

Alfalfa Weed Control in the Low Deserts of Arizona

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Alfalfa is a vigorous crop that is very competitive with weeds. The most effective weed control practice in alfalfa is maintaining a healthy crop and dense stand. Weeds often invade alfalfa stands in bare spots such as on the ends of fields. Cultural practices that promote a vigorous stand can reduce the need for chemical weed control. However, chemical weed control is often necessary even in well-managed alfalfa since the marketplace has a low tolerance for weeds in alfalfa hay. Weeds in general are undesirable in alfalfa hay since some are unpalatable or toxic, contain burs or thorns, are inconsistent in quality, or create high moisture spots in bales.

CULTURAL PRACTICES

Most of the cultural practices for alfalfa are designed to promote a vigorous stand and, therefore, have implications for weed control since maintaining a vigorous stand is the most effective weed control practice. Alfalfa cultural practices can be categorized as occurring during the following periods: establishment, between cuttings, and harvest. The influence of alfalfa cultural practices on weeds is detailed below.

Establishment

An appropriate site should be chosen that has a deep, well-drained soil and does not have a history of weeds difficult to control in alfalfa. Perennial weeds can be controlled before planting with glyphosate (eg. Roundup). Weed seeds will germinate with an irrigation before planting and then may be eliminated with a light cultivation. Proper land leveling at planting time prevents stand loss in low spots. Deep ripping aids in water penetration. October plantings for most of the low elevation desert areas in Arizona lessen weed competition since alfalfa growth is favored at this time compared to growth of summer or winter weeds. A seeding rate of 20 to 25 pounds of seed per acre is usually sufficient to establish an adequate stand. A higher seeding rate is an expensive form of weed control and often will not overcome a poor seedbed or other stand establishment problems, which are often spotty rather than uniformly distributed. A nurse or smother crop such as oats may be planted with alfalfa to compete with weeds. Choose a variety with the dormancy, productivity, and pest resistance characteristics appropriate for your area. Plant certified seed whose identity is guaranteed and which contains a minimum amount of weed seed.

Between cuttings

Do not apply manure containing weed seeds that will cause problems in the future. Use soil testing to determine phosphorus fertilizer needs. Nitrogen fertilizer favors weed growth and is not recommended except at planting if the soil nitrogen content is low. Frequent, shallow irrigation during stand establishment or other times favors weeds. Over-irrigation of poorly drained soil reduces stands due to Phytophthora root rot in the cool season and scald in the summer. Delaying irrigation after cutting until the alfalfa shades the soil surface helps control certain weeds, but alfalfa is most subject to water stress at this time. Summer fallow can be an effective weed control practice. Insects should be controlled as needed, particularly Egyptian alfalfa weevil, which often damages the stand beneath windrows leading to weed infestation.

Harvest

Sheep grazing is effective in reducing weed competition. Cutting a weed-infested stand before the weeds go to seed may help reduce weed problems in the future, but cutting on too short of a cycle reduces vigor and stand. Delayed cutting controls some weeds that may be out-competed by alfalfa later in the cutting cycle. In general, cutting alfalfa when half of the regrowth buds are three-quarters of an inch or longer is a good compromise between yield and quality and will help maintain an adequate stand. Weeds often invade areas damaged by wheel traffic or compaction from harvesting equipment. The roadsider damages regrowth more than any other harvesting equipment since regrowth is the greatest when it enters the field. Harvesting in wet fields can compact soils, reduce water infiltration, damage stands, and lead to weed infestation. Remove weeds from harvesting equipment when moving between fields and control weeds along border ridges, ditch banks, and fence lines. Weedy bales of hay can be segregated from clean hay after harvest. Bare spots may be replanted with alfalfa each year.

CHEMICAL CONTROL

Cultural practices that promote a healthy stand reduce the need for chemical weed control, but herbicides are sometimes necessary even in well-managed alfalfa. Weeds in alfalfa should be chemically controlled at an early stage if the yield of alfalfa or the value of the hay is significantly affected by weed growth. Weed competition is greatest in seedling alfalfa where weeds can seriously affect stand establishment and near the end of stand life when alfalfa is not as competitive. Weeds compete with alfalfa for water, nutrients, and light. Bermudagrass and dodder are very competitive with alfalfa and can reduce alfalfa stands. Established alfalfa is highly competitive, however, and most weeds (especially grasses) usually appear in bare spots where alfalfa is not growing. Increased marketability of the hay is usually the major benefit of weed control in alfalfa.

Even if weeds in alfalfa do not affect marketability of the hay, there are some reasons to control the weeds anyway. Weedy alfalfa can negatively affect the reputation of the grower. Supply and demand affect discounts for weedy hay. Weeds in alfalfa will only get worse with time and may create problems in subsequent crops. Some weeds may be nutritious at immature stages, but often weeds are at mature stages at the time of alfalfa cutting. Weeds do not cure at the same rate as alfalfa and can cause high moisture spots in bales. Some weeds are difficult to cut with a swather, particularly heavy stands of grass, and create unnecessary wear on the sickle bar and increase the time required to harvest. Some weeds are unpalatable, poorly digestible, reduce animal intake, accumulate nitrate, contain toxins, or produce burs or thorns that can injure the mouth of the animal. It is difficult to formulate a feeding ration for weedy alfalfa hay since the quality of the weed component may be unknown and the amount of weeds can vary considerably from bale to bale. Weedy hay usually contains weed seeds that are introduced into new areas. Some weeds harbor insects and diseases.

