

Pests of Turf Grass



Introduction

Managing common insects, weeds, plant diseases and certain animal pests found in the backyard can be a challenge. However, there are a number of ways to approach the problem. Information in this publication will help identify and manage pest problems.

Pest management methods will vary among individuals according to their tolerance of the pest, the damage and a basic philosophy about handling pest problems.

It may not be necessary to control pests if numbers are low and damage is not significant. At other times, simply spraying a tree with water, pruning a branch or digging up a weed will reduce or eliminate the problem. Natural predators may also control the pest problem.

Backyard Pest Management is designed to help focus on the key areas of pest management. The first section provides basic approaches to pest management and looks at ways to prevent problems and handle them as they arise. Further sections focus on the insects and the types of plants they damage.

There are many ways to deal with backyard pest problems. When using pesticides to control a problem, there is the potential for damage and the possibility of legal issues. Use pesticides with caution and always according to label directions.

Approaches to Pest Management

Integrated Pest Management (IPM) is an environmentally responsible approach to pest management. IPM focuses on prevention, and if problems occur, the method provides a variety of control strategies.

Prevention

Prevention is the foundation of an IPM program, and one way to do prevent problems is to choose the right plant for a specific location and provide the best growing conditions.

- Use a variety of plant material in a landscape to avoid a monoculture (growing only one type of plant), which can create potential problems with one species of insect.
- Select plant species that are less prone to pest problems. Some plants are consistently plagued by certain insect pests and diseases.
- Evaluate the planting site for exposure to light, low spots, wind speed and direction. Choosing plants suited to their growing conditions reduces plant stress, which helps prevent insect and disease problems.
- Be aware of soil conditions including pH, drainage, fertility and organic matter. If possible, improve the soil or choose a plant adapted to the conditions.
- Provide the best start for the plants, using good planting techniques. This approach includes proper planting, pruning, staking and mowing practices.
- Provide proper maintenance practices for plants including watering, fertilizing, pruning and weed control. Good maintenance practices will ensure healthy plants that are less likely to be affected by pests and diseases.

Identifying the problem

The first step in controlling a problem, whether it is an insect, disease or weed, is to identify it correctly. When dealing with insect and disease problems, learning about preferred hosts, the type of damage that occurs and life cycle are important when choosing the best control method. For weeds, having information about their life cycle is important because weeds are usually easier to control at some stages than others.

Monitoring

Monitoring involves checking plants in a yard regularly for the presence of pests. Frequent monitoring of pests is important so that proper treatment can be started when the outbreak first begins. Monitoring should occur throughout the entire growing season.

Action decisions

Proper pest control action involves two steps:

- first, identifying the injury threshold
- second, determining the action threshold

The **injury threshold** is the level at which a pest population causes an unacceptable degree of damage so that treatment is necessary. Knowledge of the pest and the plant it is affecting will help when deciding the treatment. For example, most deciduous trees and shrubs can withstand substantial defoliation by insects, especially later in the growing season. However, coniferous trees cannot tolerate defoliation because the needles are not replaced. Having this knowledge about the types of plants, as well as information about the pest, helps in making a decision about treatment when a problem arises.

The **action threshold** is the time to treat the problem to avoid an unacceptable amount of damage or *injury threshold*. It is important to know the life cycle of the pest and have an understanding of the time it takes for a control measure to be effective. For example, the biological control agent *Bacillus thuringiensis Kurstaki* will take longer to control caterpillars than a contact insecticide because the agent must be ingested by the caterpillars to be effective.

Treatment

Five general types of treatments can be used to control pests.

Types of treatment

Cultural

Provide proper maintenance practices such as regular watering, fertilizing, pruning and sanitation. Good maintenance practices keep plants healthy, so they are less likely to be affected by pest problems.

Physical

One method of physically controlling pests is to remove and destroy the insects, the infested leaves or the part of the plant that is severely affected. Pests such as caterpillars, beetles, slugs and other large pests can be easily removed by hand when infestations are low. Also, removing forest tent caterpillar egg bands on trees in the fall or early spring will reduce the problem the following year.

Another effective way to control insects is with a strong jet of water from a garden hose. Spraying trees and shrubs thoroughly and regularly with water will dislodge and kill small caterpillars, aphids, spider mites, pear slugs and other pests.

Physical barriers may also be used to prevent insects from attacking plants, especially in the vegetable garden. Floating row covers may be used to prevent some insects from attacking plants. Tarpaper discs may also be used around the base of cole crops to discourage root maggot flies from laying eggs in the soil. Cutworms can be prevented from attacking the roots of transplants by sinking large tin cans, with both ends removed, into the soil around plants to act as cutworm barriers.

