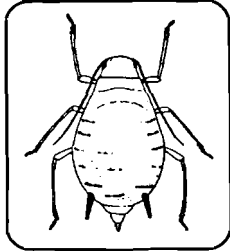


# Some Common Insect Pests of North Dakota Flower Gardens *and their Management Strategies*

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## Aphids

Aphids are familiar to most gardeners. They are small insects, about the size of a pinhead, or 1/10 inch long. They are soft-bodied and pear-shaped. On the rear of the aphid, two "tail-pipes" known as cornicles can be seen. Color is quite variable, ranging from yellow to green to black, depending on the species. Populations of aphids can increase very rapidly due to their ability to bear live young and to reach the adult stage in as little as seven days. Often their colonies are found on new plant growth, clustering on the underside of the leaves. Aphids may be winged or wingless. They feed with piercing-sucking mouthparts, sucking juices from the plant. Infested plants may lose their natural color, wilt, or become disfigured due to the aphid feeding. Aphids excrete a clear fluid



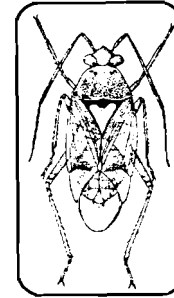
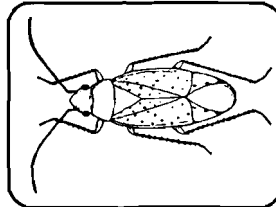
called honeydew which becomes sticky and accumulates on foliage (and other objects) below the feeding sites.

Light infestations of aphids can be removed from foliage by using a forced water spray delivered under high pressure. Lady beetles are frequent predators of aphids and should be protected when found feeding on aphid colonies.

## Plant Bugs and Leafhoppers

There are many insects which can be described by these common names.

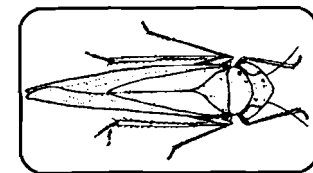
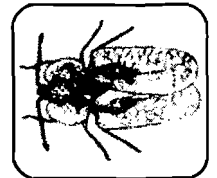
The plant bugs and leafhoppers are all very active insects which move quickly when disturbed. The young move by walking rapidly or jumping short distances.



Adults may fly from plants when disturbed. Many are small, ranging in size from 1/8 to 1/2 inch long. They feed with piercing-sucking mouthparts, removing fluid from plant tissues.

Plant bugs frequently cause spotting on leaves or the death and loss of buds.

Leaf-hoppers generally cause spotting of leaves or browning of leaf margins (hopper-burn).



Leaf-hoppers frequently carry plant viruses that infect leaf

tissue and result in additional injury symptoms.



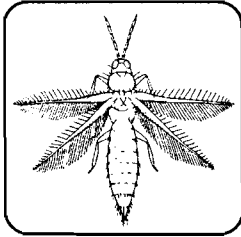
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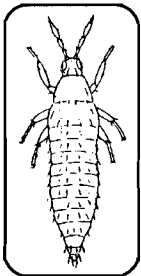
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## Thrips

Thrips are tiny insects, 1/8 inch or less (about this size -). The wingless young are straw-



colored; winged adults range in color from brown to black. Thrips are usually found gathered together in large numbers. They are very active insects which crawl or fly rapidly when disturbed. Thrips rasp or tear the surface of plant tissues as they feed, then suck up the freed plant fluid. Injured plants have a silvery luster at the feeding site. Leaves damaged by thrips become disfigured. Flower buds are a favorite feeding site of thrips. Injury can be a disfigured bud that fails to bloom, discolored petals, and/or pitted fruit. All flowering garden plants are attractive to thrips. They are a particularly troublesome pest of roses.

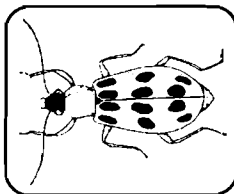


Thrips are serious pests of gladiolus. A corm treatment is recommended to reduce thrips damage. After harvesting and curing gladiolus corms, shake them in a sack with a small amount of carbaryl

(Sevin®) dust (1 to 2 teaspoons for each 100 corms); store as usual.

## Leaf Beetles

Leaf feeding beetles are quite diverse in size and appearance. In some cases only the adult beetle feeds on

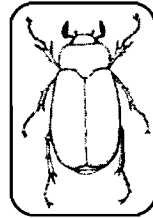


foliage; in other cases, both the adult and the worm, or grub stage, feed on the plant. Sizes range from 1/8 inch (flea beetles) to 1 inch

or more (June beetles). Leaf feeding beetle adults may be drab (brown or black) or brightly colored. The grubs may be cream

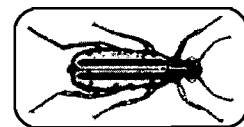
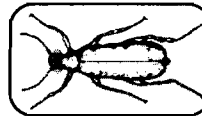


colored with no markings to colored with stripes and spots. All leaf feeding beetles have chewing mouthparts. When they feed, plant tissue is consumed leaving holes in the plant parts which have been fed upon.



