Cynara cardunculus L.

Artichoke thistle

Family: Asteraceae
Range: West Coast states (Washington, Oregon and California), generally at low elevations in coastal environments.
Habitat: Disturbed, open sites in grassland, pasture, chaparral, coastal sage scrub, riparian areas, and abandoned agricultural fields, particularly in coastal areas. Often associated with areas impacted by historic or recent overgrazing. Grows best on deep clay soils. Does not tolerate heavy shade.
Origin: Native to the Mediterranean region.
Impacts: Dense colonies displace desirable vegetation through competition for space and soil moisture, and can exclude wildlife and livestock.
Western states listed as Noxious Weed: California
California Invasive Plant Council (Cal-IPC) Inventory: Moderate Invasiveness

Artichoke thistle, probably a wild biotype of the commercial globe artichoke, is a large perennial to 8 ft tall, with grayish-colored, spiny, deeply pinnate-lobed leaves and large purple flowerheads. Seedlings develop a deep, fleshy taproot during the first year. Rosette leaves often die during summer and regrow when rains commence in fall. One-year old plants sometimes flower, but most plants do not flower until their second year. Individual plants may live for many years.

Flowering occurs from spring to mid-summer. Plants send up one to several erect, thick, branched stems with spiny ribs; stems are topped with large, solitary flower heads 1 to 6 inches diameter. Stems typically die after flowering and can remain standing for several months to more than a year. Reproduction is primarily by seed, and occasionally by root fragments following mechanical disturbance. Most achenes fall near the parent plant or disperse up to about 60 ft with wind. Seeds can survive about 5 years in the soil.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Artichoke thistle can be cultivated or manually removed in the seedling stage. For manual control of established plants, a large portion of the taproot must be removed, otherwise the remaining root will generate new shoots. Cutting flower stems before maturity can reduce seed production. Some workers have found it useful to cut down dense patches with power tools or tractors, then treat the regrowth with herbicides. On agricultural land, repeated cultivation can eventually eliminate troublesome populations.
Cultural	Livestock usually avoid artichoke thistle because of its spiny foliage. Browsing by goats, however, can reduce seed production. Burning can be used to remove above-ground material once it dries in late summer to fall. This can facilitate subsequent herbicide applications. Burning may also encourage the seedbank to flush, providing an opportunity for seedling control. Because of the perennial taproot, burning alone will not kill the plant.
Biological	The artichoke fly (*Terellia fuscicornis*) was accidentally introduced into California, but is not a California Department of Food and Agriculture (CDFA) approved biocontrol agent. Preliminary studies suggest that some native thistles (*Cirsium* spp.) may be vulnerable to attack by the fly. The fly's impact on artichoke thistle populations is unknown. Larvae feed only on mature flowerheads, thus commercial artichokes are not significantly affected since they are harvested while immature.

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.