Herbicide use in alfalfa has disadvantages in some cases such as temporary alfalfa injury, reduced hay yield, or feeding restrictions. Effective chemical control requires accurate weed identification and timely herbicide application. Weed problems should be anticipated. The most common cause for herbicide failure is applying the herbicide too late.

Chemical Weed Control for Alfalfa in the Low Deserts of Arizona

			Grasses			Broadleaves						Perennials	
Herbicide	Rate lbs ai/A	Application	Summer annual grasses	Winter annual grasses	Sandbur	Shepherdspurse	Londonrocket	Common lambsquarter & Nettleleaf goosefoot	Little mallow	Pigweed	Bermudagrass	Nutsedge	Comments
Balan	1.12 to 1.5	Preplant Incorporated	M	M	M	F	F	D	F	D	F	F	Poor weed control may result where soil cracks & weeds emerge through cracks. Injury may result to alfalfa if stressed. Incorporate in 2 directions within 8 hours.
Eptam EC 20% Granules	2.0 to 3.0	Preplant Incorporated & Preemergence	D	D	M	F	F	D	D	M	F	D	Poor weed control may result when exposed to moisture. Should be incorporated immediately. Very volatile. Use lowest label rates for preplant treatments especially when temperatures exceed 90° for injury may occur.
Pursuit	0.047 to 0.094	Postemergence	F	D	F	M	M	F M *	M	M	F	D	Long soil residual activity, should not be used if rotation to a susceptible crop if possible within one or 2 years. Check label for restrictions. Some temporary stunting of alfalfa will occur after application. Weak on the composites, & lambsquarter. Suppresses grasses. Apply when weeds are small.
Trifluralin 10% Granules	1.0 to 2.0	Preemergence	M	M	M	F	F	D	F	M	F	F	Should be incorporated with irrigation within 3 days after application. Do not use in new seeded or reseeded alfalfa. Water ponding or high organic matter may reduce control.
2,4-DB Amine	0.5 to 1.5	Postemergence	F	F	F	F	M	M	F	M	F	F	To minimize crop injury, avoid applications when foliage does not cover the soil. Irrigation should be delayed as long as possible (10 days or more) following application. The addition of a non-phototoxic surfactant will improve weed control but may increase injury.
Gramoxone	0.25 to 0.5	Early Postemergence	D	D	D	D	M	M	D	M	F	F	Do not apply if regrowth after grazing or cutting is more than 2 inches tall or unacceptable injury may occur. Do not graze or harvest within 60 days of application. Foliage present at time of application will be discolored or stunted. Do not use in seedling alfalfa. Contact activity only, will not control weeds that germinate following treatment.
Kerb	0.5 to 2.0	Preemergence & early Postemergence	F	M	F	F	F	F	F	F	F	F	Label restricts the application of this herbicide to after the first trifoliate leaf stage of the alfalfa. Irrigation tends to move this herbicide below the germinating broadleaf weeds.
Sencor	0.375 to 0.5	Preemergence & early Postemergence	D	M	D	M	M	M	D	M	F	F	Apply following winter or early spring grazing only to established alfalfa. Regrowth of alfalfa should not exceed 2 inches or unacceptable injury may occur. Do not apply to stressed alfalfa. Do not apply to reseeded alfalfa for at least 6 months following reseeding.
Poast	0.1 to 0.5	Postemergence	M	M	D	F	F	F	F	F	D	F	Will not control annual bluegrass or sprangletop. Apply to actively growing grasses. Always add a non-phytotoxic oil concentrate. A second application will be required on perennial grasses when regrowth occurs or new plants emerge. Will only control weeds present at time of application and more than one application may be necessary to achieve season long annual grass control.
Buctril	0.25 to 0.375	Postemergence	F	F	F	D	M	M	D	M	F	F	Alfalfa must have a least 2 trifoliate leaves. Do not apply when temperatures exceed 70°F at or within 3 days of application because unacceptable crop injury may occur. Contact activity only, will not control weeds that emerge following treatment.
Zorial	1.0 to 2.0	Preemergence	M	M	M	D	D	D	D	D	F	D	Apply soon after cutting or grazing & incorporate with a minimum of 2 inches of water. Annual applications for 2 or 3 years will be required to control nutsedge. Long soil residue will prohibit rotation to many annual crops.
Select	0.094 to 0.25	Postemergence	M	M	D	F	F	F	F	F	D	F	Apply to actively growing grasses and use a non-phytotoxic oil concentrate. Will control both annual bluegrass and sprangletop.

M Good Control

D Partial Control

F No Control

* Pursuit does not control common lambsquarters