## Blister Beetles

Adult blister beetles are foliage feeders. These beetles have a narrow, elongate, soft body. They range from 1/2 to 1 1/4 inch long. The head is wider than the first body segment giving the appearance of having a "neck." Their color is black, grey, or striped. These beetles are frequently found in clusters, where they have been attracted to a particular group of plants to feed on. Their presence may be brief; they feed on plants, then leave as quickly as they appeared.



Blister beetles derive their name from the presence of a substance, cantharidin, which is found in their body. This compound may blister human skin when the beetles are handled. The larvae of blister beetles live in the soil where they are predacious on grasshopper eggs. Populations of blister beetles often increase locally after an outbreak of large numbers of grasshoppers.

## Leaf Feeding Caterpillars

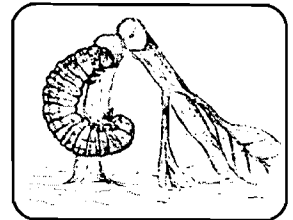
There are many kinds of caterpillars that feed on leaves,



flowers, and fruits of plants. All caterpillars have chewing mouthparts, so damage will always be characterized by holes in leaves, buds or fruit, or skeletonized leaves. When feeding symptoms are seen, inspect plants for the presence of caterpillars. Frequently, caterpillars consume a high percentage of the foliage during their last growth stage. If you fail to notice the infestation until this time, controls may not be warranted because caterpillars will be preparing to form the pupa, a non-feeding stage. Also, the larger the caterpillar the greater the difficulty to control the pest.

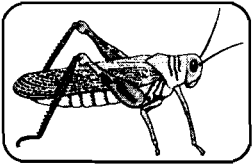
## Cutworms

Cutworms are caterpillars with a specific feeding habit. They feed on the above ground



portions of plants at night and retreat beneath plant debris or under ground during daylight hours. Damage by cutworms is characterized by young plants cut at or below the soil line, or by defoliation. When cutworms are suspected, dig into the soil at the base of plants to locate the resting worms. Cutworms are 1 to 1 1/2 inches long when full grown. Their color is often described as "greasy" or "dingy." Some cutworms may have pale markings running the length of the back. Most injury from cutworms occurs in the spring or early summer.

## Grasshoppers



Grasshoppers feed on a wide variety of plants. Most people recognize

grasshoppers by the enlarged hind legs that are suited for jumping. Grasshoppers overwinter as eggs in the soil. Beginning by mid-May, young grasshoppers are hatching and beginning to feed. Most of these young 'hoppers can be found in locations where adults were feeding the previous fall. Young grasshoppers feed on only small amounts of foliage, so they must be present in large numbers to cause significant defoliation. These nymphs are wingless, so they can not fly. At this age, their small size makes them easier to control with insecticides. Older grasshopper nymphs and adults are quite mobile and begin to consume larger amounts of leaf material.

## Rose Slug

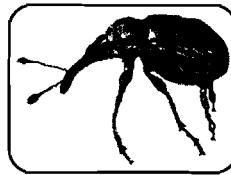
Rose slugs are the larvae of a sawfly, a member of the wasp and



bee family. These larvae are referred to as slugs because of their general appearance; however, on closer inspection, the sawfly larva looks more like a caterpillar. Rose slugs injure rose bushes by chewing large holes or by skeletonizing the leaves. The worms feed on the underside of the leaves. Initially, only the tissue on the underside of the leaf is consumed, leaving a "window" through the leaf that dries and turns brown. Infestations occur from early to middle summer.

## Rose Curculio

Adult rose curculios, or weevils, are about  $\frac{1}{3}$  inch long. The curculio can be recognized by its



long snout, characteristic for weevils. The snout of this species is black while the rest of the body is bright red with a black under-surface. There is only one generation per season. The adults of that generation begin emerging when roses begin to bud, normally during the first week of June. The adult weevils chew holes in the buds to deposit their eggs. Buds injured in such a fashion may fail to open or flowers will have holes throughout the petals. The small, white, legless grub hatches from the egg and feeds within the bud. This injury further harms developing buds. When finished feeding, the grub will drop to the ground where it will overwinter in the soil. Removing and destroying buds and blooms containing grubs will reduce overwintering populations of grubs. To protect buds when adults are active, make applications of insecticides at weekly intervals until weevils are no longer present.

