

Section V
Soil Arthropods

**Western Orchardgrass Billbug, *Sphenophorous venatus confluens* Chittenden,
Biology & Control in Commercial Seed Fields**

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The biology and control of this pest were studied over the past 5 years in unirrigated commercial orchardgrass (OG) seed fields in the Willamette Valley. We found the biology of this univoltine pest to be quite similar to that reported by Kamm in the late 1960's: Adults overwinter, breaking diapause from late MAR through APR. At this time adults feed on grass blades, mate and migrate among crowns. Females deposit eggs in crowns and developing stems through June. Eggs hatch and larvae develop through the summer and early fall. Pupation occurs in AUG and adults can be found from SEP through NOV. Kamm suggested controlling this pest in the spring, applying Lorsban 4E ® in the rain to wash the insecticide down the leaves to the crowns and soil where the billbugs are active. This has not been satisfactory because (1) Lorsban is ineffective as an adulticide, (2) grass regrowth is often too tall for the insecticide to evenly penetrate the canopy, (3) rain seldom falls when needed and in sufficient quantity for effective control.

Fieldmen and growers were interested in finding an alternative to chlorpyrifos as well as determining if a fall spray would be more effective for controlling this pest. Why? The grass regrowth is very short, rainfall would not be needed for insecticide to reach target sites.

We revisited the field biology of this billbug and evaluated different products for controlling it in the fall of the year.

We took sampled OG crowns, roots and soil through the year to monitor occurrence of larval, pupal and adult stages in the roots and crowns of the OG.

We used presence of adult feeding scars on grass blades both in the spring as well as in the fall (2005 and 2006). to determine when adults broke diapause in the spring and aestivation in the fall. We use an economic threshold of 8% of the crowns with adult feeding damage to initiate control in both spring and fall periods. Pitfall traps monitored spring and fall adult dispersal which begins shortly after the first feeding scars are noticed in spring as well as fall. Dispersal lasts for about three weeks.

As a result of these studies and trials with various insecticides, we now recommend bifenthrin at 0.1 lb ai/A (section 18 registrations) applied as a broadcast spray with either the spring or fall (after OCT 20th and before NOV 10th) timing to control the adults of this pest.

Bifenthrin applied in the fall provides in excess of 90% control of adult billbugs present. Other pyrethroids evaluated at suggested label rates have not provided satisfactory control. We think fall applications have provided excellent control because (1) sprays occur when vegetative

regrowth is minimal (compared to spring applications made to knee-high orchard grass), (2) adults are actively dispersing on soil surface and come into contact with insecticides, rain is NOT needed for product to hit the soil surface target site and (3) since field burning has been reduced or eliminated by many growers, little charcoal residues remain to adsorb insecticides.