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Grasshoppers Thrive in Drought Conditions

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Extension Educator

Farmers, acreage owners and gardeners fought a two-front war right here in Nebraska in 2002. Already battling to save their trees, flowers and crops from the effects of the drought, many rural residents found they were besieged by invading hordes of grasshoppers as well.

This army of six-legged marauders emerged from road ditches or waste areas and laid waste to crops and plants in the boarder areas. Certain species stripped leaf tissue from corn plants, leaving some fields looking like a field of broomsticks. Hay fields and pastures were invaded by other species which kept any new green growth clipped back to the ground. Many pastures were so brown as a result of the drought and hoppers, it looked like January in July. Rural residents discovered smaller trees in their windbreaks, even the pines and red cedars, denuded by the ravenous beasts. There were reports of grasshoppers eating the paint off houses!

Will the grasshopper war continue in 2003?

Although it's difficult to predict early in the year, people need to be prepared for potentially large grasshopper populations, according to Gary Hein, entomologist at NU's Panhandle

Research and Extension Center. "Grasshoppers normally will begin to hatch in mid- to late-May in the eastern part of Nebraska. These summer feeding species typically cause problems in rangeland and cropland. By mid- to late-June, all decisions and treatment options should be exercised. Otherwise, we'll have adult grasshoppers which will be bigger and harder to control," Hein said.

Farmers, ranchers, home and acreage owners need to use control methods during grasshoppers' early stages when they are easier to kill and still in more concentrated areas. "It's better to deal with it up front rather than trying to catch up," Hein said. "If you can treat them early, you can get better control and use lower rates of insecticide."

Environmental conditions will play a big factor in determining the severity of the problem. If conditions during egg hatch are wet and cool, grasshopper survival will be low because the young grasshoppers will starve to death. However, if spring and summer prove to be warm and dry, as forecasters predict, we'll be in for another serious year.

Treatment Guidelines

For acceptable insecticidal control, it is imperative chemicals be applied while grasshop-

pers are still immature (nymphs). As they grow, grasshoppers shed their outer skin (molt), exposing a new outer skin which hardens when exposed to the air. Grasshoppers go through five nymphal stages before becoming adults. The period of time a nymph spends between molts is known as an instar. Besides becoming larger in each instar, other subtle

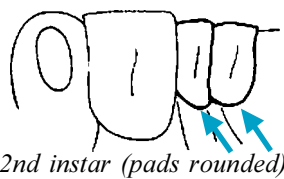
changes in appearance occur and can be used to identify which instar the grasshopper is in. Chemical controls work best when applied in the third or fourth instar. Control is more difficult in the fifth instar and grasshoppers are very hard to kill with insecticides when they become adults (when they have fully-developed wings).

One should not rely on a casual observation of body size when estimating the maturity of grasshoppers. Some species are much larger than others when fully grown. A large band-winged grasshopper species may approach two inches in length as adults, but other species may only be 3/4 inch long when adults. Even when the species is unknown, the instar can be estimated by using the guidelines below. Use a good magnifying glass to look for the identifying features.

There are numerous effective insecticides available for grasshopper control in rangeland, various crops, yards and gardens.

For more information on registered chemicals, rates and control methods, consult one of the following NU Cooperative Extension NebFacts: A Guide to Grasshopper Control on Rangeland (NF97-329), available on the Web at: www.ianr.unl.edu/pubs/insects/nf329.htm; Guide to Grasshopper Control in Cropland (NF02-328), available on the Web at: www.ianr.unl.edu/pubs/insects/nf328.htm or A Guide to Grasshopper Control in Yards and Gardens (NF97-327), available on the Web at: www.ianr.unl.edu/pubs/insects/nf327.htm. These publications may also be picked up at the extension office.

Identification of Nymphal Stages



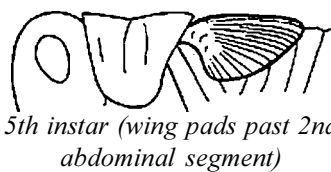
2nd instar (pads rounded)



3rd instar (pads pointed down)











4th instar (short wing pads)



5th instar (wing pads past 2nd abdominal segment)

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Visit Egg Cam!

View chicks hatching, photos of embryos as they develop, and educational resources for youth, parents and teachers on the 4-H Embryology Web site at www.lancaster.unl.edu

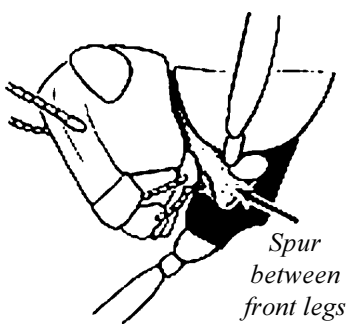


Grasshopper Identification

There are over 100 species of grasshoppers in Nebraska. Some tend to feed almost exclusively on grasses while others are mixed grass and forb feeders. The primary species of concern in cropland include: migratory, differential, two-striped and red-legged. These are all spur-throated grasshopper species.

There are three sub-families of grasshoppers that are of primary concern on rangeland. These are the spur-throated, band-winged and slant-faced grasshoppers. Spur-throated and band-winged are mixed grass/forb feeders. Slant-faced grasshoppers are grass feeders and are the primary concern in rangeland situations.

Spur-Throated



Spur between front legs



Red-legged



Migratory



Differential



Two-striped

Slant-Faced



Spotted-winged

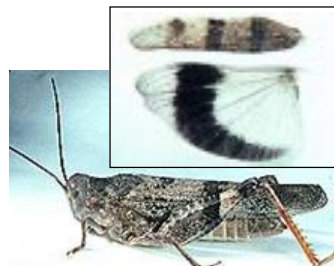


Velvet-striped



White-whiskered

Band-Winged



Three-banded



Speckle-winged

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