

Herbicides for Alfalfa

This publication primarily concerns chemical weed control. It is not intended to imply that cultivation or other non-chemical weed management techniques, particularly in row crops, are undesirable. One or two cultivations can greatly improve weed control.

Weed Response to Selected Alfalfa Herbicides When Applied According to Label Directions¹

Herbicide(s)	Crop tolerance	Winter Annuals								Summer Annuals, Broadleaf								Perennials				
		Grasses				Broadleaf				Grasses				Broadleaf								
		Volunteer wheat	Downy brome	Japanese brome	Cheat	Prickly lettuce	Henbit	Flixweed/ransy mustard	Bushy wallflower	Field pennycress	Shepherdspurse	Barnyardgrass	Crabgrass	Foxtail	Longspine sandbur	Kochia	Lambsquarters	Morningglory	Pigweed	Common ragweed	Pennsylvania smartweed	Dandelion
PREPLANT																						
Balan	G	—	—	—	—	—	G	—	—	—	—	E	E	E	E	—	F-G	—	F-G	—	—	—
Treflan	F-G	—	F-G	F-G	F-G	—	G	—	—	—	—	E	E	E	E	—	F-G	—	F-G	—	—	—
POSTEMERGENCE TO ALFALFA AND PREEMERGENCE TO WEEDS																						
Chateau	G	—	G	E	E	E	G	E	E	E	E	F-G	F-G	G	F	E	E	G	E	E	E	G
Pendimethalin	G	—	—	—	—	—	G	—	—	—	—	E	E	E	G-E	F-G	G-E	—	G-E	—	—	—
Treflan HFP	F-E	—	G	G	G	—	G	—	—	—	—	E	E	E	G-E	F-G	G-E	—	G-E	—	—	—
Warrant	E	F	—	—	—	—	G	—	—	—	—	G	G-E	E	F	—	G	—	G	—	—	—
POSTEMERGENCE																						
Beyond Xtra	G-E	E	G	E	E	—	F	E	E ²	E	E	F-G	F-G	G-E	—	G ²	G	G	G ²	F	G	F
Buctril, Moxyc (Seedling only)	G	—	—	—	—	—	F	—	—	G-E	G-E	—	—	—	—	G	G-E	G	F-G	G	G-E	—
Butyrac 200, 2,4-DB 200	F-G	—	—	—	—	—	—	G	G	G	G	—	—	—	—	F-G	G-E	G-E	G-E	G-E	G-E	G-E
Clethodim	E	G-E	G-E	G-E	G-E	—	—	—	—	—	—	E	G	E	E	—	—	—	—	—	—	—
Glyphosate (Roundup Ready only)	E	E	E	E	E	G	G	E	E	E	E	G	E	E	E	G	G	G	E	G	E	F-G
Gramoxone SL	F	G	—	—	—	—	G	—	—	—	—	G	G	G	G	F-G	G	G	G	G	G	G
Poast, Poast Plus	E	G	G	G	G	—	—	—	—	—	—	E	G	E	E	—	—	—	—	—	—	—
Pursuit	G-E	—	—	—	—	—	F	G-E	G-E ²	G-E	G-E	F-G	F	G	—	G	F	G	G ²	F	G	F
DORMANT TREATMENTS																						
Glyphosate	G	E	G	G	G	—	G	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gramoxone SL	E	G	F	F	F	G	G	F	G	G	G	—	—	—	—	—	—	—	—	—	—	—
Karmex, Diuron	G	—	—	—	—	E	F	E	E	E	E	G-E	G-E	G-E	F	G	E	G	E	E	F-G	—
Metribuzin	G	—	G	G	G	—	G-E	G	E	E	E	F	F	F	—	E	E	—	G	E	E	F
Pursuit	G-E	—	—	—	—	—	F	G-E	G-E ²	G-E	G-E	F-G	F-G	G-E	—	G	G	G	G ²	F	G	F
Sharpen	G	—	—	—	—	G	F	G	—	E	E	—	—	—	—	G	G	—	—	—	G	F
Sinbar	G	—	G	G	G	E	G	E	E	E	E	G	G	G	G	G-E	E	E	G	E	E	G
Tripsin ZC	G	—	F-G	F-G	F-G	—	G	—	—	—	E	G-E	G	G-E	G	G-E	E	F	G	G-E	E	F-G
Velpar, Velossa	G	F	G	G	G	F	G	E	E	E	E	—	F	G	—	F	G	—	G	—	—	G
Velpar AlfaMax	G	F	G	G	G	E	G	E	E	E	E	G-E	G-E	G-E	—	G	E	G	E	E	F-G	G
Velpar AlfaMax Gold	G	F	G	G	G	E	G	E	E	E	E	E	G-E	G-E	—	G-E	E	G	E	E	F-G	G

