Potato Progress

Research and Extension for Washington's Potato Industry
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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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Volunteer Potato Outlook

Rick Boydston and Marc Seymour
USDA-ARS, Prosser

Winter soil temperatures recorded at two field sites near Paterson, WA indicate that soil temperatures were low enough in mid January to kill tubers above 8" deep. Potato tubers normally are killed when they reach temperatures ≤ 28 F. This winter in the southern Columbia Basin region, soil temperatures reached a minimum on January 15 and 16. Volunteer potato problems this spring should be reduced compared to recent years and volunteer potato emergence should also be fairly uniform because most plants will emerge from deeper depths. For more information on volunteer potato control visit the Prosser USDA-ARS website at: http://www.ars.usda.gov/main/site_main.htm?modecode=53540000

2007 Commercial Seed Lot Trial Information

Mark J. Pavek, WSU Pullman

Commercial potato seed samples are requested for the 2007 Washington Seed Lot Trial. Two to three hundred whole (single drop) seed is an acceptable sample size, or **50 lbs of 4 oz single drop seed**. This seed should not be treated with insecticide or fungicide. Seed tubers need to be uniformly small (not larger than 4 oz) because no seed cutting is done and a cup-type planter is used. A sample that represents the entire seed lot received is most desirable. Sampling the first (or last) 300 seed from the truck is not likely to provide a representative sample of the lot. Sample tags may be obtained by calling the Potato Commission at 509-765-8845.

Your assistance with collection and drop off of seed samples is needed. Seed samples may be taken to the WSU Othello Research Unit (509-488-3191), located on Booker Road ¼ mile south from State Highway 26 and about five miles east of Othello. For South Basin sample pickup and any questions regarding the seed lot trials, please call Mark Pavek at 509-335-6861 or Ed Driskill at 509-335-6859.

In the North Basin, one seed "drop-off" has been established. It is located at Qualls Ag Labs (Mick Qualls, 509-787-4210 ext 16) on the corner of Dodson Road and Road 4; come to front office between 8 am and 5 pm. Please call the numbers below to arrange additional pickup sites. Samples will be picked up at 2:00 pm the day before each planting date (below) to be included. Growers planting in early March should drop their samples off at the Othello Research Center or

store the samples and call the numbers below for pickup. For all alternative pickup locations or questions please call Mark Pavek at 509-335-6861 or Ed Driskill at 509-335-6859.

The planned seed lot planting dates for 2007 are:

1st (Early)	March 27
2nd	April 10
3rd	April 24
4th (Late)	May 8

This year's virus reading of the seed lots will take place on June 12 and 26.

The 2007 Potato Field Day is scheduled for Friday June 29.

Vegetable and Seed Crop Extension Agent Position, Grant/Adams County

Mark Trent, extension educator in Grant/Adams county since the retirement of Gary Pelter, has left WSU for another position. The process of filling this position is underway. For position description listing all qualifications and application process, visit: http://pyro.ad.wsu.edu/employment/FAPvacancies.asp?id=2343 (Search #4650). Contact Lisa Clyde, EEO Coordinator, 509-335-2822, FAX 509-335-2926 or E-Mail: eeocoord@wsu.edu. EEO/AA/ADA

Good Agricultural Practices

Growers are quickly having to adapt to a new phenomenon – audits for Good Agricultural Practices (also known as GAP). GAP relates primarily to food safety issues in the farming operation. Most potato growing operations will soon have to undergo regular GAP audits conducted by Washington State Department of Agriculture (in cooperation with USDA) or various private firms. The audit documents and other information relevant to the USDA program are on the USDA-AMS website at: http://www.ams.usda.gov/fv/fpbgapghp.htm. The website has the following basic information and links:

> "State departments of agriculture, with USDA's assistance, are developing an audit-based program that is helping the U.S. produce industry verify voluntary adherence to the U.S. Food and Drug Administration's Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables.
>
> Under the program, Federal-State Inspection Service (FSIS) personnel review a participating company's facility and agronomic practices, along with its documented procedures, to help determine if "Good Agricultural Practices" and/or "Good Handling Practices" are maintained."

Program Informational Brochure [in Adobe Acrobat]
USDA Audit Matrix [In Adobe Acrobat] [Revised November 1, 2006] [Printable]
USDA Audit Score Sheet [In Adobe Acrobat] [Revised October 30, 2006] [Printable]
Audit Matrix for Client Suppliers [In Adobe Acrobat] [Revised November 28, 2006][Printable]
Audit Score Sheet for Client Suppliers [In Adobe Acrobat] [Revised November 28, 2006] [Printable]

If you anticipate having a GAP audit this year, it might pay to visit this website and review the Audit Matrix and Audit Score Sheet to see exactly what is involved. The Audit Matrix is essentially the set of questions and checklists that will be touched on during the audit. Check this website regularly for updates to the matrix and score sheet.

