



Potato Progress

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Andrew Jensen, Editor. Submit articles and comments to: ajensen@potatoes.com
108 Interlake Rd., Moses Lake, WA 98837; Fax: 509-765-4853; Phone: 509-765-8845.

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Tuberworm Monitoring with Pheromone Traps

Andrew Jensen, WSPC

The season for tuberworm monitoring is fast approaching. Tuberworm is primarily a pest of later summer and early fall. Its populations grow best in hot weather. **For most of the Columbia Basin, tuberworm trapping is most important July or August through harvest.** This year, starting in mid-June, the WA State Potato Commission will provide interested WA growers with the materials necessary to monitor tuberworm with pheromone traps.

Supplies Needed

We are supplying delta-style corrugated plastic traps that should last 2-3 full seasons in the field, enough sticky liners and pheromone capsules for the season, and a trap stand made of PVC conduit (Figure 1). The magnifying glass is essential to correctly identify tuberworm moths.



Figure 1. Supplies provided by the WSPC for tuberworm trapping.

How to Deploy Traps

Pheromone traps should be set up as shown in Figure 2. A pliers or a strong finger and thumb will be needed to fit the trap hanger wire through the hole drilled in the PVC elbow. It is important to keep the traps low to the ground as shown because tuberworm move about very close to the ground. Pheromone capsules should be placed in the middle of the sticky liner. Use a pencil or other tool to move the lures so that you avoid spreading pheromone on the outside of the trap. We recommend at least one trap per field.



Figure 2. Proper mounting for tuberworm pheromone trap.

Where to Place Traps

Traps should be placed on field margins, out of the way of machinery and away from dusty roads. Also be sure that irrigation water cannot get inside the traps - water fouls the glue on the sticky liner. We have no research to suggest a certain compass direction to be best, although many feel that the upwind side of a field would be best. Avoid siting pheromone traps near bee hives or crops that are visited by large numbers of bees. Bees will be caught in the traps, fouling the traps and making them ineffective for catching PTW.

Checking the Traps

Traps should be checked every few days during the 8-10 weeks leading up to harvest. When moths are freshly caught, as will be the case with frequent checks, it is relatively easy to glance in each trap to check for new moths. Trap liners should be changed once a week, or sooner if they become covered in insects and dirt. Pheromone lures should be changed once per month.

Counting the Moths

Here is the tricky part. The Pacific Northwest appears to be special in that the pheromone lure for tuberworm attracts many species of moths in addition to tuberworm. We are told that in most other parts of the world the PTW pheromone catches almost only PTW. Thus growers, consultants, and scientists have the challenge of recognizing PTW amongst the 2 or 3 dozen other moths that can be found in PTW pheromone traps. Fortunately, PTW is quite distinctive amongst those species.

Recognition features for tuberworm

Some important recognition features for PTW are shown in Figure 3. These include the following.

1. **Size.** Moths are about ¼" long.
2. **Color.** The predominant color of the tuberworm is light brown. There are grey and black scales on the wings, but most scales are brown. There are two large dark spots on each front wing (the front wings are what you see when the wings are folded over the body). Most specimens have a third smaller dark spot on each front wing behind the large spots. The antennae are always light brown. Most of the non-PTW in traps have black or grey

antennae. Behind the head is the thorax, which has three longitudinal lines (in undamaged specimens - in Figure 3, two specimens have glue obscuring this feature).

3. Shape. Shape of undamaged specimens is shown in Figure 3. Sometimes the moth will be stuck on the glue with its wings spread (Figure 4).