¹ Weed response ratings refer to application according to label directions and with favorable growing conditions:

E = Excellent, G = Good, F = Fair, P = Poor, and — = weed not listed on the herbicide label.

² Except where resistant weed populations have developed.

Herbicides for Alfalfa

Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
BURNDOWN OR PREPLANT		
2 to 2.5 lb Balan DF	Benefin (3) 1.1 to 1.5	Controls grasses more effectively than broadleaf weeds. Apply before planting alfalfa and incorporate 2 to 3 inches deep within 4 hours.
1 to 2 pt of 3 lb ae/gal Glyphosate (see glyphosate table)	Glyphosate (9) 0.38 to 0.75 lb ae	Apply before crop emergence for control of emerged weeds. Glyphosate products differ in concentration and adjuvant requirements. Refer to specific product labels for rate and adjuvant recommendations. Condition spray solution with 1 to 2% spray-grade AMS by weight (8.5 to 17 lb/100 gal water) before adding herbicide to the spray tank.
1 to 1.5 pt Treflan HFP	Trifluralin (3) 0.5 to 0.75	Supplemental label. Controls grasses more effectively than broadleaf weeds. Apply before planting alfalfa and incorporate 2 to 3 inches deep within 24 hours. Use the lower rate in coarsely textured soils and the higher rate on finely textured soils. Some crop stand reduction can occur, especially with cool, wet weather, and deep seeding.
POSTEMERGENCE TO CROP AND PREEMERGENCE TO WEEDS		
1.1 to 8.4 pt Prowl H₂O, Sattelite Hydrocap, or Sattelite Flex	Pendimethalin (3) 0.047 to 4	For preemergence control of certain annual grass and broadleaf weeds in seedling or established alfalfa for forage or hay. Apply 1.1 to 2.1 pt/a to seedling alfalfa between the 2 trifoliolate-leaf and 6-inch stages of growth. Apply 2.2 to 8.4 pt/a to established alfalfa from the last cutting in fall until alfalfa has 6 inches of spring regrowth. Do not harvest alfalfa less than 50 days after applying more than 4.2 pt/a. Can be applied between cuttings at rates up to 4.2 pt/a with a 14-day preharvest interval. Some stunting and chlorosis of alfalfa may occur with postemergence applications. Do not exceed a cumulative total of 8.4 pt/a in a single cropping season.
1.5 to 4 pt Trifluralin 4E or 20 lb Treflan TR 10	Trifluralin (3) 0.75 to 2	For preemergence control of barnyardgrass, crabgrass, foxtail, and other annual weeds. Apply to dormant or semidormant alfalfa or throughout the growing season immediately after cutting. Irrigation (0.5 inch) or rainfall is needed within 3 days after application, or the treatment must be incorporated to mix the herbicide into the soil but with minimal damage to the alfalfa. Apply chemigation treatments in 0.75 to 1 inch of water through a center-pivot irrigation system to established alfalfa stands before weed emergence for all soil textures. If possible, inject only undiluted Treflan HFP into irrigation system. Use within 4 to 8 hours if mixed with water before application. Do not cut or allow grazing of plants within 21 days after application. Follow label and chemigation application directions.
1.25 to 2 qt Warrant	Acetochlor (15) 0.75 to 1.5	For preemergence control of grasses and small seeded broadleaf weeds in seedling and established alfalfa. Apply after emergence through the 4 trifoliolate stage of seedling alfalfa, after spring green-up in established alfalfa, or within 7 days after cutting alfalfa. Does not control emerged weeds. Tank mix with other labeled herbicides for control of emerged weeds. Maximum application rate depends on soil texture and organic matter content. Do not cut for forage or hay, or graze within 20 days after application. Do not use on alfalfa grown for seed production. Do not exceed a total of 4 qt/a per year when making multiple applications through the season.
POSTEMERGENCE		
4 to 6 oz Beyond Xtra, ImiFlex	Imazamox (2) 0.031 to 0.047	Controls many annual weeds. Apply to established or seedling alfalfa after it has reached the 2 trifoliolate-leaf stage for control of small actively growing weeds less than 3 inches tall or across. Always apply with NIS or COC plus fertilizer additives. Beyond Xtra will provide better control of volunteer wheat, cheatgrass, and other winter annual grasses than Pursuit. Weeds that are not actively growing because of environmental stress are less susceptible to control. Beyond Xtra has no preharvest interval. Do not plant wheat for 3 months; corn, sorghum, cotton, or sunflower for 9 months; or canola (non-Clearfield) for 18 to 26 months.

