

Action Plan for the Potato Tuberworm (Pthorimaea operculella) PTW in Idaho for the 2006 Growing Season

Background

The potato tuberworm, *Phthorimaea operculella* (Zeller) (PTW), is emerging as a potential economic pest of potatoes in the Pacific Northwest. It is an important potato pest on every continent, particularly in tropical and subtropical regions. PTW has been recorded in California since 1856, and several times over the past two decades it has been recorded in the Columbia Basin of Oregon and Washington. However, it was not a major concern for growers in the Pacific Northwest until 2002, when a field with severe potato tuberworm damage was documented near Hermiston, Oregon. Since then, several more fields in the same region have suffered damage. Milder winters and dry summers during the past few years are probably responsible for extending the potato tuberworm's range northward. During the 2005 growing season, the U.I. potato tuberworm (PTW) survey was initiated, under the direction of Dr. Juan Alvarez and funded through a grant from the Idaho Potato Commission. U.I. Extension personnel placed 36 traps in potato fields across southern Idaho. On August 26, 2005, two adult moths were trapped on the edge of the variety trial plots at the U.I. Experiment Station in Parma. These moths were confirmed as potato tuberworm adults on September 7 by Mr. Frank Merickel, Curator U.I. Entomological Museum and Dr. Ron Hodges, a retired USDA entomologist specializing in this group of Lepidoptera.

A meeting of state, industry and university officials was held on September 8, 2005, at the ISDA office in Boise, to discuss the overall situation. It was decided that ISDA would immediately undertake steps to seek emergency funding and implement a more extensive survey of the potato growing areas of the state to include commercial and seed fields, as well as packing and processing facilities. The first traps of this survey were placed the week of September 19 in the Parma area. A total of 461 traps were deployed across southern Idaho in production fields and at processing or fresh pack facilities.

Positive Trap Summary Fall 2005:

Canyon County – U of I Parma Experiment Station and 8 commercial fields, 4 growers, 15 PTW moths

Payette County – 1 field, 1 grower, 1 PTW moth

Elmore County – 2 fields, 2 growers, 3 PTW moths

As of the December 2, 2005 no potato tuberworm moths have been captured east of Elmore County.

Delimiting Surveys

PTW traps will be placed in fields where there were positive trap catches in 2005 and in all nearby fields planted to potatoes for 2006. These traps would all be in place by May 15, 2006. These traps will be placed in the Parma area and southern portion of Payette County, as well as, near the two detection sites in Elmore County.

General Detections Survey

Traps for that part of the state where there were no positive trap catches during 2005 would be put in place by August 15, 2006. All traps would be left in the field through the end of October. Trap

placement and monitoring will continue at all the processor facilities, as was done during 2005/2006, in particular those receiving potatoes from the Columbia basin and Oregon. The overall trapping program will also be coordinated with similar surveys being conducted in Oregon and Washington.

Additional Survey and Detection Efforts

Surveillance for PTW will continue during shipping point inspection. In addition, The Idaho State Department of Agriculture (ISDA) will explore possible cooperation with USDA, Idaho Agricultural Statistics Service (IASS) field office personnel on using their statewide (340 fields) yield survey to survey for PTW damaged tubers. ISDA personnel will provide training to IASS personnel.

Specimen Identification

All suspect specimens collected as a part of the ISDA surveys will be sent to the ISDA Boise office for an initial screening and then to the University of Idaho Entomological museum in Moscow for a final confirmation. Positive detections will be posted on the ISDA Internet Website.

Positive Detections

For a positive moth or larval detection in a field please refer to the flow chart below for a recommended course of action. The action flow chart (RMP's) was developed jointly by University of Idaho Department of Plant, Soil and Entomological Sciences (PSES) faculty and ISDA staff.

