PROGRESS REPORT 2003-2004
OREGON POTATO COMMISSION
AGRICULTURAL RESEARCH FOUNDATION

TITLE: CENTRAL OREGON POTATO EXTENSION PROGRAM

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FUNDING HISTORY:

Funding for 2001-02: $8,000
Funding for 2002-03: $7,500
Funding for 2003-04: $7,500

ABSTRACT:

Seed and commercial potato growers, packers and crop advisors in Deschutes, Jefferson and Crook counties of Central Oregon are served by the extension program. Technical support includes advice to address production problems, training of crop advisors, scientific expertise to monitor crop pests, support for marketing issues and research into significant problems. During the past year, a newsletter was mailed weekly to potato producers and crop advisors. The newsletter featured pest advisories to enable timely and efficient crop protection. The newsletter advisories were based on actual insect counts and disease forecasting stations located in the local area. Pest advisories were also posted on the internet for timely distribution.

KEY WORDS: Aphid, PVY, hail damage

OBJECTIVES:

1) Provide technical support to Central Oregon potato growers, agricultural product retailers and service providers.
2) Organize and arrange grower and crop advisor education meetings during the year.
3) Supervise the Central Oregon aphid trapping program.

PROCEDURES:

Thirty-four yellow pan aphid traps were strategically placed near seed and commercial potato fields. All trapped aphids were collected weekly during the growing season and identified as

either green peach aphids or other aphids. Results were tabulated and mailed to growers, crop consultants, and other industry personnel each week.

A weekly newsletter was mailed to all potato growers from mid-June to late-September. Each issue of the newsletter contained a summary of the aphid survey, weekly crop water use calculated from AgriMet weather stations located at Madras and Powell Butte and pest updates. Occasionally, a feature article was published. Feature articles for 2003 included early blight, dealing with hail damage and highlights from the Potato Association of America annual meeting.

The weekly aphid report and other research results, complete with text, graphics, and photos were posted at http://potatovariety.oregonstate.edu . A link to the "Potato Information Exchange" and other internet sites provides growers quick access to potato research, disease, marketing, and weather information.

SIGNIFICANT ACCOMPLISHMENTS:

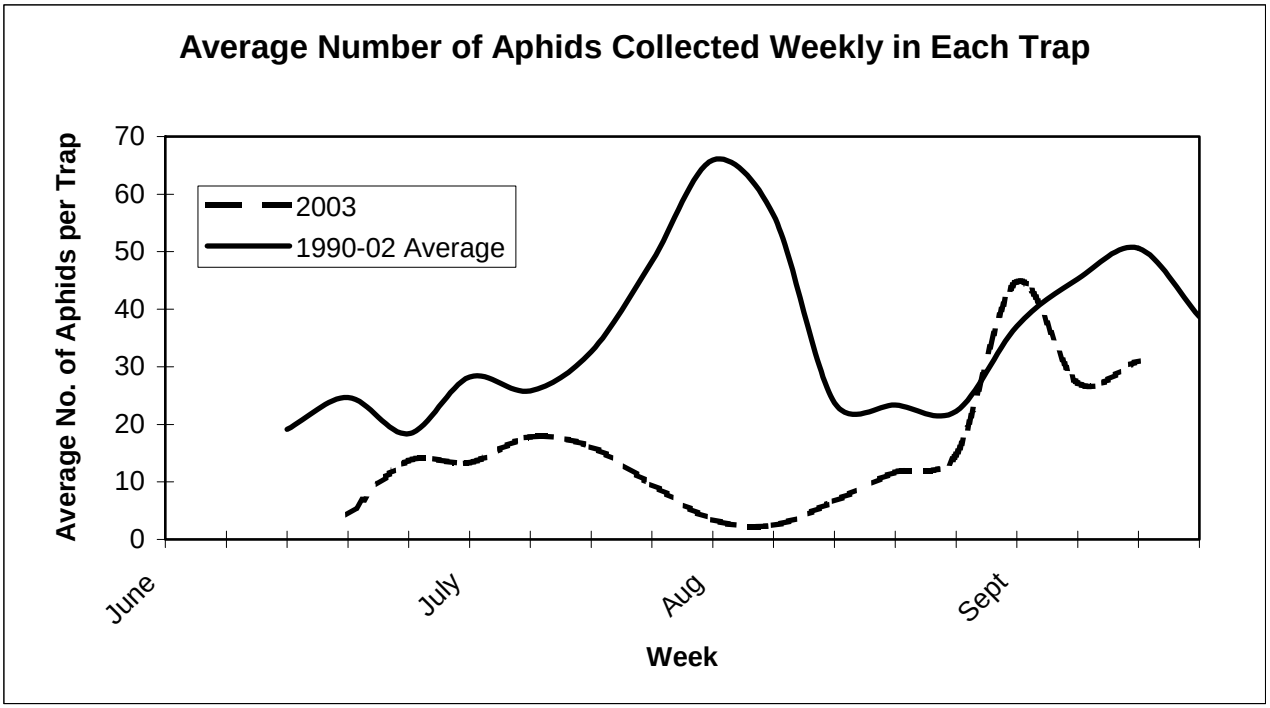
Field visits, technical assistance, phone consultations, and laboratory diagnostic services were provided to seed and commercial potato growers and agricultural service providers during the growing season. Controlling aphids, stem end browning and organic production were the major issues addressed during the 2003 growing season. Assistance was provided to the Central Oregon Potato Growers Association and the Oregon Seed Potato Growers Association.