* Numbers in parentheses indicate herbicide site of action; see p. 3 for more information. Products often are available in several formulations or brand names, and label information may vary. Refer to the Names, Toxicities, and Persistence table, p. 12.

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Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
POSTEMERGENCE		
1 to 1.5 pt Bromox, Brox, or Moxy	Bromoxnil (6) 0.25 to 0.38	Controls many broadleaf weeds. Apply in fall or spring to seedling alfalfa after 4 trifoliolate-leaf stage and when weed seedlings are less than 2 inches tall. Fall applications provide the best control of weeds that emerge in the fall. Leaf burn of alfalfa can occur after application, but new growth will not be affected. Can be tank-mixed with Pursuit or 2,4-DB. Do not apply if temperature is expected to exceed 70°F (eastern Kansas) to 80°F (western Kansas) at or within 3 days after treatment. Do not harvest or allow grazing of spring-treated alfalfa within 30 days or fall- or winter-treated alfalfa within 60 days.
1 to 3 qt Butyrac 200 or 2,4-DB 200	2,4-DB (4) 0.5 to 1.5	Controls seedlings of many broadleaf weeds. Apply to spring- or fall-seeded alfalfa at the 2 to 4 trifoliolate-leaf stage and when weeds are less than 3 inches tall. Do not allow grazing or cut hay from treated fields of seedling alfalfa within 60 days and of established alfalfa within 30 days after treatment.
1 to 4 pt of 3 lb ae/gal Glyphosate (see glyphosate table)	Glyphosate (9) 0.38 to 1.55	Broadcast apply only to Roundup Ready alfalfa. Application to conventional alfalfa varieties will result in severe injury or death of the crop. Glyphosate products differ in concentration and adjuvant requirements. Refer to specific product labels for rate and adjuvant recommendations. Controls most annual and perennial weeds at the rates suggested on the label. Glyphosate has no residual activity, so multiple applications may be required through the season, particularly for control of both winter and summer annual weeds. The combined total per year for all in-crop applications should not exceed 6 qt of a 3 lb ae/gal glyphosate product*. Condition spray solution with 1 to 2% spray-grade AMS by weight (8.5 to 17 lb/100 gal water) before adding glyphosate to the tank. Remove domestic livestock before application, and wait a minimum of 5 days after the last application before grazing, or cutting and feeding of alfalfa forage or hay.
1 pt Gramoxone SL 2.0 or 0.7 pt Gramoxone SL 3.0 or Helmquat	Paraquat (22) 0.25	May only be handled or applied by certified individuals. Always apply with NIS. Apply for control of emerged annual grasses and broadleaf weeds in established stands (at least 1 year old) of alfalfa. Apply immediately after alfalfa has been removed but no more than 5 days after cutting. Alfalfa foliage present at time of application will be burned. Weeds that germinate after application will not be controlled. Do not cut, harvest, or allow grazing within 30 days of application.
0.5 to 2.5 pt Poast or 0.75 to 3.75 pt Poast Plus	Sethoxydim (1) 0.1 to 0.5	Controls annual and perennial grasses. Always apply with COC. UAN or AMS can also be added for enhanced activity. Can be applied to seedling or established alfalfa at least 7 days before grazing, feeding, or cutting undried forage or 14 days before cutting for hay. Apply to annual grasses 3 to 8 inches tall and actively growing. Poast is most effective on grasses before they have been mowed. Use higher application rates, and allow active regrowth before treating grasses that have been mowed. Higher application rates are recommended in western Kansas than in eastern Kansas.
3 to 6 oz Pursuit	Imazethapyr (2) 0.047 to 0.094	Controls many annual weeds. For control of small, actively growing weeds before they reach the size limits listed on the label, apply to established or seedling alfalfa after it has reached the 2 trifoliolate-leaf stage. Always apply with NIS or COC plus fertilizer additives. Weeds that are not actively growing because of environmental stress are less susceptible to control. Do not apply more than 4 oz/a during the last year of the alfalfa stand. Do not feed, harvest, or allow grazing of alfalfa for 30 days after an application. Do not replant alfalfa within 4 months; field corn for 8.5 months; cotton, sorghum, or sunflower for 18 months; or canola (non-Clearfield) for 40 months after Pursuit application.
6 to 10 oz Select, Arrow, Section, Volunteer, Trizenta, or Tapout, or 9 to 16 oz Select Max	Clethodim (1) 0.07 to 0.156	Controls annual and perennial grasses. Always apply Select and comparable products with COC at 1% v/v. Always apply Select Max with NIS at 0.25% v/v or COC at 1% v/v plus AMS at 2.5 to 4 lb/acre. Can be applied to seedling or established alfalfa at least 15 days before grazing, feeding, or harvesting for hay. Apply to small, actively growing grasses before plants exceed the size limits on the label. Select is most effective on grasses before they have been mowed. Use the higher application rate and allow active regrowth before treating grasses that have been mowed.

