Avena fatua L.; wild oat
Avena barbata Pott ex Link; slender oat

Wild and slender oats

Family: Poaceae
Range: Wild oat is found throughout the western U.S. and slender oat is primarily found in the Pacific states. The two species have been well established here since the late 1700s.
Habitat: Grassland, crop fields, orchards, vineyards, gardens, roadsides, and other disturbed sites.
Origin: Both species are native to Eurasia.
Impact: Wild oat is a major weed throughout the small grain-growing areas of the western U.S. because it emerges throughout the cool season from autumn through spring. It causes lodging, slows harvest, clogs harvester screens, and lowers yields dramatically. When wild oats are weeds in oat crops, they cannot be controlled using herbicides because any herbicide would also cause severe damage to the cultivated crop; however, wild oats can be controlled in wheat and barley. In rangeland, wild oats make good forage as the stems are finer and more palatable than common oats.
California Invasive Plant Council (Cal-IPC) Inventory: Both species, Moderate Invasiveness

Wild and slender oats are erect, cool-season annual grasses with open-branched, nodding flower clusters. Mature plants are sturdy and can grow to about 4 ft tall. Stems are round in cross-section, hairless, or nearly so. Leaves are flat, rolled in the bud, and up to 8 inches in length. Leaves often twist counter-clockwise. Usually a few soft hairs grow from the edge of the base of the blade. The leaf sheath is open and usually has a hairless edge. Wild oat has a large membranous ligule with a rounded, jagged top. There are no auricles. Wild oat has an extensive, fibrous root system.

Wild oats are in bloom mostly from March through June. The flower head is open and branched. Spikelets hang like pendants from the flowering branches. Plants reproduce only by seed. The seeds are hairy at the base with a circular scar at the point of seed attachment. The awns on the lemmas are 1 to 2 inches long, bent once, and twisted below the bend. Depending on the biotype and the location on the panicle, a proportion of seeds can remain dormant for one or more years. Some cold-climate biotypes of wild oat can survive for 10 years or more under field conditions.

NON-CHEMICAL CONTROL

Mechanical (mowing, plowing, and cultivation)	Hand pulling can be used to remove plants in small infestations. Mowing can prevent seed-set in heavy to moderate infestations. Plants can be managed with tillage on open ground before planting when the wild oats are germinating and before seed-set.
Cultural	Burning windrows of straw immediately after cutting can reduce seed viability, as seeds are not tolerant of high temperatures. In other areas, burning after seed drop will increase wild oats in the following season. Some growers till once in spring to stimulate wild oat germination, then till again later to kill seedlings. This is followed by a preemergence or postemergence herbicide for control of subsequent recruitment. A competitive stand of perennial vegetation will discourage wild oats on pastures.

Biological	Biocontrol agents have not been developed to control wild oat. Because these species are closely related to cultivated oats and other cereals, and also because they are desirable rangeland forage species, it is unlikely that a biological control program will be established.

CHEMICAL CONTROL

The following specific use information is based on published papers and reports by researchers and land managers. Other trade names may be available, and other compounds also are labeled for this weed. Directions for use may vary between brands; see label before use. Herbicides are listed by mode of action and then alphabetically. The order of herbicide listing is not reflective of the order of efficacy or preference.