## Spider Mites

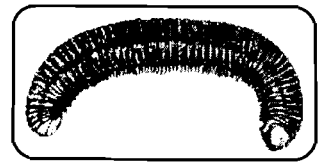
Mites are tiny and difficult to see on plants. They range in color from reddish brown to pale with black spots. They feed on foliage and flower buds. Injured foliage may be spotted, turn yellow, or may dry to brown. A fine web may be present on plant surfaces when mites are present. The combination of injury and the webbing collecting dust gives plants a drouthy look. To make a positive diagnosis that mites are present, hold a piece of white paper below the part of the plant suspected to be infested; tap the plant to dislodge dust and mites. The paper will catch the dislodged material. The mites will

appear as tiny "dust" specks that move. Crushing the mites with a finger will leave a reddish stain on the paper.

Mite populations increase under hot dry conditions. Rain and high humidity will lower populations naturally. Control of light infestations can be obtained with sprays of water to infested plants; the addition of insecticidal soap will improve the coverage and efficiency of the water.

## Millipedes

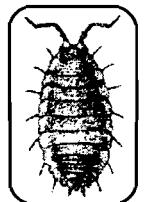
Millipedes are brown to grey and have long, round



worm-like bodies with many segments. They can be identified by the presence of two pairs of legs per body segment. Millipedes normally feed on decaying organic matter but occasionally will damage roots of ornamental plantings. They require a moist habitat and can be found during the day beneath mulch, rocks, leaf litter, or in loose soil.

## Pillbugs or Sowbugs

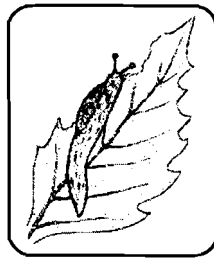
These are the only crustaceans adapted to spending their entire life out of water. However, they require damp environments to survive.



They are small,  $\frac{1}{2}$  to  $\frac{3}{4}$  inches and grey and often curl into a ball when disturbed. They can be found during the day hiding beneath rocks or flower pots, or in mulch. In general, they are beneficial because they feed on decomposing organic matter. They may feed on plants, particularly when mulches are used in the garden. Most feeding injury will be at the soil line and will appear as chewing damage to the stem.

# Slugs

Slugs are large (up to 2 inches), grayish brown, fleshy creatures which leave a slimy trail behind wherever they crawl. Their presence and the slime trails are a nuisance



to the homeowner. They can also be quite damaging to garden plants. They require a damp habitat and avoid exposure to sunlight. During the day they burrow into loose soil or hide beneath objects that trap moisture.

Populations of slugs, as well as snails, can be reduced by trapping and removing individuals that collect

beneath objects. By placing a flat object (wooden board or clay tile) on the ground in the garden, they can be attracted to these sites for removal at regular intervals. Baits are also available for use in flower gardens. A combination of control strategies is usually the best approach for reducing the population.

Products recommended for the management of flower garden pests. The "Alternative" products represent those that would be generally classified as "organic," representing botanicals, microbials, and soaps. Always read and follow the label. Before treating flowering plants, check the label for comments pertaining to plant sensitivity to the chemical. (● indicates listed pest is found on the pesticide label.)

<b>Always read and follow the label!</b>	APHIDS	LEAF BEETLES	GRASSHOPPERS	ROSE CURCULIO	ROSE SLUG	SPIDER MITES	LEAFHOPPERS	PLANT BUGS	THRIPS	SCALE INSECTS	CATERPILLARS	CUTWORMS	MILLPEDES	SOWBUGS	SLUGS & SNAILS
<b>General Use Insecticides</b>															
acephate (Orthene® and Isotox®)	●	●	●		●	●	●	●	●	●					
carbaryl	●	●	●	●	●		●	●	●	●	●	●	●	●	
chlorpyrifos *										●		●	●	●	
cyfluthrin (Advanced Garden®)	●	●	●		●		●	●		●	●	●	●	●	
diazinon *	●	●	●			●	●	●	●		●	●	●	●	
dicofol (Kelthane®)						●									
dimethoate	●								●						
imidacloprid (Advanced Garden®)	●						●	●	●	●					
malathion	●	●					●	●	●	●					
mesurol															●
metaldehyde															●
methoxychlor	●	●			●				●						
<b>Alternative Products</b>															
<i>Bacillus thuringiensis</i> (Bt)											●				
insecticidal soaps	●					●	●	●							
neem (Bioneem®)	●								●		●				
pyrethrins	●	●					●	●			●				
rotenone		●							●						
<b>Professional Use Only</b>															
cyfluthrin (Tempo®)	●	●	●				●	●			●	●	●	●	
disulfoton (Di-Syston®)	●	●					●		●						
fenpropathrin (Tame®)	●					●	●								
fluvalinate (Mavrik®)	●						●		●		●				
imidacloprid (Merit®)	●	●					●	●	●						
lambda-cyhalothrin (Scimitar®)	●	●				●	●		●		●	●		●	
oxythioquinox (Morestan®)						●									

\* For all garden and turf uses of diazinon, manufacturing stops in June 2003; all sales and distribution to retailers end in August 2003. Chlorpyrifos (Dursban and other products) will no longer be approved for use for garden and turf beyond December 31, 2001.

