

## Grasshoppers in the Garden

by Bob Bauernfeind

Kansas is credited for having approximately 115 different grasshopper species. Most of these species feed on preferred “wild” host plants. Or, if they do have a taste for our vegetables and flowers, the population levels of certain species [for whatever reason(s)] remain at low, sub-economic levels. There are, however, 4 species which are recognized as major grasshopper pests: the lesser migratory, red-legged, differential and two-striped. Of these, the latter two are those which people report. They are large and conspicuous.

The “big yellows” are differential grasshoppers (Figure 1). Some are very pronounced yellow, while others may have a more grayish to brownish overall look, but definitely with some hint of yellow. All differential grasshoppers have distinct black chevron markings on the outer side of their hind leg femurs.



Figure 1

The “striped ones” are two-striped grasshoppers (Figure 2). When viewed from above, light stripes begin over each eye and course down the outer dorsal edges, converging posteriorly. The hind legs also have black markings, but only on the top half of the femur.



## Figure 2

The oft asked question is: “Where have these grasshoppers come from, and why always do they invade at this time of year?” One needs to have a basic understanding of grasshopper seasonal life histories. Grasshoppers prefer depositing their eggs/egg cases in undisturbed, uncultivated, “natural/native” areas. These areas are referred to as hatching beds. When grasshopper nymphs emerged in the spring, they are small and relatively restricted in their movements. Adequate amounts of vegetation in the hatching beds and the immediate adjacent areas are sufficient to support these nymph populations for most of the summer. However, as nymphs grow and rapidly devour the remaining vegetation, they must move out “on foot” to seek food sources further out from hatching bed areas. After they complete their final molt, the new adults have the capability of flight ----- thus greatly expanding their foraging range to include gardens and flower beds which may actually be quite far removed from the original hatching beds.

The dilemma for gardeners and homeowners is how to cope with this constant movement of grasshoppers from “outside areas” onto their property. Unfortunately, there is no easy method, no one-time “magic” spray. Any number of insecticidal active ingredients are labeled for grasshopper control in vegetable gardens and on flowers, shrubs and ornamentals. **THEY ALL KILL GRASSHOPPERS.** However none of these products provide sufficient residual control to knock down the continual flow of newly arrived grasshoppers. Thus, repeated insecticide applications are required for as long as grasshopper movements persist in relation to how much vegetable produce is wanted/needed, and flower and ornamental “show” is desired.

For those people preferring not to use synthetic insecticides, the only alternative method of combating grasshoppers would be the exclusionary tactic of placing a netting or cage over the commodity to be protected. People will have to decide how practical this is. If a plant or two is to be protected, this method may have some applicability. Screening/netting an entire garden may be cost prohibitive and/or impractical. Even with a protective covering in place, it is possible that grasshoppers might chew through or crawl under the edges of the cover.

People read and hear about microbial products which incorporate spores of the protozoan *Nosema locustae* onto a bran bait which, when spread on the ground, is consumed by grasshoppers. Ingested spores become activated after entering the grasshopper digestive system. The protozoans then attack the fat bodies within the grasshopper. Fat body content is especially important for nymphs ----- they rely on the fat bodies for nourishment during the molting and hardening process. “Starved” nymphs may die, or, if they survive, are greatly weakened. Those surviving to adulthood will produce fewer eggs, and the hatchlings be further weakened.

Products containing *Nosema locustae* spores are neither intended for use against adult grasshoppers nor expected to provide knockdown kill. As is stated in product literature, **“Kills grasshoppers at their source — the hatching beds — where they are concentrated, before they can migrate to your crop”**. It further states, ..... **“killing about half those in the hatching area, and infecting most of the remainder”**.

A further acknowledgment that *Nosema locustae* does not provide complete control is the recommendation

that a bran bait containing a synthetic insecticide be spread between the hatching beds and crops to be protected, for the purpose of killing those grasshoppers that make it out of the hatching beds.

People must realize that products containing the spores of *Nosema locustae* are not intended for use against adult grasshoppers already moving into and feeding on vegetable crops, flowers, shrubs and ornamentals. This is not to say that products containing *Nosema locustae* spores should not be used in attempts to reduce grasshopper populations ----- but they need to be used when grasshoppers are most susceptible (nymph stages), well in advance of when they become highly mobile adults. Over several seasons of use, and when properly applied to hatching areas, grasshopper population suppression may be achieved.

For more information see the publication [Grasshoppers in the Lawn and Garden](#), L868

---

*"Knowledge for Life"*

---

All educational programs and materials available without discrimination on the basis of race, color, national origin, sex, age, or disability. Kansas State University, County Extension Councils, Extension Districts, and the U.S. Department of Agriculture cooperating.

---

K-State Research and Extension is an equal opportunity provider and employer.

[Department of Entomology Home Page](#) | [Entomology Extension Home page](#) |  
[K-State Research and Extension Home Page](#) | [K-State Home Page](#) |

**This page was last updated on: 06/28/05 We hope you enjoy visiting our WWW site.  
Please mail any questions, suggestions, or comments to: [Psloderb at KSU.EDU](#)**

---