Carthamus lanatus L.

Woolly distaff thistle

Family: Asteraceae
Range: Primarily a problem in the central coast regions of California, but is also found in Oregon, Arizona, Texas and Oklahoma.
Habitat: Disturbed open sites, roadsides, fields, grassland, rangeland, pastures, and sometimes agricultural land, especially grain fields.
Origin: Native to Mediterranean region.
Impacts: Highly competitive with cereal crops and desirable rangeland species, and dense populations can develop. In addition, the spiny foliage and flowerheads can injure the eyes and mouths of grazing livestock.
Western states listed as Noxious Weed: California, Oregon
California Invasive Plant Council (Cal-IPC) Inventory: Moderate Invasiveness (Alert)

Erect winter annual, with rigid stems to 3 ft tall and spiny leaves. Plants exist as rosettes until flower stems develop in spring/summer. Stems usually covered with loose woolly or cobwebby hairs, as well as minute glandular hairs, especially in leaf axils and at bases of flowerheads. Stem leaves alternate, sessile, once-pinnate-lobed and prominently spine-tipped, also with glandular hairs.

Flowerheads are yellow, 1 to 2 inches long, solitary at stem tips, with spiny lobed phyllaries. Flowerheads consist of numerous disk flowers. Outer seeds (achenes) lack a pappus, whereas inner achenes have a persistent pappus, 10 to 13 mm long, of numerous narrow, unequal, brownish scales. Plants reproduce only by seed. Most achenes fall near the parent plant, but some remain in the persistent seedheads. Achenes and sometimes entire seedheads can disperse to greater distances with animals, humans, machinery such as tractors and agricultural implements, mud, and water. Most seeds germinate within the first couple of years after maturation, but some seeds can remain dormant and viable for up to 8 years under field conditions.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Hoeing can be effective for the control of small populations. This can be conducted in the rosette or bolting stage, but before flowering. Plants must be cut just below the soil surface to prevent resprouting. Mowing after bolting but just before the development of flower buds can prevent most seed production. This is generally in late spring. Mowing earlier can encourage the regrowth of flowering stems. In plants mowed after flowerheads have developed, seed can mature in cut flowerheads left on the ground. Control programs may have to be repeated two or more times throughout the season to prevent escaped plants from producing seeds.
Cultural	Heavy grazing can increase distaff thistle populations because livestock selectively graze more palatable and less spiny species, thereby reducing competition with other plants for light and nutrients.
Biological	Distaff thistle is closely related to commercial safflower (*Carthamus tinctorius* L.), which precludes the development and release of biological control agents.

CHEMICAL CONTROL

The following specific use information is based on published papers or 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.

GROWTH REGULATORS	
2,4-D Several names	**Rate:** 2 to 4 pt product/acre (0.95 to 1.9 lb a.e./acre) **Timing:** Postemergence when plants are at seedling or small rosette stage, which is generally in late winter or early spring. **Remarks:** 2,4-D gives good control, but aminopyralid is considered better. It will damage other broadleaf species, but is safe on grasses. 2,4-D is a restricted use herbicide in some areas.
Aminopyralid *Milestone*	**Rate:** 3 to 7 oz product/ac (0.75 to 1.75 oz a.e./ac) **Timing:** Preemergence and postemergence. For postemergence treatment it is best applied when plants are at seedling or early rosette stage, which is generally in late winter or early spring. **Remarks:** Aminopyralid gives excellent control. It is fairly selective primarily on members of the Asteraceae and Fabaceae, and is generally safe on grasses. Aminopyralid has soil residual activity which helps to control later-germinating seedlings. A premix of aminopyralid + metsulfuron (*Opensight*) also provides excellent control at 1.5 to 2 oz product/acre.
Clopyralid *Transline*	**Rate:** 6 to 21 oz product/ac (2.25 to 8 oz a.e./ac) **Timing:** Preemergence and postemergence. For postemergence treatment, it is best applied when plants are at seedling or small rosette stage, which is generally in late winter or early spring. **Remarks:** Clopyralid gives good control, but aminopyralid is considered better. It is fairly selective primarily on members of the Asteraceae and Fabaceae, and is safe on grasses. Clopyralid has soil residual activity which helps to control later-germinating seedlings.
Dicamba *Clarity*, *Banvel*	**Rate:** 2 to 4 pt product/acre (1 to 2 lb a.e./acre) **Timing:** Postemergence when plants are at seedling or small rosette stage, which is generally in late winter or early spring. **Remarks:** Dicamba gives good control, but aminopyralid is considered better. It is a broadleaf-selective herbicide and is safe on grasses.
Picloram *Tordon 22K*	**Rate:** 1 to 1.5 pt product/acre (4 to 6 oz a.e./acre) **Timing:** Postemergence in spring at the rosette stage before bolting. **Remarks:** Picloram has long soil residual activity. The label indicates picloram should be mixed with 1 lb a.e./acre 2,4-D. It will damage other broadleaf species, but is generally safe on grasses. Picloram is a restricted use herbicide. It is not registered for use in California.
Triclopyr *Garlon 3A*	**Rate:** 2 qt *Garlon 3A*/acre (1.5 lb a.e./acre) **Timing:** Postemergence when plants are at seedling or small rosette stage, which is generally in late winter or early spring. **Remarks:** Triclopyr gives good control, but aminopyralid is considered better. It is a broadleaf-selective herbicide and is safe on grasses.
AROMATIC AMINO ACID INHIBITORS	
Glyphosate *Roundup*, *Accord XRT II*, and others	**Rate:** 1 to 2 pt product (*Roundup ProMax*)/acre (0.56 to 1.1 lb a.e./acre) **Timing:** Postemergence in late spring or early summer, but before plants begin to flower. Rosette to early bolting stage is best. **Remarks:** Glyphosate is nonselective, and it is best to apply after desirable annual grasses have dried up. If perennial grasses are present, glyphosate can cause significant damage or death.

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.