Potato Patches, a weekly newsletter, was published from June 23, 2003 through September 22, 2003. The newsletter contained a tabulation of the weekly green peach aphid survey, crop water use information, and various feature articles. The newsletter was mailed to all Central Oregon potato growers, related industry personnel, and potato research and extension staff.

The web page was totally revised and updated. The web page featured research reports, weekly aphid survey results, and general potato production information. A highlight of the web page is a potato variety database. Included in the database are breeding selections tested in Oregon advanced statewide variety trials from 1987 to present, Western Regional variety trials from 1991 to present, and TriState variety trials from 1997 to present. Web users can generate custom reports by selecting the breeding selection, testing site(s), year(s) tested, trial(s), and data desired. Plant and tuber photographs, descriptions and disease reactions for each breeding selection can also be accessed. The database is located at http://potatovariety.oregonstate.edu/ .

Aphid populations were lower during the 2003 growing season than the long-term average (1990-2002) except for a brief late-season flight. Aphid numbers peaked during the second week in September at over 40 aphids per trap. The impact, if any, of PVY spread during that time will manifest itself in winter testing of seedlots (Figure 1).

Figure 1. Average number of aphids collected weekly in each trap.



IMPACTS:

Tuber stem end discoloration, controlling aphids and organic production were the major issues addressed during the 2003 growing season. Late blight was not observed in the area during the growing season, but has been a critical issue in the past.

Two growers attempted organic production during the 2003 growing season. Information is limited and often anecdotal. Weed and Colorado Potato Beetle control were the major issues where technical support was needed.

Tuber stem end discoloration has created problems for growers producing Russet Burbank for processing. The problem is occasionally present at harvest, but more frequently intensifies during the first one to three months in storage. The brown discoloration resembles net necrosis caused by potato leafroll virus. However, stem end discoloration penetrates deeper into the tuber. Entire semi loads can be rejected by a processor when the condition exceeds tolerable limits. Studies were initiated during the fall of 2002 to explore possible causes of the condition and are continuing with this years stored crop.

Potato viruses continue to plague seed growers. Potato Virus Y (PVY) is the most common reason seed lots are downgraded or eliminated from certification. Growers can lose a dollar or more per hundredweight for each classification downgrade. Aphid control is a major production expense. Insecticide applications can easily cost from $100 to $300 per acre. The aphid monitoring program serves to alert growers to aphid activity. Insecticide applications can thus be timed to coincide more precisely with increased flight activity. The elimination of one or two applications could result in significant production savings.

Fungicide applications for late blight cost some Oregon growers up to $250/acre annually. Currently, applications are largely based on calendar spray schedules. Prediction models are being tested in the local area to more precisely predict the potential occurrence of late and early blight. Placing weather stations in local fields enables the monitoring of weather parameters that can be used to predict the probability of late blight. As prediction models are refined, fungicide applications can to tied to the occurrence of the disease rather than a calendar spray schedule. Savings can be achieved by improving the timing and efficiency of fungicide applications.

RELATION TO OTHER RESEARCH:

The Central Oregon Extension Program is fully integrated with other extension programs in Oregon, Washington and Idaho. Current research is constantly monitored and highlighted in the weekly newsletter for the benefit of local growers. Weather station data is fed into the statewide blight information network. Fungicide application recommendations can be accessed through the Oregon Blight Hotline (1-800-705-3377), which is constantly updated by extension personnel based in Hermiston.