

TURF

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Recommendations for lawns and recreational areas not grazed by livestock.

Important: Mow the lawn before treatment. Keep off treated lawns until dry.

Important regulatory changes regarding Turf insect pest control products:

Chlorpyrifos: The registration of Domestic class chlorpyrifos products has been discontinued and residential uses, both indoor and outdoor, have been removed from labels of Commercial class chlorpyrifos products. In addition, other uses of Commercial class chlorpyrifos products in areas such as schools and playgrounds will be discontinued. Containerized, low-concentration baits containing chlorpyrifos will continue to be registered in Canada, and can be used in residential settings.

Diazinon: Homeowners can no longer apply any Domestic class products in or around residences; commercial applicators can apply Commercial class diazinon products in residential areas until Dec. 31, 2005.

ANTS

Ants

Chemical Control -

Active Ingredient	Rate (g AI/100 m ²)
carbaryl	100-125
chlorpyrifos (domestic)	0.03% bait pack
chlorpyrifos (commercial)	10.8
diazinon (commercial)	37.5-75
permethrin	0.5% solution

Restrictions -

- carbaryl: Do not water for 2 days after treatment and repeat in 2-3 weeks if necessary.
- chlorpyrifos: Commercial products - only registered for use on sod farms, golf courses, industrial sites and highway medians. Not for use around residential areas, parks or playing areas
- diazinon: Commercial granular products - spot treatment only in lawns, gardens, patios and drives.
- permethrin: Only Commercial class products available. Use on home or residential lawns only. Apply as spot treatment. Ant mounds: apply 4-7.5 L of solution to each mound and treat a 1 m diameter circle around mound. Apply in cool conditions (early morning or late evening) for best results.

Cultural Control -

Flood ant nests repeatedly to discourage colonization.

BLACK TURFGRASS ATAENIUS

Black Turfgrass Ataenius (British Columbia only)

Chemical Control -

Active Ingredient	Rate (g AI/100 m²)
imidacloprid	2.81

Restrictions -

imidacloprid: Applications should be made prior to egg hatch of the target pests, followed by sufficient irrigation or rainfall (5 -10 mm) to move the active ingredient through the thatch. Avoid overwatering (more than 20 mm). Avoid runoff or puddling of irrigation water following application. Do not apply through any irrigation system.

CHINCH BUGS

Chinch Bugs

Chemical Control -

Active Ingredient	Rate (g AI/100 m²)
carbaryl	100-125
chlorpyrifos	10
diazinon	100

Restrictions -

carbaryl: Mow lawn before application. Do not water for 2 days after treatment.
 chlorpyrifos: Commercial products - only registered for use on sod farms, golf courses, industrial sites and highway medians. Not for use around residential areas, parks or playing areas
 diazinon: Commercial products - for spot treatment only in areas of infestation (see Important Regulatory Instructions above). Water lightly before and after application.

Cultural Control - Minimize drought stressed areas - chinch bugs like dry lawns. Reduce thatch, and do not over-fertilize.

Biological Control - Chinch bugs are susceptible to predatory bugs, spiders and parasitic wasps.

CRANEFLY LARVAE (LEATHERJACKETS)

Cranefly Larvae (Leatherjackets)

Chemical Control -

Active Ingredient	Rate (g AI/100 m²)
carbaryl	93
chlorpyrifos	9 - 11.2

Restrictions -

- carbaryl: Commercial product only, for use on golf course turf. Apply after mowing, do not water for 2 days after treatment. Do not allow public use of treated areas during applications or until sprays have dried.
- chlorpyrifos: Commercial products - only registered for use on sod farms, golf courses, industrial sites and highway medians. Not for use around residential areas, parks or playing areas. Apply as drenching spray in water in late fall after the flight of adult crane flies has ceased for the year.

Cultural Control - Reduce thatch layer, reduce irrigation in early fall when larvae are more susceptible to drought.

