Fall Cankerworm

Alsophila pometaria (Harris)
Lepidoptera: Geometridae

Reeks, W.A. 1956. Sequential sampling for larvae of the winter moth, *Operophtera brumata* (Linnaeus). (Lepidoptera: Geometridae). *The Canadian Entomologist* 88: 241-246.

Objective: To develop a sequential sampling plan for 4th instar larvae of *A. pometaria*.

Abstract: The fall cankerworm, *Alsophila pometaria* (Harris), is a significant defoliator of northern red oak, *Quercus rubra* L., in Nova Scotia as well as white oaks, maples, elms, hickories, ashes and cherries. In NS, heavy defoliation occurs in June but further south of this pests' range defoliation can occur in May. Fall cankerworm can cause a reduction in growth, mast production and even mortality. In public areas, defoliation reduces the aesthetic value of infested trees.

A sample of 12 leaf clusters taken randomly from the live crown of each of eight trees during the peak of the 4th instar was shown to be an adequate sample size in the sequential sampling scheme developed for *A. pometaria*. If the cumulative count of *A. pometaria* larvae falls in the continue sampling zone indicated in Table 2, then sample an additional two trees. Light, moderate and severe infestations corresponded with defoliation levels of 0-25%, 35-80% and 90-100% on a per tree basis, respectively.

Sampling Procedure: Select from eight red oak trees randomly in the area of concern. Remove 12 leaf clusters randomly from each sample tree, and count the number of *A. pometaria* larvae. Add the total number of larvae in each sample and reference the sequential plan in Table 2. If the cumulative count of larvae falls within the continue sampling columns select an additional two red oaks and sample as before. Light, moderate and severe infestations correspond to defoliation levels of 0-25%, 35-80% and 90-100% on a per tree basis, respectively.

Notes: This sequential plan was developed originally for the winter moth, *Operophtera brumata* (Linnaeus) but also works for *A. pometaria* because it has a similar distribution and life history as winter moth. Samples were collected during the first two weeks of June, which is an appropriate time for sampling both insect pests on the south shore of Nova Scotia.

Table 2. Cumulative number of winter moth larvae per tree-sample (12 leaf clusters per tree-sample) for one to ten sample trees. Based on values for d as shown in text.

Cumulative number of larvae per tree-sample					
Tree		Light-moderate zone, continue sampling		Moderate-severed zone, continue sampling	
1		3-23		24-54	
2		17-37		63-93	
3		30-51	M	102-132	S
4	L	44-64	O	141-171	E
5	I	57-78	D	180-210	V
6	G	70-91	E	219-248	E
7	H	84-105	R	258-287	R
8	T	97-118	A	297-325	E
9		111-132	T	336-365	
10		124-145	E	375-404	

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