LIPID SYNTHESIS INHIBITORS	
Clethodim *Select*, *Envoy*	**Rate:** 0.75 to 2 pt product (*Envoy*)/acre (1.5 to 4 oz a.i./acre) **Timing:** Postemergence when target plants are between 2 and 6 inches tall. **Remarks:** Clethodim is a grass-selective herbicide. Add a non-ionic surfactant (0.25%). There are some naturally occurring populations of wild oats that are resistant to herbicides with the ACCase mode of action. Note that *Envoy* formulation is 1 lb a.i./gallon, *Select* is 2 lb a.i./gallon.
Fluazifop *Fusilade*	**Rate:** 1 to 1.5 pt product/acre (4 to 6 oz a.e./acre) **Timing:** Postemergence when target plants are between 2 and 8 inches tall and rapidly growing. **Remarks:** Fluazifop is a grass-selective herbicide. Add a non-ionic surfactant (0.06 to 0.125%) for increased control. There are some naturally occurring populations of wild oats that are resistant to herbicides with the ACCase mode of action.
Sethoxydim *Poast*	**Rate:** 1 to 2.5 pt product/acre (3 to 7.5 oz a.e./acre) **Timing:** Postemergence when wild oats are less than 12 inches tall. Label recommends 1.5 pt product/acre when seedlings are 4 inches or less. **Remarks:** Sethoxydim is a grass-selective herbicide. Add a seed oil or crop oil concentrate (0.5% to 1% v/v). Adding nitrogen to the spray solution can improve control. Do not use treated vegetation as pasture, hay, feed, or forage. Do not apply to any desired grass crop. There are some naturally occurring populations of wild oats that are resistant to herbicides with the ACCase mode of action.
AROMATIC AMINO ACID INHIBITORS	
Glyphosate *Roundup*, *Accord XRT II*, and others	**Rate:** 11 to 22 oz product (*Roundup ProMax*)/acre (6.2 to 12.4 oz a.e./acre) **Timing:** Postemergence when target weeds are less than 18 inches tall and rapidly growing, before planting a crop. **Remarks:** Add ammonium sulfate at a rate of 10 to 15 lb/100 gal of water. Add a non-ionic surfactant when using a formulation where it is not already included (e.g., *Accord, Rodeo*, *Aquamaster*).
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Imazapic *Plateau*	**Rate:** 8 to 12 oz product/acre (2 to 3 oz a.e./acre) **Timing:** Postemergence when wilds oats are less than 12 inches tall. **Remarks:** Imazapic has some residual soil activity. There are some naturally occurring populations of wild oats that are resistant to herbicides with the ALS mode of action. Imazapic is not registered for use in California.
Imazapyr *Arsenal AC*, *Habitat*, *Chopper*, *Stalker*, *Polaris*	**Rate:** 2 to 3 pt product (*Arsenal AC*)/acre (1 to 1.5 lb a.e./acre) **Timing:** Preemergence or postemergence when plants are young. **Remarks:** Imazapyr is a broad-spectrum herbicide with fairly long soil residual activity. Do not apply more than 3 pt product (*Arsenal AC*)/acre per year. There are some naturally occurring populations of wild oats that are resistant to herbicides with the ALS mode of action.
Propoxycarbazone-sodium *Canter R+P*	**Rate:** 1.2 oz product/acre (0.84 oz a.i./acre) **Timing:** Postemergence from the 2-leaf to 2-tiller stage when plants are growing rapidly. **Remarks:** Propoxycarbazone is a broad-spectrum herbicide that will control many species. It will provide only partial control of wild or slender oats. Perennial grass species vary in tolerance. A non-ionic surfactant should be added at 0.25 to 0.5% v/v solution.

Rimsulfuron *Matrix*	**Rate:** 4 oz product/acre (1 oz a.i./acre) **Timing:** Preemergence or postemergence when the target plants are small. **Remarks:** Rimsulfuron controls several annual grasses and broadleaves. It provides only partial control of wild oats. Perennial grasses are tolerant to fall applications when established and grown under dryland conditions. Application to rapidly growing or irrigated perennial grasses may result in their injury or death. It provides soil residual control in cool climates but degrades rapidly under warm conditions. Rimsulfuron will not control summer annual weeds when applied in fall or spring. Add a surfactant when applying postemergence.
Sulfometuron *Oust* and others	**Rate:** 1 to 2 oz product/acre (0.75 to 1.5 oz a.i./acre) **Timing:** Preemergence or early postemergence when the weeds are germinating or actively growing. **Remarks:** Sulfometuron will control or injure most other plant species. To improve control, add a surfactant at the rate of 0.25% v/v or at the rate specified on the manufacturer's label. There are some naturally occurring populations of wild oats that are resistant to herbicides with the ALS mode of action.
CONTACT PHOTOSYNTHETIC INHIBITORS	
Paraquat *Gramoxone* and others	**Rate:** 1 to 2.7 pt product/acre (4 to 10.8 oz a.i./acre) **Timing:** Postemergence when target plants are less than 6 inches tall, but before planting a crop. **Remarks:** Paraquat is selective on annual species and will only cause some burndown of perennials. Spray coverage needs to be thorough. Do not make more than two applications per year. Paraquat is a restricted use herbicide.
PHOTOSYNTHETIC INHIBITORS	
Hexazinone *Velpar L*	**Rate:** 1 to 2.5 gal product/acre (2 to 5 lb a.i./acre) **Timing:** Either preemergence or postemergence when the target plants are germinating and actively growing. **Remarks:** Hexazinone is a broad-spectrum, long residual, mobile herbicide. It suppresses wild oats but does not provide control. High rates of hexazinone can create bare ground, so only use high rates in spot treatments.

RECOMMENDED CITATION: DiTomaso, J.M., G.B. Kyser et al. 2013. *Weed Control in Natural Areas in the Western United States*. Weed Research and Information Center, University of California. 544 pp.