For diseases, physical control may involve removing plant parts by pruning. For example, the only way to control black knot on mayday is to prune out the affected branches or portions of the branches with the fungus. Also, if an individual plant is affected by a disease, it may need to be removed completely to prevent the spread of the disease to other plants.

Physical control for weeds involves simply hoeing or hand digging the weeds.

Mechanical

Insect vacuums, heat applicators for weed control and motion-triggered water applicators for wildlife may all be used for mechanical pest control.

Biological

Biological controls are natural enemies of pests such as predatory and parasitic insects as well as birds. These natural enemies will often come to the garden on their own if there are high populations of a pest insect. For example, an outbreak of aphids will attract the natural predator lady beetles (lady bugs). Beneficial insects can be attracted to a yard by growing plants that are sources of nectar and pollen such as aster, marigold, salvia and monarda. Shallow dishes or bird baths act as a water source for both insects and birds, encouraging them to visit the yard. Also, a bird feeder will help supplement the diets of birds like chickadees and other insect eaters.

Protect birds and beneficial insects by avoiding the use of pesticides. If pesticides are used to control the pest, the pesticide is likely to kill the beneficial insects as well. If pesticides have to be used, choose the product with the lowest toxicity and shortest residual period. Spot or target spray to minimize the area covered.

Beneficial insects are often sold to control backyard insect pests. The most common beneficial insects are ladybeetles and praying mantids. These insects usually have little benefit, as they frequently leave the yard, especially if their food supply is poor. It is preferable to let the native species of beneficial insects control the outbreak.

A bacterium called *Bacillus thuringiensis Kurstaki* is another type of biological control. It can be purchased to control leaf feeding caterpillars including forest tent caterpillars and the larvae of cabbage butterflies. It only affects the larvae of moths and butterflies and does not control any other insects.

Chemical

When purchasing pesticides, choose the product with the lowest toxicity. There are synthetically produced pesticides as well as naturally derived products. When using any product on food crops, follow the label directions for safety precautions and wait periods between spraying and harvest.

Many municipalities are moving to minimum or zero-pesticide tolerance and may have a municipality-wide bio-control program. Be aware of these issues in the community, so an informed decision can be made about pest control.

Evaluation

The last step in any pest management program is evaluation. Monitoring and record keeping are key factors in determining if the control measure was successful. This information may help in choosing a method in the future.

Many commonly used products for pest control in the home garden are being removed from the market. Many municipalities are creating by-laws to reduce or eliminate the use of pesticides. The principals and practices of integrated pest management will become more important in the future.

Integrated pest management takes time, planning and patience for it to be a successful.

Ants



Ants

Damage

Ants live in nests in the soil, but over time, the soil gets pushed up to form mounds on the surface of the grass. As the soil is pushed up, the plant roots may be cut. The mounds of soil look unattractive, smother the grass and make the lawn bumpy.

Description

There are many species of ants in Alberta. All ants have three distinct body parts with a small head and enlarged abdomen. They are usually brown, black or red and vary in size from 2 to 10 mm long. Ants may be winged or wingless. The larvae of ants are oval, white and legless. The pupae are also white, but body parts such as legs and antennae appear compressed close to their bodies.

Life cycle

Ants are social creatures that live in colonies from a dozen to many thousands. The colony has one or more queen ants, but the majority are worker ants. The workers are wingless, sterile females that help to protect the colony, care for the larvae and find food. They bring food back to the ant hill for the queen, larvae and pupae.

The queen lays all the eggs, and winged males and queens are produced in large numbers. These emerge from the nest and mate when flying. After mating, the male dies, and the fertilized queen sheds her wings and either starts a new colony or goes to an already established colony.

Control

- Repeated watering with a garden hose may encourage some ant species to move from the colony. Place the hose on the ant hill on a slow trickle for approximately half an hour every second day.
- A preferred product for ant control is diatomaceous earth.
- Many baits are available that are easy to use in the garden. The workers take the bait back to the ant hill.
- Other chemical controls are registered for ant control; consult a garden centre or nursery for a suitable product.

Earthworms/dew worms



Earthworms/dew worms

Photo credit: Joseph Berger, Bugwood.org

Damage

Earthworms feed on organic matter in the soil and on dead leaves and stems of the grass. As they burrow, they make the lawn bumpy and difficult to mow. Their casts are rich in nutrients, but are hard.

Description

Earthworms can grow up to 20 cm long. They are normally found in the top 30 to 45 cm of soil and come to the surface at night and after heavy rains. Earthworms need a moist environment. Soils with high worm populations often have high organic matter levels. Saline soils, sandy soils and soils with a pH of 4.5 or lower usually have few worms.

