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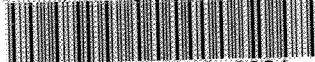
# Grasshopper control in Colorado yards and gardens

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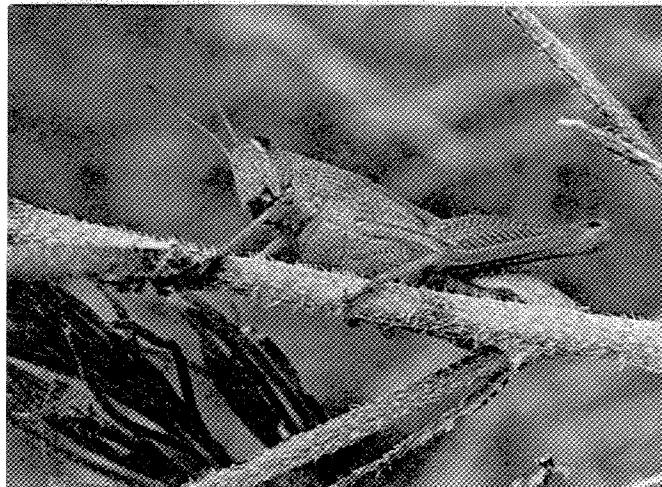
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## Quick Facts

- Grasshoppers often are the most common insect invaders of Colorado yards and gardens and are among the most difficult pests to control.
- Grasshoppers breed and develop each year in dry, undisturbed sites such as pastures, empty lots and roadsides.
- Successful management of grasshoppers must include the breeding areas.
- Grasshoppers are most easily controlled with insecticides when they are still immature (nymphs) and their location is restricted to breeding areas.
- Once grasshoppers have moved into yards, control options decrease and primarily involve repeated insecticide applications.



causing considerable injury over the course of a season. Established trees and shrubs are quite tolerant of this leaf loss and these plants usually recover, suffering little long-term injury.

Grasshoppers breed and develop each year in dry, undisturbed sites such as pastures, empty lots and roadsides. As the plants in these areas dry out or are eaten, the grasshoppers move to the lush growth found in yards and gardens. Successful management of grasshoppers must include the breeding areas. Grasshopper controls applied strictly to the yard will almost always achieve poor results because of problems with continuing reinvasion.

## Management of Grasshopper Breeding Sites

Grasshoppers are most easily controlled with insecticides when they are still immature (nymphs) and their location is restricted to breeding areas. After all the grasshopper eggs have hatched (mid-June to early July) a neighborhood survey should be made to identify areas of developing grasshopper populations. Where high populations of

Grasshoppers often are the most common insect invaders of Colorado yards and gardens and are among the most difficult pests to control. For a variety of reasons, grasshopper populations cycle naturally from season to season, causing extensive damage during outbreak years. Annually, grasshopper problems tend to increase as summer progresses and usually continue even after the first frost occurs.

Grasshoppers favor feeding on certain vegetable plants as lettuce, carrots and onions. Other vegetables such as squash, peas and tomatoes (leaves, not fruit) tend to be avoided. Among the shrubs and trees damaged by grasshoppers, conifers usually are avoided. However, during years when grasshoppers are extremely abundant and food is scarce, almost all plants are fed upon by grasshoppers.

Most trees and shrubs are not favored food for grasshoppers; however, they may provide convenient resting sites and grasshoppers often are found on these plants. Grasshoppers may nibble on foliage and tender bark of trees and shrubs

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grasshopper nymphs are detected, generally more than 10 per square yard, prompt treatment is recommended to prevent later problems in adjacent yards.

Options for grasshopper control in these breeding areas include use of insecticides formulated as either sprays or baits. A variety of effective sprays for this purpose are readily available in garden shops, hardware stores and similar retail outlets. These include acephate (Orthene), carbaryl (Sevin), diazinon and malathion. Because of its longer residual activity and ability to move systemically within a plant, Orthene usually provides the best grasshopper control. Orthene, used according to directions, can be applied to pastures, roadsides and to various trees and shrubs. **Orthene cannot be applied legally to garden crop foods.** Other insecticides should be used strictly according to labelled instructions on vegetables and fruit.

Grasshopper baits generally contain bran or a similar carrier mixed with the insecticide carbaryl (Sevin). Baits have advantages in that they are easy to apply, usually are very effective, and they have little effect on beneficial insects. Disadvantages include slightly higher cost and less availability. Baits are best scattered early in the morning before grasshoppers start to feed.

In recent years there has been considerable interest in the use of a biological control disease organism, the protozoan *Nosema locustae*, for grasshopper control. In situations where grasshopper problems are imminent, CSU entomologists do not recommend applications of *N. locustae* alone as these applications do not provide rapid control of grasshoppers. This protozoan is not effective against all grasshopper species and is much more effective against young grasshoppers. *N. locustae* applications may cause some reduction in hopper numbers in a few days or weeks, but in general it is a slow acting and debilitating disease of grasshoppers that takes at least a year to affect grasshopper populations. Combinations of insecticides for rapid knockdown and *Nosema* for long term control may be useful. *N. locustae* may be one of several methods useful for long term management in suburban areas, but this has not been evaluated. *N. locustae* is available at many garden shops and nurseries in Colorado sold under such trade names as Hopper Stopper and Grasshopper Spore.

Some protection of a yard is possible by watering the grasshopper breeding areas to pro-

mote plant growth. Abundance of green plants in these areas can greatly delay and diminish grasshopper movements into yards. A reduced effort of this sort may involve watering a barrier strip of grass and weeds around a yard. Where yards are adjacent to hay fields, it may be useful to leave an uncut strip to concentrate grasshopper populations. These barrier strips could be treated with insecticide for greater control.

## Grasshopper Control in a Yard

Once grasshoppers have moved into yards, control options decrease and primarily involve repeated insecticide applications. Carefully read the labels of insecticides to prevent plant injury and/or excessive residues on food crops. Products that can help control grasshoppers, which are available to homeowners, are outlined in Table 1.

**Table 1: Insecticides used for grasshopper control in yards and gardens.**

Common name	Trade name(s)	Labelled sites
acephate	Orthene	Many trees, shrubs and flowers.
carbaryl	Sevin, Sevimol	Most fruits and vegetables (1-14 day pre-harvest interval), turf, most trees, shrubs and flowers.
chlorpyrifos	Dursban	Turf, many trees and shrubs.
diazinon	diazinon, Spectracide	Some vegetables (7-35 day pre-harvest interval), turf, many trees, shrubs and flowers.
malathion	malathion	Most vegetables (1-7 day pre-harvest interval), many trees, shrubs and flowers.

More susceptible crops should be planted in the most protected areas of the yard, away from the source of invading grasshoppers. Very susceptible plants also may be protected with screening or cheese cloth.

Poultry, including turkeys, guinea hens, and chickens also may be used to supplement grasshopper control in some yards.