

GRASSHOPPERS AND BLACK GRASS BUGS

USDA has forecast an increase in grasshopper activity throughout the Western United States this season. As such, federal and state agricultural agencies are encouraging landowners to plan for the worst and hope for the best. Already, grasshoppers are being observed in several Utah counties, including Box Elder County. Their fast growth rate, chewing mouthparts, and horrendous appetites make them one of the most destructive insects to crops and rangelands. Significant resources are used each year to keep numbers to a manageable level. At a recent Cache County landowner meeting an entomologist from Utah Department of Agriculture (UDAF) discussed some strategies that will minimize crop damage, if followed.

First, understand the life cycle of the pest. Grasshoppers go through simple metamorphosis, meaning egg, nymph, and adult. Most grasshoppers found in Utah have only one generation each year. Eggs are laid in the soil during late summer and early fall. It is common for females to lay about 25 egg pods with each pod containing up to 100 eggs. Overwintering egg pods are freeze-tolerant, especially when there is sufficient snow cover for insulation, as we have had this winter. The eggs hatch the following spring, usually about mid to late May, depending on temperatures and other factors. Immature grasshoppers, called nymphs, go through five instars before becoming adults. Nymphs are unable to fly, but gradually develop wing pads as they mature. Adults are capable of flying great distances and are almost impossible to control.

Second, observe fields carefully for newly emerging nymphs. Timing is everything if treatment methods are to be effective. Grasshoppers in their first instar are approximately $\frac{1}{4}$ inch long and reach roughly 1 inch in body length by the 5th instar. Often, their presence is not observed unless landowners or crop consultants are looking for them. Usually the best time to suppress grasshopper populations is during the first three instars. An excellent USU Factsheet describing each instar is available at <http://extension.usu.edu/files/publications/factsheet/grasshopper-control09/pdf>

Third, land owners must work cooperatively if control efforts are to be successful. A single farmer or homeowner troubled with destructive grasshoppers will have only temporary success when acting alone. Obviously, insects have no respect for property lines, and will quickly migrate to other areas to satisfy their hefty appetites. Neighbors working together will always have more success than single entities. Someone will need to step forward and take the lead in respective communities. Typically, someone is willing to do that.

Fourth, have a control plan in place. That includes knowing who will actually apply the insecticide. Will ground application be sufficient, or is the acreage large enough to justify aerial application? Are land owners certified and equipped to take care of application themselves, or is it best to hire professionals? Ground spraying is usually more expensive per acre, but there is less chance of killing non-target insects. Justification for chemical control depends on the type of crop, stage of growth, and damage being done to the crop. Sometimes, there is no economic benefit to control efforts. That decision can only be made by those being impacted.

State and federal cost-share dollars are available to agricultural landowners who have documentation of at least 8 grasshoppers per square yard. Such an infestation must be verified, before spraying, by an examiner from UDAF or USU Extension. At that point, the appropriate insecticide or growth regulator can be applied by the landowner or by commercial applicators. Following application, landowners must obtain a plat map of the area treated and submit appropriate invoices to UDAF for partial reimbursement of costs incurred. Landowners cover 25% of the cost and receive a 75% reimbursement from UDAF. The reimbursement is limited to a total cost of \$12 per acre for aerial spraying and up to \$14 per acre for ground spraying. The Extension office has the necessary paperwork for agricultural landowners who may have an interest in pursuing this option.

Black grass bugs are also appearing in some areas of the county. They are typically found in range grasses and on CRP lands. Sometimes they migrate to adjoining wheat fields and do damage with their piercing-sucking beaks. Heavily infested plants appear frosted, or straw colored. Widespread insecticidal control for black grass bugs in forage grasses is usually not economically feasible. If growers choose to use insecticides to protect wheat, oat, or barley fields, they may qualify for cost-share dollars with a 50% reimbursement from UDAF. The same procedure and paperwork must be followed for black grass bugs as outlined for grasshopper control. A black grass bug Fact Sheet is available at <http://extension.usu.edu/files/publications/factsheet/black-grass-bug08.pdf>.