

Weed Control for Wheat and Barley in the Low Deserts of Arizona

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Wheat and barley are vigorous crops that rapidly cover the soil surface and often out-compete weeds. Small grains and other grasses are often planted as cover crops to suppress weeds. However, weeds can be a problem in wheat and barley especially where crop rotation is not practiced. Besides reducing yields, weeds can make harvesting difficult, increase dockage, cause heating in grain bins, discolor the grain, produce an off-flavor in the grain, reduce crop quality, and encourage insect infestation or mold growth in stored grain.

An integrated approach to weed management in wheat and barley includes preventing the introduction or spread of weeds, crop rotation, cultural practices that result in a vigorous crop, and chemical treatment when necessary. Weed seed can be spread from weeds growing along ditch banks and other areas, by tillage and harvesting equipment, and through contaminated crop seed. Crop rotation is an integral component of weed management since many weeds are easier to control in certain crops. Pre-irrigating can germinate weed seeds which can be eliminated by tillage at planting time. Planting below dry soil in a mulch can inhibit germination of certain shallow-germinating weeds such as canarygrass, but not other weeds such as wild oats that can emerge from 3 inches or more. Early planting dates generally result in plants that tiller more and are more competitive with weeds. Drill seeding produces a more uniform stand than broadcasting and helps in weed control. High seeding rates are also more competitive with weeds. Land leveling is important for weed control since weeds often flourish in low areas. Providing adequate but not excessive water and fertilizer maintains a vigorously growing crop that is competitive with weeds. Chemical treatments are important tools in weed management to maintain yield and quality and prevent proliferation of weeds that could affect future crops.

Herbicide timing based on crop and weed growth stages

Herbicide	Stage at application	
	Crop	Weeds
Banvel 4S	Prior to 5 leaf	2-3 leaf, less than 2 inches across
2,4-D	3 leaf to boot	Emergence to bud stage
MCPA	3 leaf to boot	Emergence to bud stage
Buctril 2E	Emergence to boot	2 to 8 leaves
Hoelon 3E	Emergence to jointing	Canarygrass: 1-2 leaf Wild oats: 1-4 leaf
Avenge 2S	2 leaf to jointing	Wild oats: 3-5 leaf Canarygrass: Will not control
Aim 40 WG	Emergence to jointing	Up to 4 inches high and rosettes less than 3 inches across
Achieve 40 DG	No restriction	1-6 leaves.

Chemical Weed Control for Wheat and Barley in the Low Deserts of Arizona

Herbicide	Rate (lb ai/a)	Grasses				Mustard			Chenopodium			Composite		Other		Comments	
		Canarygrass	Wild oats	Rabbitfoot grass	Italian ryegrass	London rocket	Shepardspurse	Wild mustard	Nettleleaf goosefoot	Lambsquarters	Russian thistle	Annual sowthistle	Prickly lettuce	Silversheath knotweed	Little mallow		
Banvel 2S & Clarity 4S	0.66 to 0.125	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●	Less crop safety than MCPA, 2,4-D & Buctril especially on barley. Should be applied prior to 5 leaf stage of growth. <u>Drift Hazard</u> . Tank mixes with other herbicides may increase potential crop injury.
2,4-D	0.25 to 0.50	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●	<u>Drift Hazard</u> to a wide range of broadleaf crops. Should be applied after tillering & before boot stage of growth. Tank mixes with other herbicides may increase potential of crop injury.
MCPA	0.25 to 1.5	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●	<u>Drift Hazard</u> but safer to cotton & alfalfa than 2,4-D. Apply after tillering & before boot stage. Tank mixes will increase potential crop injury.
Buctril 2E	0.25 to 0.375	○	○	○	○	●	●	●	●	●	●	●	●	○	○	○	This is a contact herbicide & will only control small weeds. Less drift hazard. Can be applied from emergence to boot stage of crop development.
Aim 40 WG	0.13 to 0.33	○	○	○	○	○	●	●	●	●	●	●	○	●	●	○	Contact herbicide with little or no residual activity. Good coverage to actively growing weeds is essential.
Hoelon 3E	0.75 to 1.0	●	●	○	●	○	○	○	○	○	○	○	○	○	○	○	Canarygrass with 3 or more leaves will not be controlled. Crop oil will improve control but may increase temporary crop injury.
Avenge 2S	0.625 to 1.0	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	May cause unacceptable crop injury to durum & other wheat varieties. Will control wild oat up to 5 leaf stage. Resistance of wild oats has been noted in several western states.
Achieve 40 DG	0.44 to 0.60	●	●	*	●	○	○	○	○	○	○	○	○	○	○	○	Best weed control will result if applied after most of the weeds have emerged and the largest ones are no more than 4 to 7 leaves.

○ No control

◐ Partial control

● Good control

* Not yet enough local data to evaluate

