

Small grain—Cereal leaf beetle

Oulema melanopus

Pest description and crop damage Adults are small beetles about 0.25 to 0.375 inch, with a metallic-blue head and wing covers, red pronotum, and yellow-orange legs. Larvae are yellow to yellow-brown with a dark mass of slimy fecal material on their backs.

Both adults and larvae feed on leaves. Feeding causes a characteristic stripping of the leaves.

Sampling and thresholds. Treat when there are three larvae or eggs per plant up to the boot stage. After boot, treat at one larva per flag leaf.

Management—biological control

These insects are controlled easily by introduced parasitoids. The primary biocontrol agents (parasitoids) are two wasp species; *Tetrastichus julis* (a larval parasitoid) and *Anaphes flavipes* (an egg parasitoid).

Management—chemical control

Foliar sprays

1. *Beauveria bassiana* GHA (Mycotrol O) at 0.5 to 2 pints/a. PHI 0 days. Do not apply more than 6 pints/a.
2. carbaryl (Carbaryl 4L, Sevin XLR Plus) at 1 quart/a. PHI 7 days for foraging, 21 days for grain. *Wheat only*. No more than two applications after head emergence. Latex-based formulations such as Sevin XLR Plus are less hazardous to bees. Do not apply more than 3 quarts/a per crop.
3. carbofuran (Furadan 4F) at 0.5 pint/a when insects appear. Idaho, Oregon (Malheur County). Apply before heading. Do not apply more than twice per growing season. Do not feed forage. Barley, oats, and wheat. This use is allowed through a 2ee supplemental label.
4. chlorpyrifos—
 - a. Chlorpyrifos 4E AG, Govern 4E, Yuma 4E, Lorsban 4E, Warhawk, Whirlwind, Eraser, and Nufos 4E at 0.5 to 1 pint/a. *Wheat only*. PHI 14 days forage and hay; 28 days grain. Do not feed straw for 28 days or graze within 14 days of application. Not more than two applications per year.
 - b. (Lorsban Advanced) at 0.5 - 1 pt/a. *Wheat only*. PHI 14 days forage and hay; 28 days grain. Do not feed straw for from treated wheat within 28 days or graze within 14 days of application. Not more than 2 applications of Lorsban Advanced or chlorpyrifos containing products per year.
 - c. Pilot (4E) at 0.5 pint/a. *Wheat only*. PHI 28 days. Do not feed straw for 28 days or graze within 14 days of application. Not more than two applications per year.
5. chlorpyrifos + gamma-cyhalothrin (Cobalt) at 7 - 13 fl oz/a. *Wheat only*. PHI 14 days forage and hay; 28 days grain. Do not feed straw for from treated wheat within 30 days or graze within 14 days of application. Not more than 2 applications of Cobalt or chlorpyrifos containing products per year.
6. cyfluthrin (Baythroid 2) at 1 to 1.8 fl oz/a. *Wheat only*. PHI 30 days. Do not forage or graze within 7 days of application. No more than two applications per year.
7. gamma-cyhalothrin (Proaxis) at 2.56 to 3.84 fl oz/a. *Wheat only*. PHI 30 days. For aerial application, use a minimum of 2 gals of water per acre. Do not apply more than 0.03 lb ai/a (0.48 pint/a) per season.
8. lambda-cyhalothrin—Silencer (*Wheat and triticale*) at 2.56 to 3.84 fl oz/a and Warrior II (*Wheat, barley, rye and triticale*) at 1.28-1.92 oz/a. PHI 30 days; Kaiso 24WG. at 1.33 to 2.0 oz/a (*Wheat and Triticale only*). For aerial application, use a minimum of 2 gals of water per acre. Once crop has started to boot, may provide suppression only. Do not graze or forage within 7 days of application. Do not feed straw within 30 days of last treatment. Do not apply more than 0.48 pint/a per season (0.24 pint/a per season for Warrior II).
9. malathion—
 - a. Fyfanon at 1 to 1.5 pints/a. Barley and wheat.
 - b. Fyfanon ULV at 4 to 8 fl oz/a—barley, oats, and wheat. PHI 7 days.
 - c. Malathion 5 and 5EC at 1 to 1.5 pints/a. PHI 7 days.
 - d. Malathion 8 Aquamul at 1.25 pints/a. PHI 7 days.
 - e. Malathion ULV Concentrate at 4 to 8 fl oz/a. PHI 7 days. Barley, oats, wheat.
10. methomyl—
 - a. Lannate LV at 0.75 to 1.5 pints/a. Do not exceed 1.8 lb ai/a/crop. Do not apply more than four times per crop. PHI 7 days.
 - b. Lannate SP at 0.25 to 0.5 lb/a. Do not exceed 2 lb ai/a/crop. Do not apply more than four times per crop. PHI 7 days.
11. pyrethrin—There are several pesticides containing various amounts of pyrethrins. Check each label for the use and amount needed.
12. spinetoram—(Radiant SC) at 2-6 fl oz/a. Do not apply more than 18 fl oz/a per year. Do not apply more than three times per calendar year. Do not make applications less than 4 days apart. PHI 21 days for grain and straw; 3 days for forage, fodder, or hay harvest.
13. zeta cypermethrin (Mustang Max) at 1.76 to 4 fl oz/a. *Wheat only*. PHI 14 days, also for forage and hay. For ground and air treatment, use a minimum of 10 and 2 gals, respectively. Do not apply less than 14 days apart. Do not apply more than 20 fl oz /a per year.