

NEW FEEDING ATTRACTANTS FOR MOTH PESTS

BY

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Potatoes, like most other crops throughout the world, are occasionally attacked by caterpillars of moths; often referred to as loopers, armyworms, and cutworms. They tend to show up on crops intermittently and may occur once every several years in outbreak numbers. Most of these moths can build up in one crop or geographic area and then move to another crop or area, making damage difficult to predict and at times making it difficult to manage these moth populations.

In eastern Washington and Oregon, these moths include the alfalfa looper, celery looper, and cabbage looper, the spotted cutworm, red-backed cutworm, black cutworm, and glassy cutworm, and the western yellowstriped armyworm, bertha armyworm, and true armyworm. Recent problems on potato are thought to be due primarily to the alfalfa looper, although this is not well documented and there are probably several species causing occasional spotty defoliation of potato.

A new chemical attractant has recently been discovered by us at the Yakima Agricultural Research Laboratory that should be helpful both for monitoring these moth pests and for developing new control technologies that involve reduced pesticide use. Most of these moths are attracted to fermenting solutions of sugar, such as rotten fruit, sap, and honeydew from sucking insects. Because these moths fly over great distances, they need sugar for energy. We isolated and identified the combination of acetic acid (vinegar) and 3-methyl-1-butanol as the chemicals from fermented molasses that attracts these moths. To date, we have found that the lure works very well for all of the cutworms in the area, as well as armyworms and some of the loopers. We also identified six chemicals from the aroma of flowers of Oregon grape (used as an ornamental shrub), which is highly attractive to looper moths. One compound in particular, phenylacetaldehyde, makes a very good lure of alfalfa looper moths.

Presently we are developing these chemicals both to be used in traps for capturing moths and in bait stations which will kill all attracted moths. It is hoped that these bait stations will provide an inexpensive way to control pest moths before they lay eggs on potatoes and other crop plants and before any leaf damage occurs.