Life cycle

Earthworms have both male and female reproductive organs. After mating, the clitellum (the girdle-like ring around worm) slides down the worm's body, picking up fertilized eggs. This ring is then deposited in the soil and provides protection for the future worms.

Control

- Encourage birds to the yard with bird feeders and baths.
- Earthworms are attracted to a lawn with a thick thatch layer. Thatch is the thick spongy layer of dead material between the grass crowns and the soil. Remove the thatch layer so it is less than 1.25 cm thick.
- Adjust thatching rakes or power rakes so the teeth drag through the earthworm mounds and level them. The teeth of the rake should not be set into the grass crowns, or the rake will damage the grass plants. This raking should be done when the soil is slightly damp, but not wet.
- Water lawns deeply and infrequently to encourage earthworms to remain further down in the soil.
- One product is registered for dew worm control in turf.

Glassy cutworm



Glassy cutworm

Damage

Cutworms eat the stems, leaves and crowns of grass plants. They cut the grass plants off at the roots, causing the sod to be easily lifted. The larvae live in tunnels and feed at night close to the tunnel opening. They usually remain underground, rarely coming to the soil surface.

Description

The cutworm's body is smooth, thick and segmented. They are greenish-grey to white with a brown head. Mature larvae are 3.5 to 4 cm long, and when disturbed, they curl into a "C" shape. The adult is a greyish-brown moth with dark markings on its wings. The moths are attracted to lights at nighttime. Pupae are long, narrow and reddish-brown.

Life cycle

The moths lay most of their eggs on the grass blades in August. Once the eggs hatch, the larvae begin feeding on the grass plants. Larvae are usually half grown by the time they overwinter. They begin feeding again the following spring after the plants begin to grow. Pupation occurs in the soil by the end of June. The moths appear in July and are seen until September. There is one generation a year.

Control

- Encourage birds to the yard with bird feeders and baths.
- Several natural predators, including spiders, big-eyed bugs and ground beetles, are effective in controlling this insect.
- Consider spot treatments with a registered insecticide. It is difficult to reach the larvae with insecticides because the pests stay in the soil.

Sod webworm



Sod webworm

Damage

Damage begins as irregular brown patches in the turf, which grow larger and can cover entire lawns. This condition is usually seen late in the summer. All grass species are attacked, but bluegrass and newly seeded lawns are more commonly affected.

The larvae feed at night by chewing off the grass blades just above the thatch. The pests live in silk-lined tunnels constructed in the turf thatch and may continue into the soil under the turf. They produce webbing that binds bits of soil and leaves together.

Sod webworms are often found in turf on south facing, steep slopes and banks, where it is hot and dry. Heavily shaded turf is seldom attacked by the larvae.

Description

The caterpillars are whitish or tan, usually with a row of darker spots on their backs. They have a dark brown head and grow up to 2 cm long. The adults are slender, tan-coloured moths approximately 20 mm long. The moths usually keep their wings close to their body when resting on the grass. The moths have a zigzag pattern when flying and are seen during the evenings in late May and June.

Life cycle

This insect pupates in the spring. After the moths emerge, they lay eggs on the grass blades, and these hatch in 6 to 10 days. The young larvae mine the leaf surface as they move to the soil to build their tunnels. They stop feeding in late September and overwinter in the soil or thatch.

Control

- Keep lawns healthy by watering and fertilizing regularly because the turf grass will be less susceptible to attack. With proper maintenance, the grass can usually outgrow the damage.
- Inspect damaged areas by parting the grass blades and look for the greenish droppings of the larvae.
- An effective way to determine if sod webworm larvae are causing damage is to apply a soap solution to a small area of the lawn. Mix 5 ml of liquid soap to 750 ml of water. After applying the soap solution, the larvae will wriggle to the surface in a few minutes.
- Ants, predatory mites and big-eyed bugs are major predators of the eggs and larvae of the sod webworm. Birds, ground beetles, parasitic flies and wasps also reduce webworm populations.
- Frequent use of insecticides will kill beneficial species and limit their effectiveness.
- Apply registered insecticides as spot treatments about two weeks after moths appear.

Backyard Pest Management: Pests of Turf Grass

Published by

Alberta Agriculture and Rural Development
Information Management Division
7000 – 113 Street
Edmonton, Alberta
Canada T6H 5T6

Authors: Pam North and Shelley Barkley

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Electronic Page Production: J.A. Serafinchon

Image Acknowledgements

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Canadian Forest Service

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City of Red Deer

Manitoba Agriculture, Food and Rural Development

Saskatchewan Ministry of Agriculture

Alberta Agriculture and Rural Development

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ISBN 978-0-7732-6108-2

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