Management Guide for
Western Conifer Seed Bug

*Leptoglossus occidentalis* Heidemann

This insect can have huge seed production impacts in western white pine seed orchards.

**Damage**

The insect feeds by using its long mouthparts to pierce through cone scales into developing seeds. The insect’s saliva softens or dissolves seed contents which are then imbibed. Type of damage to the seed depends on the time and length of the feeding period. When feeding occurs before the seedcoat hardens, the contents of the seed are completely removed and the seedcoat collapses. After seedcoats harden, the damaged seeds do not collapse even though all or parts of the contents are removed. Cones will develop normally but produce no viable seed (Hedlin et al. 1981). Partially filled and empty seeds can be detected on radiographs of extracted seed. Seed bugs can reduce the amount of viable seed by 80% (Connelly and Schowalter 1991). They can also cause abortion of first year conelets and feed on developing male flowers, reducing pollen production.

**Life History**

Adults overwinter in dead trees, bird or rodent nests, or people’s houses. They become active in the spring and lay barrel-shaped eggs in rows on the needles of host trees from May to July. Eggs hatch into nymphs which feed on seed in developing cones. They pass through 5 nymphal instars and reach maturity by late August. New adults continue to feed on the ripening cone crop or first year conelets until the onset of cold weather. There is one generation per year (Koerber 1963).

**Key Points**

- Seed bugs can reduce the amount of viable seed by 80%.
- Type of damage to the seed depends on the time and length of the feeding period.
- Monitoring, use of synthetic pyrethroid, and natural controls should be used to control large seed bug infestations.
Identification

Adults are active and quite conspicuous from spring through fall. They are large—about an inch long with long legs and antennae. The hind tibia is flattened and expanded. Their body is reddish brown to dark gray-brown in color with a thin zigzag white line across its forewing. They have orange and black markings on the upper abdomen that are evident when in flight. Nymphs have brightly colored orange markings. Both adults and nymphs are somewhat gregarious and tend to congregate on branch tips and cones on the sunny sides of trees. Nymphs will hide on the underside of cones or foliage when disturbed. Adults readily fly when disturbed. In flight, adults produce a buzzing noise. Both adults and nymphs emit an unpleasant odor when disturbed or squished. Adults can be quite a nuisance when they enter buildings in the fall in search of overwintering sites.

Management

General management options include:

Monitoring:
Monitoring seed bug populations in seed orchards can be done by visually examining cones on trees.

Chemicals:
When numerous seed bugs are found, insecticides may be applied to protect seed. The synthetic pyrethroid, permethrin*, has been used successfully to control seed bugs in North Idaho western white pine seed orchards. Seed bug activity may be detected by radiographs, biochemical marker based techniques (Lait et al. 2000, Bates et al. 2002) or staining techniques (Cambell and Shea 1990).

Natural controls:
Parasites of seed bug eggs have been identified and could potentially be used in an integrated pest management program in the future (Bates 2004).
Other Reading


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