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2002 Pheromone-trap Detection Survey for Leek Moth, *Acrolepiopsis assectella* (Zeller, 1893) (Lepidoptera: Acrolepiidae), an Exotic Pest of *Allium* spp.

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Background

Native to Asia, the Leek Moth (LM) was first found in North America in 1993, in Ottawa, Canada, where the pest is now established (CFIA, 2001). To date, the pest has not been detected in the United States (Figure 1 - APHIS NAPIS, 2003).

In Europe, the pest causes heavy damage to leeks, onions, garlic, and related crops by mining and feeding within the foliage and bulbs (see Figure 2), and infested bulbs are subject to extensive rotting in storage. Larval damage to stalks can also reduce seed production (USDA-ARS, 1960). Pest status is characterized as a “minor pest of onions” in some references (Hill, 1983 and 1987), a “serious pest in continental Europe” (Carter, 1984), and a potential pest of native (North American) and ornamental plants in the genus *Allium* (APHIS NPAG, 2000).

2002 Project Objective

Conduct pheromone-trap detection survey throughout populous western Washington.

- Place and monitor pheromone-traps in areas of commercial and home garden *Allium* culture.
- Screen and identify captured specimens, including non-target material when possible.

Project Methods and Materials

Three hundred and ninety-six pheromone-lure baited traps were placed in counties along the Interstate-5 corridor in western Washington, from the Canadian border south to Clark County on the Columbia River / Oregon border. Trap placement, by county, is presented in Table 1. Traps were hung in roadside or residential yard trees, primarily in areas where home gardens could provide *Allium* spp. hosts (ornamental and table crop).

Trap placement began in June to allow for completion of all initial trap sets by the beginning of expected adult moth flight in late-June or early-July, and most traps were removed by the end of August.

Figure 1. Leek Moth Survey in U.S., 2003 (USDA)

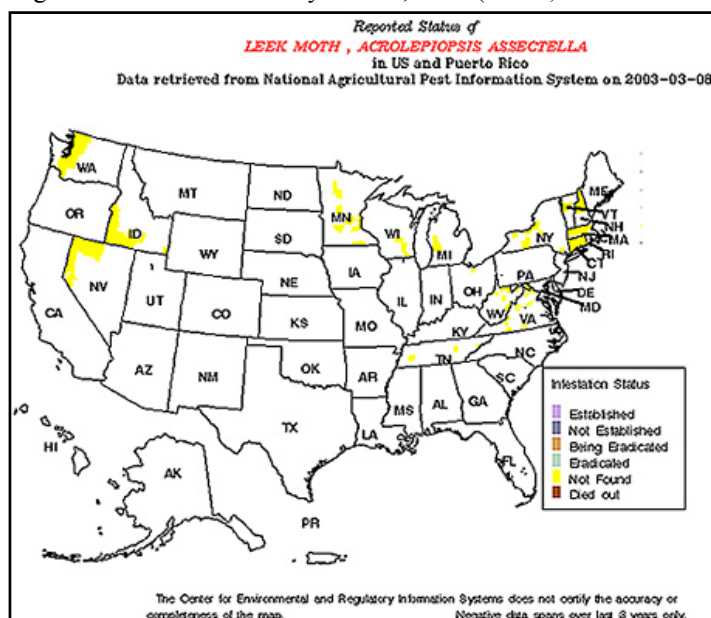
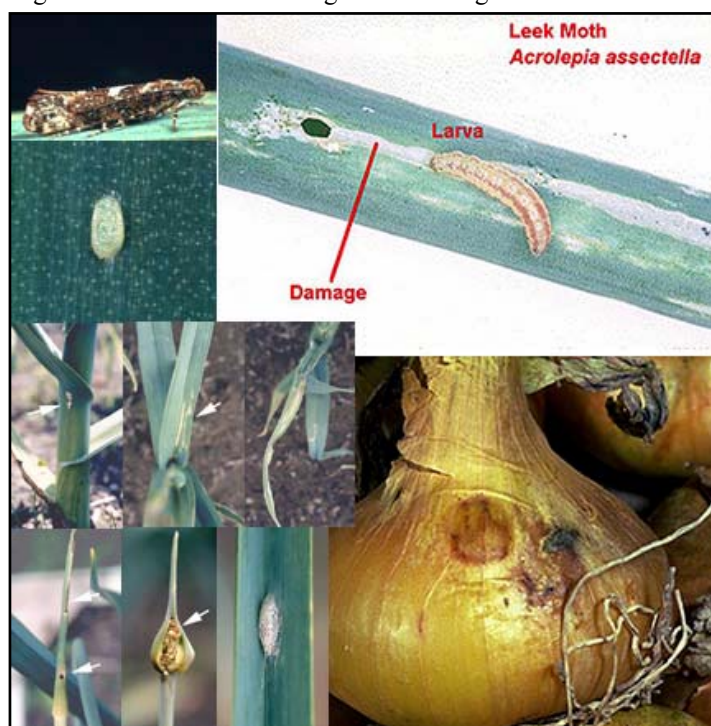


