



Community-Wide Grasshopper Control

Marion Murray, IPM Project Leader

Springtime, while grasshoppers are still nymphs, is the best time for communities or neighborhoods to work together to suppress grasshopper populations. Treating as wide an area as possible is the key to success. When grasshoppers become adults, they can travel great distances and may not remain in one area long enough for an insecticide to be effective.

HOW TO IDENTIFY NYMPHS

Grasshoppers go through five nymph stages before becoming adults. Look closely at a few individuals to assess the size of their wing pads (see diagram below and table at right). Grasshoppers that are able to fly have already reached the adult stage. Mobility increases after the 4th instar, so insecticide treatments are not as effective on 5th instar or adult stages.

Images and Descriptions of Grasshopper Stages

1st Instar
Wing pads rounded, with no distinct venation and no visible bulge at apex.

2nd Instar
Wing pads rounded, with no distinct venation and slightly visible bulge at apex.

3rd Instar
Wing pads with venation, more sharply triangular and pointed downward.

4th Instar
Wing pads blunt, directed backward, but not extending beyond the first abdominal segment.

5th Instar
Wing pads more pointed, directed backward and extending beyond the second abdominal segment.

University of Nebraska Extension

General Sizes of Grasshopper Stages

Stage	Size
1st instar	1/4 inch
2nd instar	3/8 inch
3rd instar	1/2 inch
4th instar	3/4 inch
5th instar	1 inch
Adult	1.5 inches

Note: Size is approximate, and depending on species, can vary by 1/4 to 1/2 inch.



Newly hatched grasshopper nymphs

WHERE TO TREAT

- open fields
- hedgerows
- boundaries between yard and open space
- roadsides
- drainage ditches
- other weedy areas

TREATMENT OPTIONS

1. Bait + insecticide:

- wheat bran + carbaryl or *Nosema locustae* (a natural grasshopper pathogen) that must be consumed
- spread evenly through the habitat, grasshoppers eat the bait as they are foraging for food
- easy to apply, but expensive
- selectively kills only grasshoppers and other foraging insects
- must be reapplied frequently and immediately following wetting events (rain, sprinkler irrigation)
- very effective option

2. **Dust** (carbaryl):

- easy to apply, but expensive
- does not readily adhere to foliage and must be reapplied frequently

3. **Sprays** (malathion, carbaryl, permethrin, bifenthrin):

- less expensive, but must have the equipment to apply
- adheres to plant material
- kills on contact, or when grasshoppers eat foliage

EXAMPLE MATERIALS

There are over 500 products registered in Utah for grasshopper control. Below are some popular examples. See *precautionary statement* at the bottom of this page.

Baits

Corry's Bug Bait
Deadline Bug Bait
Lilly Miller Grasshopper Bait
Sevin 5 Bait
Eco Bran 2%
*NOLO Bait Biological
*1Planet Natural Semaspore Bait
(planetnatural.com)

Dust

Sevin

Sprays

Sevin
Malathion
permethrin:
Basic Solutions
Bonide Eight
Gordons
Spectracide
bifenthrin
¹Allectus
²Brigade
²Sniper
²Talstar

*biological insecticide that contains *Nosema locustae* and must be applied at early nymph stages; ¹not for edible plants; ²restricted use

FOR MORE HELP

Some county weed offices will provide sprayers to use for free, but the applicator must purchase the insecticide.

USDA-APHIS is responsible for control programs against grasshoppers on public lands. When grasshoppers occur at high numbers, owners may join together to receive state and federal aid in planning and conducting a Cooperative Rangeland Grasshopper Management Program.

DAMAGING SPECIES IN UTAH

Redlegged grasshopper (*Melanoplus femurrubrum*) Adults are 1-1½-inch long. This is the most widely distributed species, and prefers tall forbs, grasslands, meadows, crop borders, rangeland, and roadsides.

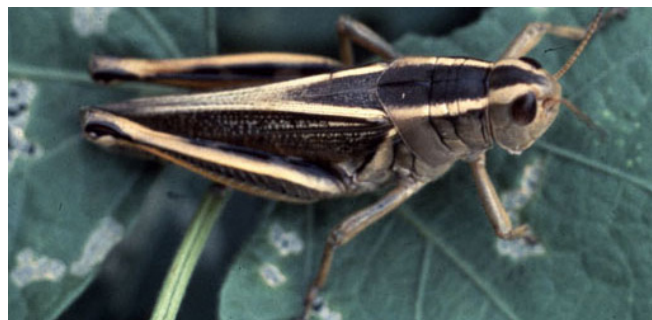
Differential grasshopper (*Melanoplus differentialis*)

Adults are 1¾-inch long and live in fields, open woods and along the edges of water, and feed on grasses, weeds, and crops.



David Cappaert, MSU

Two-striped grasshopper (*Melanoplus bivittatus*)



Whitney Cranshaw, CSU

Adults are 1¼- 2-inch long, and prefer tall, lush, herbaceous vegetation, and reside in ditch banks, roadsides, and crop borders. This species can be a major pest in small grains, alfalfa, and corn. It is one of the first species to appear each season.

Migratory grasshopper (*Melanoplus sanguinipes*)

Adults are 1-inch long and prefer forbs, grasslands, and meadows. This grasshopper causes more crop damage than any other species of grasshopper on small grains, alfalfa, clover, vegetables, and ornamentals.



Joseph Berger

For more information see: Evans, Edward, and Erin Hodgson. **Utah Pests Fact Sheet: Grasshoppers.** USU Extension. ENT 125-08. June 2008.

Precautionary Statement: Utah State University Extension and its employees are not responsible for the use, misuse, or damage caused by application or misapplication of products or information mentioned in this document. All pesticides are labeled with ingredients, instructions, and risks, and not all are registered for edible crops. "Restricted use" pesticides may only be applied by a licensed applicator. The pesticide applicator is legally responsible for proper use. USU makes no endorsement of the products listed herein.

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