DEW WORMS

Dew Worms

Chemical Control -

Active Ingredient	Rate (g AI/100 m²)
carbaryl	100

Restrictions -

- carbaryl: Apply uniformly in 200 L of water. Do not water for 2 days.

Cultural Control - Reduce the thatch layer with core aeration.
Lower soil pH with a sulphur coated fertilizer (dew worms prefer higher soil pH)
Maintain even and deep soil moisture. Apply 2.5 cm of water every 7-10 days.
Avoid watering in the evening.

GLASSY CUTWORM

Glassy Cutworm

Chemical Control -

Active Ingredient	Rate (g AI/100 m²)
carbaryl	100-125
chlorpyrifos	10

Restrictions -

- carbaryl: Mow lawn before applying. Do not water for 2 days.
- chlorpyrifos: Commercial products - only registered for use on sod farms, golf courses, industrial sites and highway medians. Not for use around residential areas, parks or playing areas. Do not water or mow for 12-24 hours after treatment.

Biological Control - Numerous predators (ground beetles) and parasites (wasps and flies) can affect populations of glassy cutworm, but the level of control can vary from year to year and location to location.

SOD WEBWORM

Sod webworm

Chemical Control -

Active Ingredient	Rate (g AI/100 m²)
carbaryl	100-125
chlorpyrifos	10.8
diazinon	37.5 - 75
spinosad	0.24 - 0.48

Restrictions -

- carbaryl: Mow lawn before treatment. Do not water for 2 days after application.
- chlorpyrifos: Commercial products - only registered for use on sod farms, golf courses, industrial sites and highway medians. Not for use around residential areas, parks or playing areas. Do not water or mow for 12-24 hours after treatment.
- diazinon: Commercial products only - for spot treatment only in areas of infestation. (See Important Regulatory Instructions above). Irrigate immediately after application to reduce hazard to birds.

spinosad: Only commercial class products registered for use on lawns, sod & turf seed farms, and golf courses. Do not water or mow for 12-24 hours after application. Do not reapply within less than 7 days. Do not apply more than 4 times/year.

Cultural Control - Fertilizer and water. Damage can be outgrown by a healthy, vigorous stand of turf. Considerable damage may occur if irrigation is not applied during periods of drought, or close mowing is used.

Biological Control - No commercial products are available for biological control of sod webworm, but predaceous birds, ground beetles and rove beetles can have an influence on sod webworm populations. Parasites such as parasitic wasps, microsporidia and fungal diseases can also impact populations.

WHITE GRUB

White grub (including European Chafer)

Chemical Control -

Active Ingredient	Rate (g AI/100 m ²)
diazinon	45
carbaryl	90-125
imidacloprid (B.C. only)	2.81

For diazinon and carbaryl, apply treatment between late July and early October, or when grub larvae are actively feeding on roots.

Restrictions -

diazinon: Water thoroughly after application. Do not use in areas where thatch is more than 3 cm thick. Do not re-enter treated lawn / turf for 24 hours following application and irrigation (except golf courses and sod farms). Warning signs must be posted advising people to keep off treated areas for 24 hours following application and irrigation.

carbaryl: Irrigate following application. Only one commercial class carbaryl product is registered for white grub control.

imidacloprid: Applications should be made prior to egg hatch of the target pests, followed by sufficient irrigation or rainfall (5 -10 mm) to move the active ingredient through the thatch. Avoid overwatering (more than 20 mm). Avoid runoff or puddling of irrigation water following application. Do not apply through any irrigation system.

Cultural Control - Maintaining a healthy lawn by proper cutting, fertilization, and irrigation makes

the lawn less attractive to egg-laying females, who are attracted to bare spots and thin areas of the lawn. It also makes the lawn less susceptible to the damage caused by grub feeding activities.

Biological Control - White grubs are susceptible to numerous agents, including viruses, bacteria, fungi, parasitic nematodes, mites, wasps and flies, and vertebrate predators such as birds and skunks. Vertebrate predators can cause extensive damage to turf while rooting for the grubs.