Spruce Seed Moth

Cydia strobilella (Linnaeus)
Lepidoptera: Tortricidae

Sweeney, J. D.; Miller, G. E.; Ruth, D. S. 1990. Sampling seed and cone insects in spruce. In: West, R. J., editor. Proceedings--cone and seed pest workshop. 1989 October. St. John's, Newfoundland. Inf. Rep. N-X-274. *Canadian Forest Service*; 63-75.

Objectives: To determine if the percentage of damaged seeds per cone was related to *C. strobilella* density per conelet; to determine what sample size was necessary to estimate egg density; and to determine what infestation level was required to justify the use of control measures.

Abstract: The spruce seed moth, *Cydia strobilella* (Linnaeus), is an important pest of seed orchards in Canada. The primary hosts are Englemann, *Picea englemanni* L., and white spruce, *P. glauca* (Moench) Voss, spruce although other species can be attacked. A study was conducted in interior British Columbia to determine if seed damage to white and Englemann spruce was related positively to *C. strobilella* infestation level and density per conelet.

The percentage of seeds damaged per cone was directly related to both the percentage of cones infested and density of *C. strobilella* per cone. Control measures were warranted if *C. strobilella* egg densities exceeded 0.8 per conelet. The optimal number of conelets to sample per tree was two. The number of sample trees required to estimate egg density with 90% confidence and 10% error was 223 to 509. This sampling intensity was practical for detailed, scientific studies only.

Sampling Procedure: Select 223 to 509 trees systematically from the area of concern. At each tree, collect two conelets from the upper to mid-crown when conelets are about half pendant. Conelets can be bulked and stored at –10 °C until dissected. The number of days required to sample this many conelets ranges from 5 to 12.

Dissect conelets with a pair of fine forceps under a stereoscopic microscope at 10 power magnification. Starting from the base of each cone, work distally pulling each cone scale away from the conelet searching for the presence of *C. strobilella* eggs, larvae, and damage. Seeds damaged by *C. strobilella* are packed with frass and easily distinguished from those fed upon by other seed pests.