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DORMANT SEASON		
4 oz Chateau	Flumioxazin (14) 0.13	For preemergence control of many annual grass and broadleaf weeds in established alfalfa. Does not provide good control of emerged weeds. Apply in fall or as a dormant season treatment. Works well for winter annual weed control when applied after the last alfalfa cutting in the fall. For maximum pigweed control, apply just before green-up in the spring and/or between cuttings. Between-cutting treatments can be applied only with chemigation. Provides excellent control of seedling dandelion but not established plants. Do not apply more than 8 oz/a during one growing season. Do not harvest or graze alfalfa within 25 days after Chateau application.
0.5 to 1.33 lb Dimetric or Tricor	Metribuzin (5) 0.4 to 1	Controls winter annual and some summer annual weeds. Apply to dormant established alfalfa after first growing season. Do not apply after spring growth begins or before growth ceases in fall. Do not allow grazing or harvest within 28 days of treatment.
4.5 lb Glyphosate (see glyphosate table)	Glyphosate (9) 0.21 to 0.28	Controls cheat and downy brome. Apply in early spring when grasses have resumed growing, but before alfalfa regrowth is initiated. Application after spring growth of alfalfa has begun may result in crop injury and reduced crop yield. Do not add AMS. Do not graze or harvest alfalfa within 36 hours after application.
2 to 3 pt Gramoxone SL 2.0 or 1.3 to 2.0 pt Gramoxone SL 3.0 or Helmquat	Paraquat (22) 0.5 to 0.75	May only be handled or applied by certified individuals. Paraquat is a contact herbicide. Apply to winter dormant alfalfa for control of winter annual weeds. Always apply with NIS. Do not allow grazing, and do not cut or harvest within 60 days of application. Can be tank-mixed with Velpar.
1 to 3 lb Karmex or 0.8 to 2.4 qt Diuron 4L	Diuron (5) 0.8 to 2.4	Apply to established alfalfa (1 year or older) after it is dormant in fall but before it begins to grow in spring. Do not use on loamy sand or sand. Do not replant treated areas to any crop within 2 years.
3 to 6 oz Pursuit	Imazethapyr (2) 0.047 to 0.094	Controls many annual weeds. Apply to established alfalfa in the fall or spring before plants have 3 inches of regrowth. Always apply with NIS or COC plus fertilizer solutions. Weeds that are not actively growing because of environmental stress are less susceptible to control. Do not apply during the last year of the alfalfa stand. Do not feed, harvest, or allow grazing of alfalfa for 30 days after an application.
1 to 2 oz Sharpen	Saflufenacil (14) 0.022 to 0.044	Controls certain winter annual broadleaf weeds. Apply to dormant established alfalfa after the first growing season. Apply with MSO at 1% v/v plus 1.25 to 2.5% v/v liquid UAN fertilizer or AMS at 8.5 to 17 lb/100 gal of spray solution at a minimum spray volume of 10 gal/acre. Make applications no later than 90 days before the first alfalfa cutting.
0.5 to 1.5 lb Sinbar 80W	Terbacil (5) 0.4 to 1.2	Controls winter and summer annual weeds. Apply to established alfalfa (1 year or older) in fall or winter after alfalfa becomes dormant but before new growth starts in the spring. Do not use on sand, loamy sand, gravelly soils, or soils with less than 1% organic matter. Do not replant treated areas to other crops within 2 years.
29 to 88 oz Tripzin ZC	Pendimethalin (3) + Metribuzin (5) 0.66 to 2 + 0.25 to 0.76	Tripzin ZC is a premix containing 2.9 lb of pendimethalin and 1.1 lb of metribuzin/gal. Apply to dormant established alfalfa after the first growing season for control of winter annual and some summer annual weeds. Do not graze or harvest alfalfa forage or hay less than 28 days for application of rates up to 58 oz/a, or less than 50 days for rates more than 58 oz/a.

