

Section II

Environmental Toxicology and Regulatory Issues

NEW APPROACHES TO POTATO INSECT PEST MANAGEMENT

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The potato industry no longer has access to Temik, Furadan, endosulfan and Monitor. Also, growers have increasingly adopted a tactic of using a neonicotinoid insecticide at planting. I estimate as much as 90% of eastern Washington potato acres are treated with a neonicotinoid on the seed piece, at planting or at cracking/layby. While this is a very cost effective strategy, the intermediate and long term consequences and cost to the industry may be greater than are immediately apparent. Wide spread reliance on neonicotinoids are likely to be related to increase in thrips and lepidopterous (worm) outbreaks. The increased reliance on neonicotinoid insecticide increases the likelihood of resistance to this important class of potato insecticides. The loss of the former products and the increased use of the latter products leave growers with a narrow set of more traditional products, particularly for post planting foliar insect control. Many of the remaining products are pyrethroid insecticides or package mixes that contain pyrethroid and/or neonicotinoid insecticides. Use of pyrethroid insecticides after mid June increases the likelihood of a mite or aphid outbreak. Use of a neonicotinoid or package mix containing a neonicotinoid insecticide following use of a neonicotinoid insecticide at planting creates a significant risk factor for resistance.

Complicating this situation is increasing number of insect pests. Thrips became a more apparent problem in the mid 1990s. Foliarly feeding worms became a regularly treated for pest about 10 years ago. Beet leafhopper was identified as a pest in 2003. Two years later potato tuberworm was identified as a problem, and in 2011, potato psyllids psyllid vectoring a disease appeared over a wide array of the Pacific Northwest.

The requirements for federal registration of a pesticide tend to favor products that are more selective in their spectrum of control. As a result most products that are becoming available to growers control a narrower range of insect pests than older products. Unfortunately, Washington potato growers increasingly have to control mixed assemblages of insect pests, and

several of the newer products (Coragen, Avaunt, Fulfill and Beleaf) are more selective in the pests they control.

Spirotetramat (Movento) is registered on potatoes, but has not been commercially launched by Bayer CropSciences. Dow AgroSciences intends to register sulfoxaflor (Transform) prior to the 2012 use season. DuPont plans to register cyazypyr during 2012. Syngenta intends to register a package mix containing cyazypyr shortly thereafter.

These new products have significant potential for the Washington potato industry and may serve a critical role in reducing the overreliance on neonicotinoid insecticides and preventing the development of resistance. There are significant questions to be answered in regards to how these products work on potatoes and what their best fit is in the potato industry.