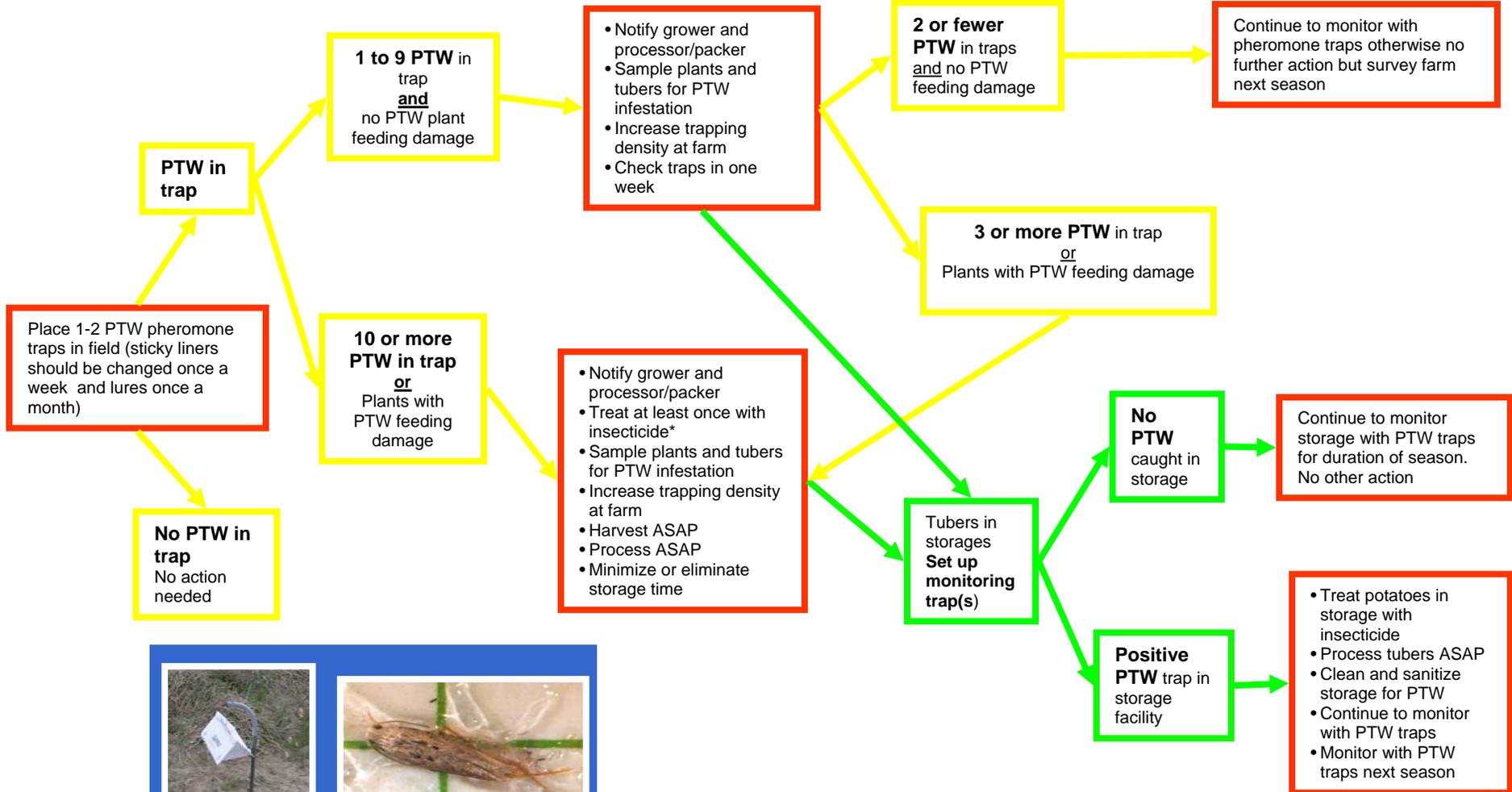
Potato Tuberworm (*Pthorimaea operculella*) PTW Recommended Management Practices (RMP's) in Case of Finding Positive Pheromone Trap Detections



**Field
Observation**

**Storage
Observation**

**Recommended
Action**



***Insecticide Control**

- Several effective insecticides are available; see PNW Insect Management handbook, IDSA, or UI (provide directions to sites & people with information)
- Make at least one insecticide application immediately prior to or with desiccation
- Growers may elect to treat several times prior to desiccation according to label recommendations

Cultural Control

In field:

- Do not plant seed from infested places
- Use deep setting varieties or hill
- Plant as far from previously infested fields as possible
- Keep the soil irrigated to avoid cracks in the soil, particularly later in the season when vines are beginning to die
- Control volunteer potatoes and weeds in the Solanum family
- Bury or destroy culls: do not allow to remain intact over winter
- Reduce tuber exposure by using irrigation between vine kill/desiccation and harvest ASAP after vine kill/desiccation
 - Do not allow dying vines to remain in contact with tubers
 - Harvest green or kill down and harvest

In Storage

- Screen or adult-proof storage
- Keep temperature below 50° F
- Destroy or treat infested tubers