Section VII
Foliage & Seed Feeding Pests

ADVANCES IN WORM BIOLOGY IN PACIFIC NORTHWEST POTATOES

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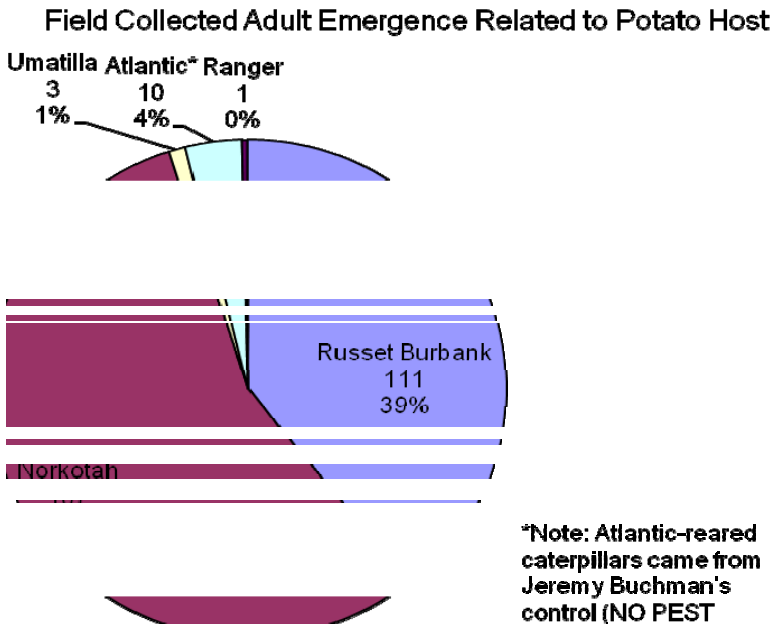
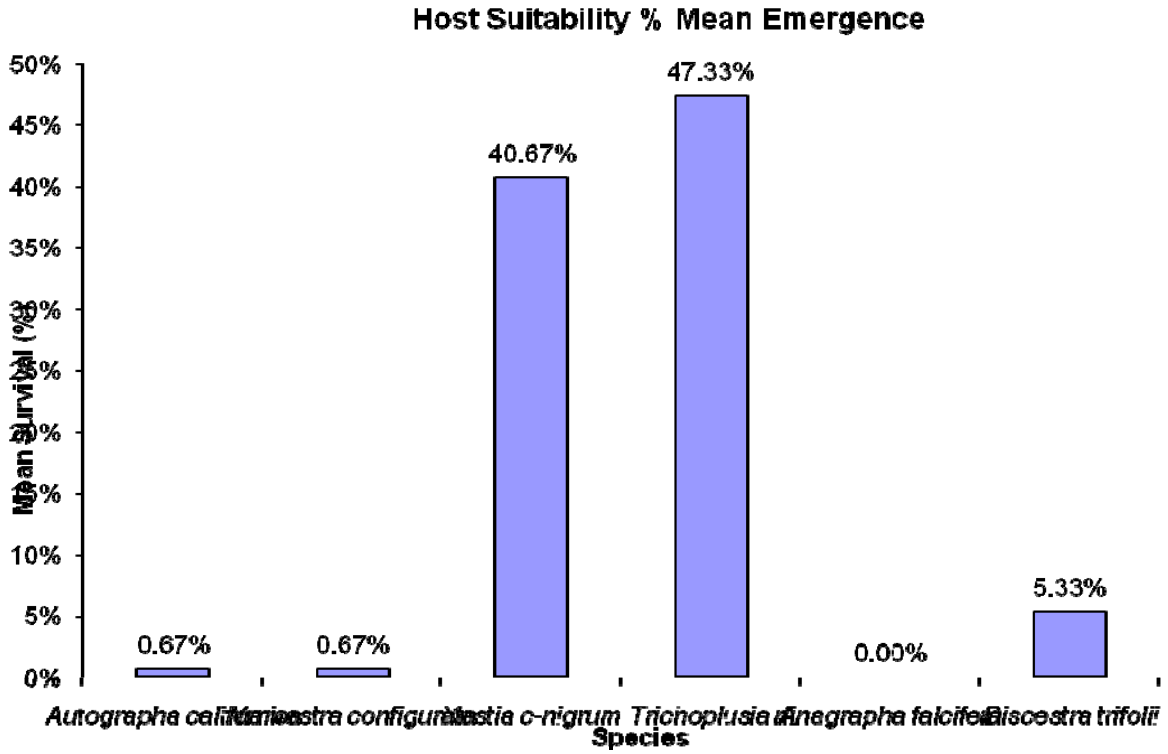
Despite being one of the most widely grown, valuable and research crops in the Pacific Northwest, little is known about one of the most commonly treated for insect pests of potatoes. An exerpt from the 2008 Integrated Pest Management Guidelines for Insects and Mites in Idaho, Oregon and Washington Potatoes by Alan Schreiber and Andrew Jensen states "*Little is known about the biology and management of worms in PNW potatoes. The economic threshold for when to treat for worms is unknown. In the absence of a threshold, growers should consider the level of defoliation by worms to be approximately similar to that of Colorado potato beetles. CPB rates of development and feeding patterns are different from worms, so do not make predictions of expected damage using your knowledge of beetle outbreaks. Also, different worm species can infest potatoes, so your experience for one field may not be appropriate for another field unless the species, environment and other conditions are the same or similar. It is important to scout for living worms in your fields, rather than applying treatments in response to damage. Sometimes worms are absent by the time damage is noticed. Also, some species have nocturnal habits and may not be easily found during the day*."

Funded by the Washington State Potato Commission and the Washington State Commission on Pesticide Registration, a group of researchers has set out to generate some data on worms that feed on, but not in, potato foliage. This particular language is used to exclude potato tuberworm which is the focus of research by other workers. Researchers on the project include Alex Fairchild, WSU graduate student, Richard Zack, WSU, Peter Landolt, USDA-ARS and Andrew Jensen, Washington State Potato Commission.

The project is envisioned as a three year project. The first year of the project focused on determining what species infested potatoes, which could successfully survive on potato foliage and other information related to species composition and survivablity.

A number of species collected from potato foliage were unable to complete development on potatoes. Survivablity was influenced by variety of potato foliage. Most worms were collected from Norkotah and Russet Burbank. This factor was based on largely on the insect control programs that growers used (or did not use.)


Field Collected Adult Emergence Related to Potato Host Variety
Umatilla
3
1%
Atlantic*
10
4%
Ranger
1
0%
Russet Burbank
111
39%
Norkotah
*Note: Atlantic-reared caterpillars came from Jeremy Buchman's control (NO PEST


Host Suitability % Mean Emergence
50%
45%
40%
35%
10%
5%
0%
0.67%
0.67%
40.67%
47.33%
0.00%
5.33%
Species

Potato Variety	**Species of Moth**						
	Alfalfa looper	Bertha armyworm	Spotted cutworm	Cabbage Looper	Lacanobia fruitworm	Celery looper	Clover Cutworm
Control (Dandelion	29/50	1/25		23/25	19/25	12/25	7/25
Norkotah	1/25	0/25	13/25	14/25		0/25	5/25
Russet Burbank	0/25	0/25	10/25	10/25		0/25	2/25
Alturas	0/25	0/25	10/25	11/25		0/25	0/25
Umatilla	0/25	0/25	12/25	10/25		0/25	0/25
Ranger	0/25	1/25	11/25	16/25	19/25	0/25	0/25
Shepody	0/25	0/25	5/25	10/25		0/25	1/25