil, crownvetch, & clovers	**Do not** graze or harvest for 120 days after application. Apply in the fall after last cutting, when weather and soil temperatures are cool. Restricted Use Pesticide.
Poast 1.5 lb/gal EC 0.75 to 2.5 pt/A	Poast Plus	sethoxydim	Postemergence	birdsfoot trefoil	**Do not** apply within 7 days of grazing feeding or harvesting undried forage, or within 14 days of harvesting dry hay. **Do not** apply more than 6.5 pts/acre/season. Best grass control is achieved when application is made prior to mowing. If tank-mixed with 2,4-DB, follow the 2,4-DB harvest and grazing restrictions.
Pursuit 2AS 2 lb/gal AS 3 to 6 fl. oz/A	Pursuit 70 DG	imazethapyr	Postemergence	None	**Do not** feed, graze, or harvest for 30 days after application. May temporarily reduce alfalfa height and growth. Apply to alfalfa in 2nd or larger trifoliate leaf stage and to weeds 1 to 3 inches tall (3 inches across for rosettes). Add nonionic surfactant **or** COC **plus** 28% N.
Roundup Ultra 4 lb/gal SL 2% solution for spot treatments 1 qt/A for preharvest applications	Credit Ranger Rattler Roundup - Custom Original UltraDry UltraMax	glyphosate	Growing	**For Spot Treatments.** clover, alfalfa, or clover-grass mixtures **For Preharvest Treatments.** None	**For Spot Treatments. Do not** treat more than 1/10 of any acre at one time, other applications may be made in the same area at 30 day intervals. **Do not** graze or harvest for 14 days. **Do not** contact desirable, non-target vegetation because damage may occur. Apply to actively growing, susceptible weeds. Refer to label for recommended timing of application for maximum effectiveness on target species. **For Preharvest Treatments. Do not** apply to alfalfa grown for seed. **Do not** harvest within 36 hours after application. Treated alfalfa and weeds can be harvested and fed to livestock, including lactating animals. May be used in declining alfalfa stands or any stand of alfalfa where crop destruction is acceptable. Controls various annual and perennial weeds.

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Table 3. Herbicides for Established Alfalfa Stands (Cont.)

Trade Name, Formulation, & App. Rate	Other Trade Names	Active Ingredient(s)	Application Timing	Other Labeled Forages	Special Instructions and Remarks
Select 2 EC 2 lb/gal EC 6 to 16 fl. Oz./A	Prism	clethodim	Postemergence	birdsfoot trefoil	**Do not** apply within 15 days of grazing, feeding, or harvesting forage. **Do not** plant rotational crops within 30 days after application. **Do not** apply a broadleaf herbicide within 1 day following Select application. If tank-mixed with 2,4-DB, follow the 2,4-DB harvest and grazing restrictions. Always use COC.
Sencor 4 4 lb/gal L 0.5 to 2 pt./A	Lexone DF Sencor DF	metribuzin	Dormant	alfalfa-grass mixes	**Do not** use on soils with a pH greater than 7.5. **Do not** graze or harvest for 28 days after treatment. Apply once in the fall or spring before new growth. Rate is based on soil type and organic-matter. Higher rates may injure grass component. Sencor may be applied as a post-dormant application impregnated on dry fertilizer.
Sinbar 80% WP 0.5 to 1.5 lb./A	None	terbacil	Dormant	None	**Do not** plant **any** crop for 2 years. Apply once in the fall or spring before new growth starts. Use lower rates for coarser soils.
Velpar L 2 lb/gal L 1 to 3 qt./A	Velpar SP	hexazinone	Dormant	None	**Do not** plant any crop except corn within 2 years of treatment. **Do not** graze or harvest for 30 days. Apply in the fall or spring before new growth exceeds 2 inches in height. May be impregnated on dry fertilizer and applied as a dormant treatment. Can also be applied to stubble after hay removal but before regrowth exceeds 2 inches. Corn may be planted 12 months after treatment, provided deep tillage is used.

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