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**AG COLUMN**

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**Grasshoppers are among the most widespread and damaging pests in Texas.**

**Approximately 150 species of grasshoppers are known to exist in the state; however, only five species cause 90 percent of the damage to crops, gardens, trees and shrubs.**

**These insects cause some damage every year, but become very destructive during outbreak periods. An often asked question during outbreak years is: Why are there so many? Weather is the main factor affecting grasshopper populations. Outbreaks are usually preceded by several years of hot, dry summers and warm autumns. Dry weather increases nymph and adult survival. Warm autumns allow grasshoppers more time to feed and lay eggs. Cool, wet weather slows nymphal development and reduces the number of eggs laid. Cool wet Springs increase the incidence of diseases and reduces grasshopper numbers. This year with high temps and no rain we are likely to have high populations of grasshoppers. Grasshoppers have a high reproductive capacity. The female can lay an average of 200 eggs during a single season. Under favorable conditions up to 400 eggs can be laid. Approximately 40 eggs can be laid even if unfavorable conditions exist. Thus, 10 times more eggs can be produced during favorable conditions. With an average of 200 eggs per female, 198 eggs or young grasshoppers would have to die if the population were to**

remain the same. If, instead of only two adults surviving, there are four, six, eight, ten or fifty then the adult population the following year will be increased two, three, four, five or twenty five times, respectively.

Farmers and ranchers should watch for grasshoppers early in the season and begin control measures while grasshoppers are in the nymphal stages and still within hatching sites (roadsides, fencerows, etc.). There are a number of advantages in treating grasshoppers early: 1) fewer acres will have to be treated and less insecticide is necessary to obtain control; 2) grasshoppers are killed before they have had the opportunity to cause significant crop loss; 3) smaller grasshoppers are more susceptible to insecticides than larger hoppers; 4) early treatment before grasshoppers reach maturity prevents migration of the winged (flying) adult stage and egg laying, which may help reduce the grasshopper threat for the following crop year.

Grasshopper infestation levels can be estimated by surveying for nymphs or adults. One method is the square-foot method. In the area to be sampled, count the number of grasshoppers that hop or move within a square foot area. With 15 to 20 paces between each square-foot sample, conduct 18 square-foot samples and divide the total number of grasshoppers by two to obtain the number per square yard. If the grasshopper's are predominantly first to third instar, (wingless and generally less than  $\frac{1}{2}$  inch long), divide the number by three to give the adult equivalent. Consider fourth instar nymphs and above as adults. Control will generally be necessary when square-yard counts reach the threatening level of 21 - 40 in the margins or 1 - 14 in the field.

**When grasshopper populations reach the economic threshold, or when crops are threatened a treatment program may need to be considered. You can contact the County Extension Agent or your Ag retailer for more information on recommended insecticides.**

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