



Potato Progress

Research and Extension for Washington's Potato Industry

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What to do about Potato Tuber Moth

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In a scenario that only an entomologist could love, potato tuber moth has arrived in a location where it was not thought possible (Washington and Oregon), has done what really was not thought possible (over-wintered) and did something else that was previously not thought possible (spread throughout the entire Columbia Basin of Washington in a single season). Based on pheromone trap counts, this insect pest has successfully over-wintered throughout much of the Columbia Basin and in April was detected north of Moses Lake. In the southern portion of the Washington Columbia Basin, trap counts are averaging several moths per day. In Oregon, trap counts are far higher than any place in Washington and have already surpassed treatment thresholds used in California.

In more southern locations (e.g. California) control tactics are most often employed against tuber moth in the month leading up to harvest. It appears that Washington potato growers may need to consider control tactics for tuber moth throughout most of the growing season. We have only the experiences of pest control specialists/growers in other regions and educated guesses on which to base our tuber moth control efforts.

Resistance Management

Tuber moth is notorious for developing resistance against insecticides used for its control. When a product that is thought to be effective is found, it is important that it is not relied upon exclusively. One should rotate products of differing modes of action. Do not use a product of one mode of action for more than two consecutive applications.

In this article we propose control tactics for your consideration this season.

- No planting time insecticide is expected to provide any protection against tuber moth.
- If tuber moth is your only target insect, the list is longer and includes Asana, Baythroid, Pounce/ Ambush, Leverage, Monitor, Guthion, Avaunt, Success, Furadan, and Lannate.
- Products suggested for use against tuber moth and beet leafhopper prior to June 15 include Asana, Baythroid, Leverage, and Pounce/ Ambush (permethrin). There are other products that could control both pests but these products (e.g. Monitor) are best held in reserve for later in the season.
- Mid season (June 15 through August 30) if tuber moth is your only target, a suggested rotation is Monitor or Guthion (organophosphates), then Furadan or Lannate (carbamates) and then Avaunt (a third and different class). There is no preference in order of class used.

- When selecting a product for use against tuber moth, a grower may need to control other insect pests. It is highly likely that your selection of tuber moth control material may be influenced by the need to target multiple pests.
- If tuber moth and aphids are the target pest, use Monitor.
- If tuber moth and thrips are the target pest, use Monitor.
- If tuber moth and worms are the target pest, use Avaunt or Monitor.
- If tuber moth and Colorado potato beetles are your target pest, use Guthion or Success.
- Use of a pyrethroid insecticide, Asana, Baythroid, Pounce/Ambush or Leverage, is not recommended for use in potatoes after June 15 due to their ability to flare aphids and mites. However, use of a pyrethroid late in the season in the two weeks prior to harvest is acceptable as aphid and mites will have insufficient time to increase in number prior to harvest.
- Control of tuber moth is most critical in the month leading up to desiccation and harvest. Control of adults and larvae may be necessary prior to that time to ensure that tuber moth populations can be brought under control prior to canopy senescence.
- Be aware that almost all insecticides have a limit to the number of applications that can be made within a season. For example, Guthion has a season long limit of two applications. Monitor has a unique fit in the Columbia Basin potato insect management program. It has a broad spectrum without seriously disrupting other pest species. It is one of the few insecticides that will control tuber moth and several other insect pests. Monitor has a season long limit of 4 applications at the full rate. Do not hesitate to use this product, but one may want to ration its use through the season.
- Guthion is currently scheduled to be phased out of use on potatoes. The Washington State Potato Commission is working to prevent this from happening. Guthion is currently registered for use on potatoes and any product containing potatoes on the label is legal to use. Guthion has well documented efficacy against tuber moth as well as several other pests. Growers may want to consider this product for use against tuber moth, particularly if Colorado potato beetle is present. Guthion is not known to flare aphids or mites.
- All insecticides have a preharvest interval. Control of tuber moth just prior to harvest is critical. Be careful in your selection of products used near harvest time. Many pyrethroid insecticides have short pre harvest intervals and may be suitable choices.
- For more information on tuber moth, see <http://www.potatoes.com/research.cfm>.

Assail Insecticide Registered on Potatoes

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Assail is a member of the neonicotinoid class of insecticides. To avoid the development of resistance in the Pacific Northwest, do not use this product if Admire, Gaucho, Platinum, or Cruiser was used at planting time.

