Brassica nigra (L.) Koch

Black mustard

Family: Brassicaceae
Range: Throughout the U.S. and in all western states except Wyoming.
Habitat: Roadsides, fields, disturbed waste places, and grasslands, especially in coastal areas. Mostly inhabits areas with a mild winter climate in its native range.
Origin: Native to Europe. Introduced by the Spanish as a spice crop. The seeds of cultivars are still used to produce mustard oil.
Impact: In coastal grasslands, dense stands of black mustard outcompete native vegetation. Black mustard appears to have allelopathic properties. It is adapted to periodic fires and newly burned sites are subject to invasion. The high biomass contributes to increased fuel load and fire frequency. Black mustard contains glucosinolates, sulfur 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.
California Invasive Plant Council (Cal-IPC) Inventory: Moderate Invasiveness

Black mustard is an erect winter annual to 6 ft tall. The basal leaves mostly have 1 to 2 pairs of distinct lateral lobes at the base, with the terminal lobe much larger than the lateral lobes. The upper stem leaves are oblong to linear, the base tapered, and the margins entire to toothed or weakly lobed.

The four petals are bright yellow, 6 to 11 mm long, and plants flower from mid-spring to mid-summer. Mature fruits are linear, 0.5 to 1 inch long, and erect, usually lying close to the stem. Plants reproduce only by seed. Most seeds fall near parent plants when fruits open at maturity. Many mustard species develop a large, persistent seedbank. Deeply buried seeds of black mustard can survive for 50 years or more. Seeds nearer to the soil surface are not as long-lived under field conditions.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Plants can be hand pulled or removed by other tools before they produce seed. Yearly manual removal of plants before seeds mature can eventually deplete the seedbank. Tillage can be used to manage black mustard in the seedling stage. Tillage should be done before black mustard has set seed. Shallow tillage is preferred over deep tillage. Deep tillage can bury weed seeds to depths where they can remain dormant for many years and become a problem at a later date.
Cultural	There is no information on the effectiveness of grazing for the control of black mustard. However, it is speculated that the plants must be readily eaten by livestock because big stands are seldom found on native ranges other than those lightly grazed. In the United States, black mustard is most common on areas protected from grazing. Reports indicate that plants are fairly palatable to sheep and cattle. Burning and other kinds of disturbance usually favor the increase of mustard species. Seeds on the soil during a grassland fire are not likely to be killed by the heat of the burn.
Biological	Because of the close relationship of black mustard with many important crop plants in the genus *Brassica*, there are no biological control efforts in the United States.

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 to 2 pt product/acre (0.5 to 1 lb a.e./acre) **Timing:** Postemergence when weeds are small and rapidly growing. **Remarks:** 2,4-D is broadleaf-selective and has no soil activity.
Aminocyclopyrachlor + chlorsulfuron *Perspective*	**Rate:** 3 to 8 oz product/acre **Timing:** Preemergence or early postemergence when weeds are germinating or actively growing. **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).
Dicamba *Banvel*, *Clarity*	**Rate:** 0.5 to 1.5 pt product/acre (4 to 12 oz a.e./acre) **Timing:** Postemergence when weeds are small and rapidly growing. Use low rate for small rapidly growing weeds-higher rate for large mustards. **Remarks:** Dicamba is broadleaf-selective with little soil activity. Dicamba is available mixed with diflufenzopyr in a formulation called *Overdrive*. This has been reported to be effective on some mustards. Diflufenzopyr is an auxin transport inhibitor which causes dicamba to accumulate in shoot and root meristems, increasing its activity. *Overdrive* is applied postemergence to rapidly growing plants at 4 to 8 oz product/acre. Higher rates should be used on large annuals. Add a non-ionic surfactant to the treatment solution at 0.25% v/v or a methylated seed oil at 1% v/v.
Fluroxypyr *Vista XRT*	**Rate:** 22 oz product/acre (7.7 oz a.e./acre) **Timing:** Postemergence when weeds are small and rapidly growing. **Remarks:** Only effective when applied postemergence. Gives suppression of mustards. Can also be used in a premix with picloram (*Surmount*), but this formulation is not registered for use in California.
Triclopyr *Garlon 4 Ultra*	**Rate:** 1 to 8 qt product/acre (1 to 8 lb a.e./acre) **Timing:** Postemergence when weeds are small and rapidly growing. Higher rates are needed on more mature plants. **Remarks:** Triclopyr is broadleaf-selective and may injure other desirable species. The ester formulation (*Garlon 4 Ultra*) is more effective compared to the amine formulation. Use rate for mustard should not exceed 4 lb a.e./acre.
AROMATIC AMINO ACID INHIBITORS	
Glyphosate *Roundup*, *Accord XRT II*, and others	**Rate:** Spot treatment: 2% v/v solution for spot application **Timing:** Best treated postemergence when plants are small and are growing rapidly, but before flowering. **Remarks:** Some studies show that it only gives fair control on mustards. Best on seedling plants.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Chlorsulfuron *Telar*	**Rate:** 1 to 2.6 oz product/acre (0.75 to 1.95 oz a.i./acre) **Timing:** Preemergence or early postemergence, when weeds are germinating or actively growing. **Remarks:** Chlorsulfuron is primarily active on broadleaf species. It gives very effective control of most mustards, except shortpod mustard. It has fairly long residual soil activity. Do not apply more than 1.33 oz product/acre per year in pasture, range, and CRP, or 2.6 oz product/acre per year in noncrop.

Propoxycarbazone-sodium *Canter R+P*	**Rate:** 0.9 to 1.2 oz product/acre (0.63 to 0.84 oz a.i./acre) **Timing:** Postemergence to young, rapidly growing plants. **Remarks:** Propoxycarbazone is a broad-spectrum herbicide that will control many species, including black mustard. 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 in spring or fall depending on the timing of germination. **Remarks:** Controls several annual grasses and broadleaves. 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 injury or death of the crop. 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. Moisture is necessary for activation and the best results occur when precipitation is within 14 to 21 days of application.
Sulfometuron *Oust* and others	**Rate:** 3 to 5 oz product/acre (2.25 to 3.75 oz a.i/acre) **Timing:** Preemergence or early postemergence. **Remarks:** Sulfometuron is a broad-spectrum herbicide with long soil residual activity. Provides longer control in areas with 20 inches of annual rainfall or more.

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.