SECTION VI
Foliage and Seed Feeding Pests

CHEMICAL CONTROL OF POTATO TUBERWORM IN THE PACIFIC NORTHWEST

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Potato tuberworm is responsible for more crop loses in potatoes than any other insect, weed, disease or nematode pest in the world. The recent introduction and spread throughout most of the potato growing areas in the PNW has resulted in significant pest control challenges. Growers in the Columbia Basin of Oregon and the lower Columbia Basin of Washington made up to 8 applications in 2005 to control this pest. In most cases, the insect was controlled; however, several fields (between 5 and 10) were rejected due to PTW and were used for lower valued purposes.

Based on 2005 efficacy trials, PTW can easily be controlled by repeated insecticide applications made at close intervals at high rates. PTW has multiple, overlapping generations, short generation times, appears to infest only potatoes (at least in the PNW) and is the recipient of intense insecticidal pressure. The Washington and Oregon potato industries and agrichemical companies organized the largest insecticide efficacy trial the authors had ever seed. In excess of 100 treatments were screened for control of PTW in potatoes.

Trials were conducted near Paterson, Washington and Hermiston, Oregon. The trials at both locations were coordinated in a manner to keep as many treatment variables identical as possible. In both cases, Ranger potatoes were used; plots sizes, shape, planting densities and date were either identical or similar. Crop management was similar. Two differences in the trials is that the Oregon trial had high PTW pressure and was desiccated using Enquik and the Washington trial was characterized by moderate pressure and was desiccated using Reglone. The difference in PTW pressure appears to have significantly influenced the outcome of some treatments conducted at both locations. The effectiveness of products was determined by their ability to reduce the number of mines and/or larvae in the foliage.

In general, products were applied at the higher end of their rate ranges and at relatively narrow time intervals. The purpose of the higher rate and narrow intervals between applications was to conclusively prove that the products were effective. Overall, the both trials were considered to be highly successful in their outcome. PTW was easily controlled in the Washington trial by most insecticides. In the higher PTW pressure in Oregon, some products were not as effective or were not effective as compared to the Washington trial results. In general ground and chemigation treatments were effective, however, some products were effective by ground, but were less effective when applied by chemigation. Applications of Avaunt made only at and after desiccation were as effective as a 5 application program applied by chemigation at 7 day intervals.

Applications of insecticides applied close to desiccation appeared to be most critical for minimizing tuber infestation. The rate of infestation increased as the amount of potato canopy decreased.

Some products clearly were able to reduce tuber infestation as well as foliar infestations. These products include Monitor, Rimon, Avaunt, Asana and Lannate.