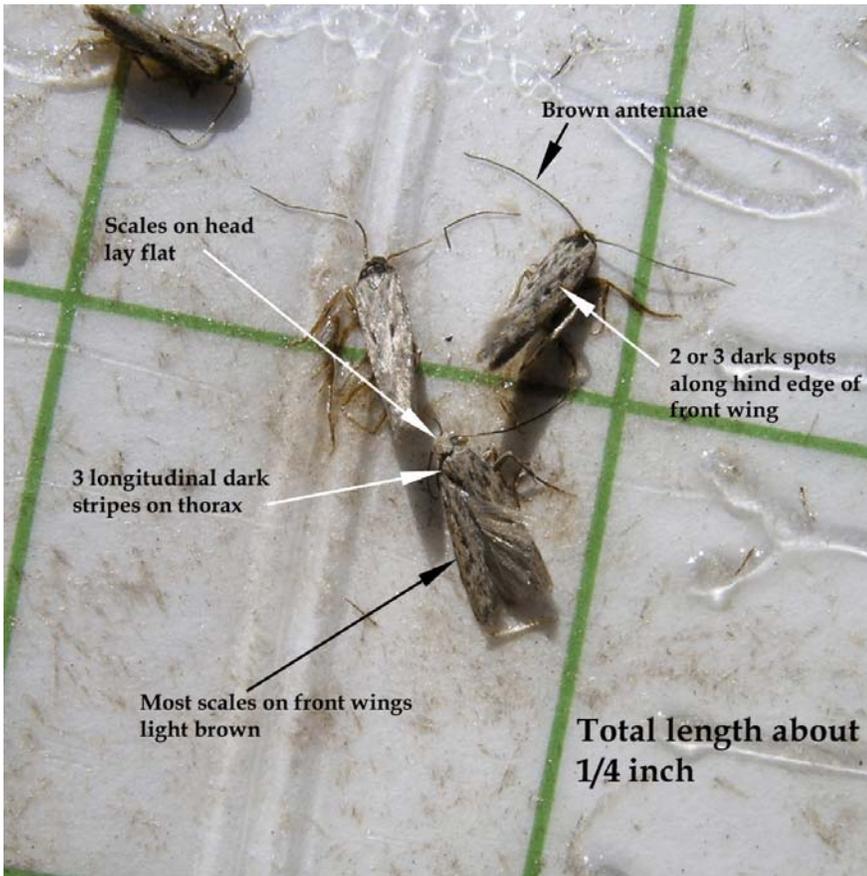


Figure 3. Tuberworm moths on a sticky trap, with important recognition features highlighted.

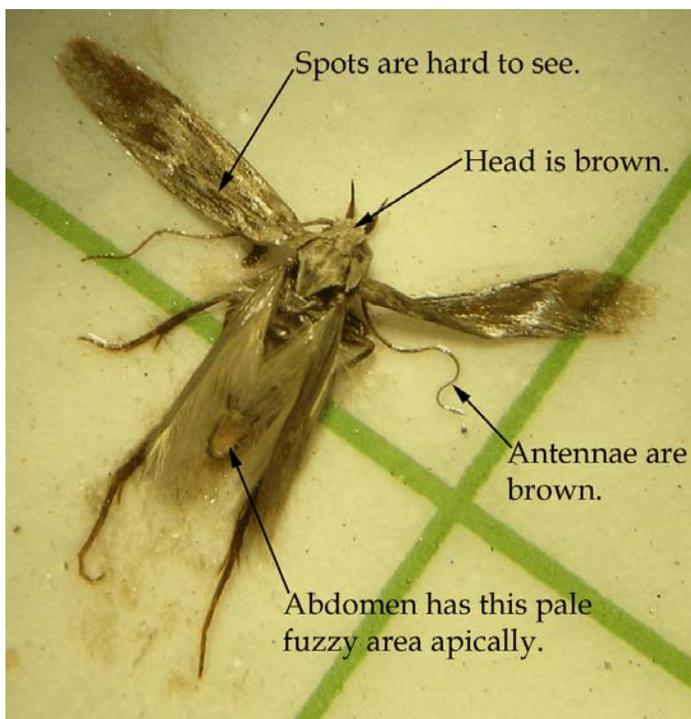


Figure 4. Tuberworm moth caught in glue with wings spread. Note that some features are hard to see in this specimen, while the unusual structure on the abdomen is visible.

As noted above, there are dozens of species that might be found in PTW traps, but there are three that are most common (Figure 5). Studying the moths in Figure 5 should help you understand the features most helpful in recognizing PTW.



Figure 5. Tuberworm moth (1) with three common relatives (2-4) caught in pheromone-baited traps. Note especially the black or black and white antennae in 2-4, compared to the brown antennae in PTW (1).

How to Interpret Tuberworm Trap Catch Numbers

Unfortunately, nobody knows how many tuberworm in pheromone traps next to a potato field are enough to warrant treatment of that field. Traps are very effective at detecting moths in the vicinity, and for assessing the relative pressure from field to field. Clearly, more moths in or near your field equals greater risk to the harvested crop. Bear in mind that the tubers are infested near harvest time, and number of moths in the area is most critical just prior to vine kill until harvest. It may be tempting to rely on the regional trapping network for your PTW information. This is not safe, however, because the moth can have large populations on a very local scale.

Please feel free to contact Andy Jensen at the commission office with any questions about tuberworm trapping. Also, for the free trapping supplies, WA growers should contact the commission office at 509-765-8845 or ajensen@potatoes.com.

Beet Leafhopper Numbers Extremely Low

The potato commission-sponsored regional trapping network for beet leafhopper (BLH) has shown that the beet leafhopper is at extremely low levels compared to the past 4 years. As shown in the graphs on our website, www.potatoes.com/research.cfm, the first summer flush of BLH has occurred but was well below 50% of the 4-year average. This low level of BLH activity was true throughout the Basin, with no traps showing large numbers that have been typical of some areas during the past four years.