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Formulated product/acre*	Herbicide and lb active ingredient needed/acre	Comments and limitations
DORMANT SEASON		
0.75 to 4.3 lb Velpar AlfaMax	Hexazinone (5) + Diuron (7) 0.25 to 1.5 + 0.3 to 1.8	Velpar AlfaMax is a unit pack that contains both hexazinone and diuron but is not a homogeneous mix. One 14.2 lb unit pack treats between 3.3 and 10 acres, depending on soil texture, soil organic matter content, and weed species to be controlled. Controls annual grass and broadleaf weeds. Lower rates can be used specifically for tansy mustard control. Apply to dormant, established alfalfa in fall or late winter but before new growth begins in spring. Do not allow grazing or feed treated forage or hay for 30 days after treatment. Do not replant treated areas to corn for 12 months or any other crops within 2 years after treatment. Consult the label for soil texture guidelines and cropping limitations.
1 to 4.3 lb Velpar AlfaMax Gold	Hexazinone (5) + Diuron (5) 0.23 to 1 + 0.55 to 2.4	Velpar AlfaMax Gold is a premix that contains hexazinone and diuron but has more diuron relative to hexazinone than Velpar AlfaMax. Use rates depend on soil texture, soil organic matter content, and weed species to be controlled. Controls annual grass and broadleaf weeds. Lower rates can be used specifically for tansy mustard control. Apply to dormant, established alfalfa in fall or late winter but before new growth begins in spring. Do not allow grazing or feed treated forage or hay for 30 days after treatment. Do not replant treated areas to corn for 12 months or to any other crops within 2 years after treatment. Consult the label for soil texture guidelines and cropping limitations.
1 to 6 pt Velpar L or 0.8 to 5 pt Velossa	Hexazinone (5) 0.25 to 1.5	Controls annual grasses and broadleaf weeds. Apply to dormant, established alfalfa in fall or late winter but before new growth begins in spring. Use 1 to 2 pt/a to control tansy mustard and higher rates to control cheatgrass and other weeds. Do not allow grazing or feed treated forage for 30 days after treatment. Do not replant treated areas to corn for 12 months or any other crops within 2 years after treatment. Consult the label for soil texture guidelines and cropping limitations.
HARVEST AIDS		
1 qt of 3 lb ae/gal Glyphosate (see glyphosate table)	Glyphosate (9) 0.75 lb ae	Glyphosate products differ in concentration and adjuvant requirements. Refer to specific product labels for rate and adjuvant recommendations. Apply to control weeds and assist in killing non-Roundup Ready alfalfa fields that are being terminated. Allow a minimum of 6 hours between application and alfalfa harvest. Subsequent tillage or herbicide treatment will be required for complete alfalfa kill.
1.5 to 2 pt Reglone, Diquat, or Verdure-X	Diquat (22) 0.38 to 0.5	Use on seed crop only. Desiccation is complete in 3 to 10 days. Do not allow grazing of treated areas or feed treated forage. Do not use seed from treated plants for food, feed, or oil.

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