

This WEED REPORT does not constitute a formal recommendation. When using herbicides always read the label, and when in doubt consult your farm advisor or county agent.

This WEED REPORT is an excerpt from the book *Weed Control in Natural Areas in the Western United States* and is available wholesale through the UC Weed Research & Information Center (wric.ucdavis.edu) or retail through the Western Society of Weed Science (wsweedsociety.org) or the California Invasive Species Council (cal-ipc.org).

Brassica tournefortii Gouan.

Saharan mustard

Family: Brassicaceae

Range: Throughout the southwestern United States, including California, Nevada, Arizona, New Mexico and Texas.

Habitat: Roadsides, washes, open fields, annual grasslands, coastal sage scrub, and desert shrubland. Typically grows in arid climate areas on sandy soil and where competing vegetation is sparse. Inhabits coastal and inland dunes in its native range.

Origin: Native to the Mediterranean region.

Impacts: Saharan mustard is especially problematic in the Sonoran Desert, including the Imperial Valley. It readily spreads from roadsides and other disturbed places into washes, drainages, desert shrubland, and sensitive dune areas. Saharan mustard stands contribute to increased fuel load and fire frequency. Increasing the fire frequency can lead to the type conversion of desert scrub to grassland. Because desert systems often contain rare and endangered species, Saharan mustard can be a significant threat to these species. Like other mustards, Saharan mustard can also harbor diseases and pests that attack closely related crops in the mustard family. The foliage, roots, and especially seeds of *Brassica* and many related species contain glucosinolates, which are sulfur-containing compounds that can irritate the digestive tract and cause thyroid dysfunction when consumed in large quantities over time. Toxicity problems in livestock arise when large quantities of seeds are ingested or when animals are confined to pastures that consist primarily of mustard family species. Symptoms can include colic, diarrhea, excessive salivation, and thyroid enlargement.

California Invasive Plant Council (Cal-IPC) Inventory: High Invasiveness



Erect winter annual, to 4 ft tall or more. Exists as a basal rosette until flowering stems develop at maturity. Basal leaves deeply pinnate-lobed, typically with more lobed pairs (6 to 14 pairs) than most mustard species. Lower stems have are characterized by having dense, stiff white hairs.

Inflorescences in racemes with 4-petaled pale yellow flowers (4 to 8 mm long) and long linear fruits (1.5 to 3.5 inches long). Mature fruits strongly constricted between the seeds and appearing beaded. Fruits open from the base to release seeds. Plants reproduce only by seed. Most seeds fall near parent plants when fruits open at maturity. Sometimes seeds disperse when dried plant stems break at ground level and tumble under windy conditions. Seeds become slightly sticky with mucilage when moistened with water. Like many mustards, Saharan mustard probably develops a large, persistent seedbank, with seeds that can survive for many years in the soil.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Hand pulling has been used successfully, but is labor intensive and must be conducted after bolting but before seeding. This leaves a narrow timing window and requires repeated monitoring and visits. A hula hoe can be effective for smaller plants in the early rosette stage. Flaming in winter has also been used for small patches. Best used during a rain event. Roadside grading with heavy equipment can also control the plant, but this too has to be conducted before seed development.
Cultural	Sheep, cattle, and goats will all graze mustard species. There are no studies to demonstrate their effectiveness. Burning is not a recommended tool since because plants are often found in desert regions and the fuel needed to carry a fire would likely be after seed production was completed.

Biological	There are no biological control agents available. However, current research efforts are underway to identify insects in Europe that feed on Saharan mustard. If suitable species are found they could eventually be imported and released to control infestations in the United States.
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CHEMICAL CONTROL

The following specific use information is based on 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: 1.5% v/v solution for spot application Timing: Postemergence when plants are small and are growing rapidly, but before flowering. Remarks: 2,4-D is broadleaf-selective with no soil activity. It is available in a premix with dicamba (trade name <i>Veteran 720</i>) and several other premix products. 2,4-D may be a restricted use herbicide in some areas.
Triclopyr <i>Garlon 3A, Garlon 4 Ultra</i>	Rate: 2% v/v solution for spot application Timing: Postemergence when plants are small (rosette stage) and growing rapidly, but before flowering. Remarks: Triclopyr has been shown to be a very effective control option. It is broadleaf-selective.
AROMATIC AMINO ACID INHIBITORS	
Glyphosate <i>Roundup, Accord XRT II, and others</i>	Rate: 2% v/v solution for spot application Timing: Postemergence when plants are small and growing rapidly, but before flowering. Remarks: Some studies show that glyphosate only gives fair control. It is best on plants in seedling stage. String trimming followed by glyphosate has been shown to be effective. Glyphosate is nonselective and has no soil activity. It can be used in combination with imazapic (premix trade name of <i>Journey</i>).
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Chlorsulfuron <i>Telar</i>	Rate: 1 to 2 oz product/acre (0.75 to 1.5 oz a.i./acre) Timing: Preemergence, or postemergence to rosettes. Remarks: Chlorsulfuron is primarily active on broadleaf species and is very effective on Saharan mustard. It has some residual soil activity.
Imazapic <i>Plateau</i>	Rate: 4 to 10 oz product/acre (1 to 2.5 oz a.e./acre) Timing: Preemergence, or postemergence to rosettes. Remarks: Imazapic gives effective control with soil residual activity. It can be used in combination with glyphosate (premix trade name of <i>Journey</i>). Imazapic is not registered for use in California.
Metsulfuron <i>Escort</i>	Rate: 1 to 2 oz product/acre (0.6 to 1.2 oz a.i./acre) Timing: Preemergence, or postemergence to rosettes. Remarks: Metsulfuron has some soil residual activity. It is not registered for use in California.
PHOTOSYNTHETIC INHIBITORS	
Hexazinone <i>Velpar L</i>	Rate: 1 to 2 pt product/acre (0.25 to 0.5 lb a.i./acre) Timing: Typically applied preemergence. Remarks: There is no direct evidence of control but hexazinone is effective on other mustards, including <i>Descurainia</i> spp. 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.