Figure 2. Leek Moth Life Stages and Damage



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Project Methods and Materials (Cont.)

Pherocon 2® type traps (a.k.a. "diamond" traps) were used in this survey, based on trap performance in prior WSDA CAPS surveys, ease of use, and the avoidance of small-bird capture/mortality (which is a problem with other trap designs, particularly "wing-traps"). Traps were baited with pheromone-lures provided by the USDA APHIS Otis Methods Development Center. The leek moth pheromone-lures consisted of gray rubber septa (West Co., Lionville, PA. cat. no. 1060-0275), each loaded with 0.1 ml (1 mg) of (Z)-11-Hexadecanol.

Pheromone lures were changed every two weeks as much as possible during the expected (probable) period of adult flight. Traps with specimens were processed at the Olympia Entomology Lab, where captured specimens were identified and counted. Selected specimens were removed from the traps with Hemo-D citrus based solvent and had genitalia extracted and cleared (in KOH) for identification.

Table 1. Leek Moth Trap Placement

County	Number of Leek Moth Trap Sites
Whatcom	98
Snohomish	11
Skagit	40
King	75
Pierce	51
Thurston	52
Lewis	12
Cowlitz	21
Clark	36
Total Traps	396

Project Results

No leek moth specimens were collected in this survey.

Pertinent Literature

Alford, D. 1999. *A Textbook of Agricultural Entomology*. Blackwell Science.

APHIS NPAG, 2000. USDA New Pest Advisory Group Data: *A. assectella*, Leek Moth – Potential Threat to American Onion and *Allium* Growers. August 1, 2000

Carter, D. 1984. *Pest Lepidoptera of Europe*. Dr. W. Junk, Boston

CFIA, 2001 (Web Document) Canadian Food Inspection Agency - Plant Pest Info. Acrolepiopsis assectella (Zeller, 1839) Leek Moth <http://www.inspection.gc.ca/english/ppc/science/pps/datasheets/acrasse.shtml> last modified February 14, 2003

Hill, D. 1983. *Agricultural Insect Pests of the Tropics and Their Control*. Second edition. Cambridge University Press, New York.

Hill, D. 1987. *Agricultural Insect Pests of Temperate Regions and Their Control*. Cambridge University Press, New York.

USDA-ARS, 1960. Leek Moth (*A. assectella* Zell.) *Insects Not Known to Occur in the United States* 10:33-34

Table 2. Non-target Pheromone-trap Captures

Defoliator species	Number of specimens
<i>Acleris variegana</i>	3
<i>Agonopterix alstroemeriana</i>	1
<i>Apotomis spurinifida</i>	27
<i>Archips fuscocupreanus</i>	4
<i>Archips rosanus</i>	5
<i>Argyrotaenia franciscana</i>	4
<i>Batia lunaris</i>	20
<i>Caloptilia stigmatella</i>	1
<i>Caloptilia syringella</i>	1
<i>Carcina quercana</i>	8
<i>Chionodes mediuscella</i>	5
<i>Chloroclystis rectangulata</i>	1
<i>Choristoneura rosaceana</i>	11
<i>Clepsis consimilana</i>	2
<i>Clepsis virescens</i>	1
<i>Dicymolomia metalliferalis</i>	14
<i>Ditula angustiorana</i>	10
<i>Enarmonia formosana</i>	2
<i>Epinotia albangulana</i>	1
<i>Epinotia subviridis</i>	3
<i>Grapholita packardii</i>	4
<i>Grapholitha prunivora</i>	126
<i>Oegoconia quadripuncta</i>	13
<i>Recurvaria nanella</i>	17
<i>Rhopobota naevana</i>	7
<i>Setiostoma</i> sp.	1
<i>Spilonota ocellana</i>	1
Total	293

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