Assail 70WP (acetamiprid) is a new insecticide that was just registered for use on potatoes. The product has foliar activity only. Apply 1.1 to 1.7 oz/acre by ground or air for aphid control in potatoes. Use the higher rate under conditions of heavy pressure, dense foliage, and/or application by air. Apply Assail when aphids are first detected. Begin scouting before aphid flights begin. Repeat applications at 7-10 day intervals may be required if aphid pressure continues. Apply 0.6 to 1.1 oz/acre by ground or air for Colorado potato beetle control. Use the higher rate under conditions of heavy pest pressure and/or dense foliage. Apply before larvae cause defoliation damage that would result in economic loss. Assail should provide at least 10 - 14 days of residual activity for control of Colorado potato beetle. A total of 7 oz may be applied per season. Do not make more than 4 applications per season and do not apply more than once every 7 days. Do not apply less than 7 days prior to harvest (7 day PHI). Assail is a systemic insecticide and will move upward in the plant to protect new vegetative growth. Good coverage of the lower portion of the plant is necessary to control pests if present in that area. It is important to obtain complete coverage for best results. Apply Assail in a minimum of 20 gallons of water by ground and a minimum of 5 gallons by air. Assail is stable in a wide pH range - from pH 4 to 9. Adjust the pH of the tank mixture using a suitable buffer if the pH is outside this range. When applying Assail by ground or air use a crop oil adjuvant such as crop oil concentrates (COC), methylated seed oils (MSO) or ethylated seed oil (ESO), or use an organosilicone crop oil blend adjuvant. Avoid the use of Assail with any product containing sticker/binder-type adjuvants. Do not irrigate within 24 hours of an Assail application. There are no rotational crop plant back restrictions for Assail.

I have conducted trials with Assail on potatoes in Washington. The product is extremely effective against Colorado potato beetle. The product must be applied very early in the aphid outbreak cycle to provide a high degree of control. Do not use the product as a rescue treatment for aphids.

Callisto Registered for Use on Sweet Corn

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Syngenta Crop Protection just received registration for use of Callisto Herbicide for control of a wide variety of weeds in sweet corn. The herbicide is also registered for use in field corn, seed corn, and pop corn. Of particular interest is use of Callisto for control of volunteer potatoes. Following are some label recommendations for use of Callisto for control of volunteer potatoes in corn. Best timing to control volunteer potatoes is a POST-application at tuber initiation.

Based on feedback from Syngenta Crop Protection, the best control of volunteer potatoes in sweet corn is achieved by applying a POST-application of 3.0 oz of formulated Callisto per acre with 0.25% non ionic surfactant plus 0.125 to 0.25 lbs active ingredient per acre of atrazine. If atrazine cannot be used due to concerns with phytotoxicity or rotational restrictions, then apply Callisto at 3.0 oz Callisto per acre with 1% crop oil concentrate.

Corn may be replanted immediately. Small grains may be planted 120 days after application. Soybeans, canola, and alfalfa can be planted back the following season but not less than 10 months after the last Callisto application. Sugar beets, peas, dry beans, snap beans, clover, and all other rotation crops may be replanted 18 months after application of Callisto. Planting at shorter than recommended intervals may result in injury to the rotational crop.

Severe corn injury may occur if Callisto is applied post emergence to corn crops that were treated with Counter or Lorsban. Do not apply Callisto in a tank mix with any organophosphate or carbamate insecticide as severe damage may occur to the corn crop. Do not apply an organophosphate or carbamate insecticide foliarly within 7 days before or after a Callisto application. Do not add the adjuvants UAN or AMS when making a POST application to yellow popcorn or sweet corn. Do not cultivate corn within 7 days before or after a Callisto application as poor weed control from the application may result. Do not apply this product through any type of irrigation system. Do not use aerial application to apply Callisto unless the applicator is in possession of a valid Syngenta Crop Protection supplemental label bearing directions for aerial application.

Callisto has been known to cause phytotoxicity to some varieties of sweet corn when used according to label directions. After extensive testing by land-grant scientists, Syngenta and other researchers, there is a fairly well established list of varieties that are tolerant to Callisto. There are a few varieties that have some sensitivity and a limited number of varieties in which Callisto should not be used. To determine which varieties are tolerant or sensitive, contact your sweet corn processing representative, seed sales representative, Syngenta representative or me.

Oberon, a New Miticide is Coming

Oberon is a miticide with excellent activity against two-spotted spider mites. It has just received a tolerance on a number of crops including potatoes. A registration for this product is expected in May of 2005 and definitely before the use season. Once this product is registered in Washington, a more detailed assessment of the product will be included in a future Potato Progress.

Pacific Northwest Potato Insect Management Guidelines

Each year Pacific Northwest potato entomologists and other members of the potato industry prepare a set of recommendations for controlling potato insects in Washington, Oregon, and Idaho. These recommendations are the most current source of information on managing aphids, Colorado potato beetle, wireworm, mites, worms, beet leafhopper, and tuber moth. Recommendations on how to use the newest products are included. New sections on planting time insecticides, wireworm, and tuber moth are included. The recommendations can be viewed at <http://www.wsu.edu/~potatoes/> and <http://www.potatoes.com/research.cfm>.