GROWTH REGULATORS	
2,4-D Several names	**Rate:** 1.1 to 2.1 qt product/acre (1 to 2 lb a.e./acre) **Timing:** Postemergence at rosette stage. **Remarks:** 2,4-D is broadleaf-selective and has no soil activity. It may require repeat applications. 2,4-D is not the most effective treatment, but is widely used because of low cost. Use a surfactant. Do not apply when outside temperatures exceed 80°F.
Aminocyclopyrachlor + chlorsulfuron *Perspective*	**Rate:** 4.75 to 8 oz product/acre **Timing:** Postemergence from spring up to flowering, or fall rosette stage. **Remarks:** *Perspective* provides broad-spectrum control of many broadleaf species. Although generally safe to grasses, it may suppress or injure certain annual and perennial grass species. Do not treat in the root zone of desirable trees and shrubs. Do not apply more than 11 oz product/acre per year. At this high rate, cool-season grasses will be damaged, including bluebunch wheatgrass. Not yet labeled for grazing lands. Add an adjuvant to the spray solution. This product is not approved for use in California and some counties of Colorado (San Luis Valley).
Aminopyralid *Milestone*	**Rate:** 5 to 7 oz product/acre (1.25 to 1.75 oz a.e./acre) **Timing:** Postemergence in winter to spring, ideally before bolting. **Remarks:** Aminopyralid is a broadleaf herbicide similar to picloram, but more selective and generally safe on grasses. Its soil residual activity will kill emerging seedlings. Aminopyralid has a longer soil residual and higher activity than clopyralid.
Clopyralid *Transline*	**Rate:** 0.25 to 0.67 pt product/acre (1.5 to 4 oz a.e./acre) **Timing:** Postemergence in winter to early spring, seedling to rosette stage. **Remarks:** Clopyralid is a broadleaf herbicide like picloram, but more selective. It is very safe on grasses.
Clopyralid + 2,4-D *Curtail*	**Rate:** 1.5 to 3 qt product/acre (higher rate if plants are drought-stressed) **Timing:** Postemergence to rapidly growing weeds from full rosette to early flower bud. **Remarks:** The combination is broadleaf-selective with a wide range of susceptible species. Recommended rates are based on those reported for knapweeds and perennial thistles.
Dicamba *Banvel*, *Clarity*	**Rate:** 1 to 2 pt product/acre (0.5 to 1 lb a.e./acre) **Timing:** Postemergence to rapidly growing plants. Treatments are more effective on smaller plants. **Remarks:** Dicamba is a broadleaf-selective herbicide often combined with other active ingredients. It is effective earlier in the season than 2,4-D. It is also effective when tank-mixed with 2,4-D (0.75 lb a.e./acre of dicamba + 0.25 lb a.e./acre of 2,4-D). Avoid drift to sensitive crops. Do not apply when outside temperatures exceed 80°F. Recommended rates are based on those reported for knapweeds and perennial thistles.
Picloram *Tordon 22K*	**Rate:** 1 to 2 pt product/acre (4 to 8 oz a.e./acre) **Timing:** Postemergence during active growth before bud stage. **Remarks:** Picloram is one of the most effective herbicides for this artichoke thistle. Most broadleaf plants are susceptible, but relatively safe on established grasses. It is also effective when mixed with dicamba or 2,4-D. Picloram has long soil residual activity and has been reported to injure young or germinating grasses. *Tordon 22K* is a federally restricted use pesticide. Not registered for use in California.
Triclopyr *Garlon 3A, Garlon 4 Ultra*	**Rate:** 0.33 to 1.5 gallons *Garlon 3A*/acre or 0.25 to 1 gallons *Garlon 4 Ultra*/acre (1 to 4 lb a.e./acre) **Timing:** Postemergence to rapidly growing weeds, up to bud stage. **Remarks:** Triclopyr is broadleaf-selective and safe on most grasses. It is most effective on smaller plants. *Garlon 4 Ultra* is formulated as a low volatile ester. However, in warm temperatures, spraying onto hard surfaces such as rocks or pavement can increase the risk of volatilization and off-

	target damage. Recommended rates are based on those reported for perennial thistles.
Triclopyr + 2,4-D *Crossbow*	**Rate:** 4 qt *Crossbow*/acre **Timing:** Postemergence from rosette to early bolting stage. **Remarks:** Include non-ionic surfactant. Recommended rates are based on those reported for knapweeds and perennial thistles.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Imazapyr *Arsenal*, *Habitat*, *Stalker*, *Chopper*, *Polaris*	**Rate:** 4 to 6 pt product/acre (1 to 1.5 lb a.e./acre), or 1% v/v solution as a spot treatment. **Timing:** Postemergence at flowering. **Remarks:** Imazapyr is best used as a spot treatment. It is a nonselective herbicide. It also has long soil residual activity and can leave more bare ground than other treatments, even a year after application. Recommended rates are based on those reported for perennial thistles.
Metsulfuron *Escort*	**Rate:** 1.5 to 2 oz product/acre (0.9 to 1.2 oz a.i./acre) **Timing:** Postemergence to young, rapidly growing weeds in spring before flowering, or in fall to new rosettes. **Remarks:** Metsulfuron has mixed selectivity but is generally safe on grasses. Use a surfactant. It can be tank-mixed with 2,4-D. Metsulfuron has some soil residual activity. Recommended rates are based on those reported for perennial thistles. Not registered for use in California.

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.