Green Peach Aphid – Importance in Potatoes and Review of Its Biology

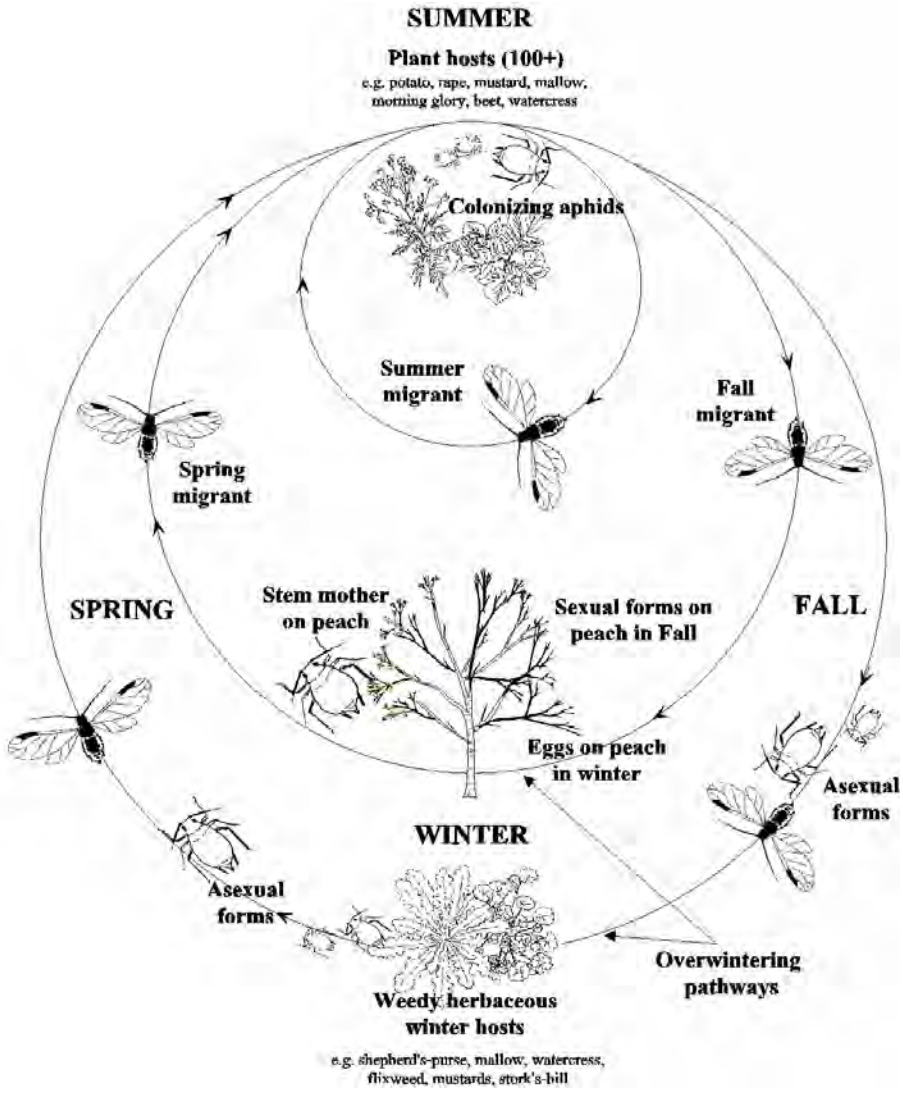
Keith S. Pike, Entomologist, WSU Prosser

Green peach aphid is the most important aphid pest on potatoes in the Pacific Northwest because of its capacity to transmit potato leafroll virus (PLRV), which causes leafroll and tuber net necrosis. Infrequently, it may also injure potatoes as a result of direct feeding or transmission of other viruses. About 98% of aphids found in potato fields are green peach aphid, the remainder being potato aphid. For control purposes, it is not necessary to discern between the two since both damage potatoes.

APHID BIOLOGY – The green peach aphid has a complex life cycle comprised of 12 to 22 generations per year in the Northwest. It overwinters in the egg stage on peaches, nectarines, and almonds; a few may successfully overwinter as nymphs or adults on herbaceous plants such as tumble mustard. In March, overwintering eggs hatch to produce a generation of wingless females called *stem mothers*. These feed on the swelling buds, blossoms, and newly developing leaves. Offspring of the stem mothers, all wingless aphids, form colonies and remain on the trees.

In the third generation, winged forms known as *spring migrants* develop and leave the trees in April or May to feed on various annuals and biennials. The migrants are quite active, and usually stay on hosts only long enough to produce a few offspring before moving to another host. Although flying aphids can be carried long distances on winds, most flights are short, so the spread of aphids progresses gradually from the winter host. Some of the spring migrants will alight in potatoes, feed and produce offspring, but a majority will find other hosts, meaning infestations in potato fields usually start with aphids coming from intervening populations such as mustards, nightshades, or other weedy hosts.

In mid-summer when some of the host plants of the aphid begin to mature and dry, winged *summer migrants* are produced, sometimes in abundance, prompting a summer flight as these aphids seek other summer hosts. This flight runs for 2-4 weeks, usually starting near the first or second week of July. The flight parallels wheat harvest, but its association is only coincidental since the aphid rarely colonizes wheat. During the main summer flight period, commercial fields throughout the region generally experience some in-coming migrants.



The generation time (new-born to reproductive adult) for aphids in the summer takes about 10 days. The number of offspring produced per female through the summer is 30-80, possible less under some environmental conditions.

The spring and summer generations are a mix of winged and wingless aphids, produced by asexual reproduction -- females giving birth to living young without mating. Winged migrants produce wingless nonmigrant aphids, while wingless aphids produce either winged or wingless forms. The production of winged forms is linked to crowding, nutrition, day length, and temperature. If aphids become crowded on a host, or the host begins to mature and dry, increased numbers of winged forms are produced. Preharvest kill-down of potatoes also triggers a rise in winged forms that move to other fields or hosts.

Fall migrants are winged aphids that leave the herbaceous summer hosts in late summer or fall in search of winter hosts. Males are produced for the first time along with females. The migrant females upon reaching the winter host produce wingless egg-laying females, which upon maturity mate with males. Eggs (5-15/female) are deposited on the terminal growth of the winter host. They require a chilling period before they will hatch in the spring.

A limited number of wingless aphids will remain on herbaceous hosts through the fall and winter months, asexually reproducing as temperatures and conditions permit. Although the majority will die, a few will survive to initiate new populations in the spring.