



Pillbugs

Perennial Pests of No-Till Crops

Pillbugs can be found in locations with high humidity and moisture. They normally feed on decaying organic matter but also can be a crop or garden pest. Favorite habitats include leaf piles, grass clippings, pet droppings, old boards, and various mulches. They may feed on young tender vegetation or fruit, damaging beans (including soybeans), lettuce, strawberries, and other garden crops.



Pillbug



Pillbug rolled into a ball

Description

Pillbugs are arthropods in the subphylum Crustacea or crustaceans. They belong to the class Malacostraca or soft shell crustaceans and the order Isopoda. Pillbugs are more closely related to shrimp, crayfish, and lobsters than insects.

Pillbugs are wingless and gray to black. They have seven pairs of legs, well-developed eyes, and are about $\frac{3}{8}$ -inch long when fully grown. When disturbed they often roll themselves into a ball.

Life Cycle and Habits

Pillbugs are most active and mate mainly in the spring. To survive, isopods must remain in a moist habitat. In hot weather they remain in dark, damp areas such as cracks in the field or under crop residue during the day and become active at night. They overwinter as inactive adults. A female carries from seven to 200 eggs in a brood pouch on the underside of her body. Eggs hatch in three to seven weeks, and the young are white. The female carries the young in her brood pouch for six to eight weeks until they can care for themselves. There may be one or two generations a year depending on conditions, and individuals may live up to three years.

Management Considerations

With increased utilization of reduced or no-till agriculture, pillbugs have become a perennial early season problem. Crop residue provides a moist habitat for pillbugs, allowing populations to increase to crop-damaging levels. Some insecticide seed treatments will kill pillbugs, but only after they have fed on germinating plants enough to acquire a



Emerging soybean plant



Damage caused by pillbug feeding

lethal dose of toxicant. In sufficient numbers, pillbugs may kill seedling plants before consuming enough toxin to kill them. Planting-time insecticide applications have not been effective because these crustaceans do not normally feed in the seed zone where they may be controlled prior to germination.

Foliar application of labeled insecticides also has not proven effective. Pillbugs, like many crustaceans, are susceptible to insecticides. But crop residue under which these pests exist often intercepts the spray, protecting the pillbugs and allowing them to continue feeding on seedling plants.

No-till soybeans are the crop most often affected because of the timing of the planting, the presence of damp residue, and the susceptibility of young plants to feeding injury. Pillbug problems have not been apparent in conventional tilled fields because there is less soil moisture and cover available and pillbugs need a moist environment.

Avoiding pillbug feeding damage, especially to no-till soybeans, has proven difficult. One management practice that has proven successful is to plant a few weeks earlier or later than usual. But this may not be acceptable from an agronomic standpoint and can be greatly affected by weather. Another practice that has worked is to till fields every other year. Tillage reduces pillbug populations. Alternating between till and no-till reduces the amount of time for pillbug populations to reach damaging levels.

Beneficials, i.e. predators, parasites, and pathogens, have not been a factor in any of the pillbug populations examined to date and few have been noted in the literature. Thus, biological control will probably not provide much relief in the near future.

Photos by Holly Davis and Brian McCornack

R. Jeff Whitworth, Entomologist

Phil Sloderbeck, Entomologist, Southwest Research and Extension Center, Garden City, Kansas, Retired

Holly Schwarting, Insect Diagnostician and Research Associate

Department of Entomology

Brand names appearing in this publication are for product identification purposes only.
No endorsement is intended, nor is criticism implied of similar products not mentioned.

Publications from Kansas State University are available at www.bookstore.ksre.ksu.edu.

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved.
In each case, credit R. Jeff Whitworth, Phil Sloderbeck, and Holly Schwarting, *Pillbugs*, Kansas State University, November 2008.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF2855

November 2008

K-State Research and Extension is an equal opportunity provider and employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts, and United States Department of Agriculture Cooperating, Fred A. Cholick, Director.