



Potato Progress

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Volunteer Potatoes Expected to be Serious Problem in 2002

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Soil temperature monitors were removed at Paterson on March 5 and at Othello and Quincy on March 8, 2002. Minimum soil temperatures for the period were higher than for the previous reporting period. No additional tubers were dug in March, so our estimates of tuber mortality are based entirely on soil temperature data and on estimates of field leavings by depth proposed by Thornton and Newberry.

Soil temperatures respond to ambient air temperatures, but can vary widely between locations because of the presence of soil cover (snow, plant residue). Our sampling sites did not have vegetative cover when we installed the instrumentation and we did not monitor snow cover. As a result, soil temperatures reported for the three sites monitored could vary from soil temperatures in similar locations.

Results:

Soil temperature data collected this winter and some preliminary evaluation of potato tuber survival at these three locations indicate we can expect severe infestations of volunteer potatoes in the lower Columbia Basin and moderate to severe infestations in the mid to upper Columbia Basin.

Tuber mortality at Paterson was only about 27% this winter. Tubers on the soil surface froze during the last week of December 2001, but soil temperatures since that time have not been sufficiently cold to freeze tubers beyond about 1-½ inches deep. We estimate that there are many viable tubers in lower Columbia Basin potato fields harvested in 2001, and likely some tubers that survived the mild winter of 2000-2001. Tubers close to the soil surface are viable and volunteer potato plants will emerge soon as soil temperatures increase.

We estimate that tuber mortality at Othello and Quincy was between about 42% and 50% this winter, and that many tubers buried 2 ½ to 3 inches deep were frozen in January. A substantial number of volunteer potatoes will still emerge from surviving tubers deeper in the soil profile in the mid- and upper Columbia Basin.

Recommendations for Volunteer Potato Control:

With volunteer potatoes likely to be plentiful in the lower Columbia Basin this crop year, control measures will be necessary to minimize competition with rotational crops and formation of new daughter tubers that can carryover into subsequent crops. Controlling volunteer potatoes is difficult and requires an integrated approach. Several components of volunteer potato management that growers can implement in this year's rotational crops are listed below.

- Spring fumigate with metham sodium (Vapam, Busan, and others) and 1, 3,-dichloropropene (Telone II), and remember that lower rates of fumigants are less effective in killing tubers. Follow labels for proper rates, soil temperatures, soil moisture, and time required between fumigation and planting of subsequent crop.

- Use herbicides that are active in reducing volunteer potatoes in rotation crops. Several herbicides can be very effective in killing potato plants and reducing daughter tuber weight, including flu-roxypyr (Starane), atrazine (Aatrex, Atrazine), glyphosate (Roundup), dicamba (Banvel, Clarity, Distinct), oxyflourfen (Goal), mesotrione (Callisto). Follow labels closely for proper rates, timing of applications, and crop rotation restrictions.
- When possible, apply postemergence herbicides such as Starane, Roundup, and Banvel when potatoes are just beginning to form tubers. If applications are made earlier, not all volunteer potato plants may be emerged and tubers that resprout will require additional herbicide applications.
- Previous USDA-ARS research demonstrated that cultivation about 1 week after postemergence applications of Starane, Goal, Roundup, and Banvel greatly reduced the number of daughter tubers formed compared to herbicides alone.
- Select competitive crops such as wheat or crops with effective herbicide and cultivation options like field corn. Crops like carrots have no effective herbicides registered for volunteer potato control, so avoid planting such crops in fields where volunteers will be plentiful.
- Repeated cultivations and hand weeding can control volunteer potatoes, but they are most effective and economical when combined with other control methods.
- Grazing fields with hogs or cattle may also reduce the number of tubers available to sprout.

For more detailed control information refer to the following publications or check with your local extension agent.

1. Volunteer Potato Control. 1996. Eberlein, C. V., R. A. Boydston, and M. Thornton. University of Idaho Coop. Extension Bulletin. CIS 1048.
2. Volunteer Potato Control with Herbicides and Cultivation in Field Corn. R. A. Boydston. 2001. Weed Technol. 15:461-466.
3. Volunteer Potato Control with Herbicides and Cultivation in Onion. R. A. Boydston. 2002. Weed Technol. (in press)
4. Effect of Shoot Removal during Tuberization on Volunteer Potato Tuber Production. Williams, M. M. II and R. A. Boydston. 2002. Weed Technol. (in press)

See Figures, Page 3

New 2(ee) Recommendations for Volunteer Potato Control

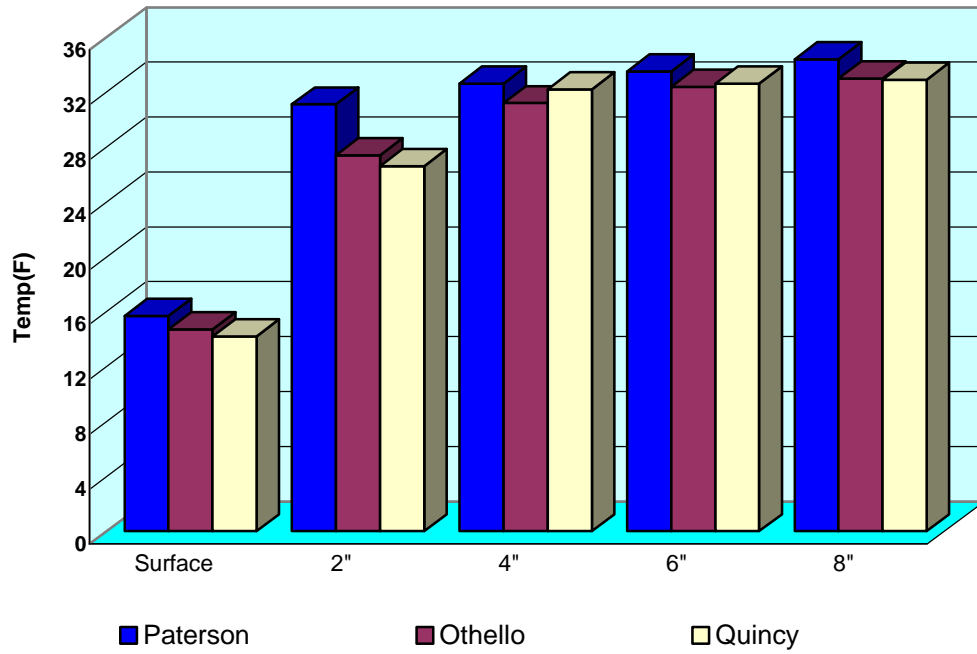
FMC has issued 2(ee) Recommendations for Aim™ Herbicide for volunteer potato control in sweet corn, field corn, popcorn, seed corn, silage corn, barley, and wheat. These documents give recommendations for the use of Aim™ alone and in combination with a few other herbicides registered in those crops. If you would like an informational copy of any of these 2(ee) Recommendations, contact the editor at the WSPC office.

Field Day Dates

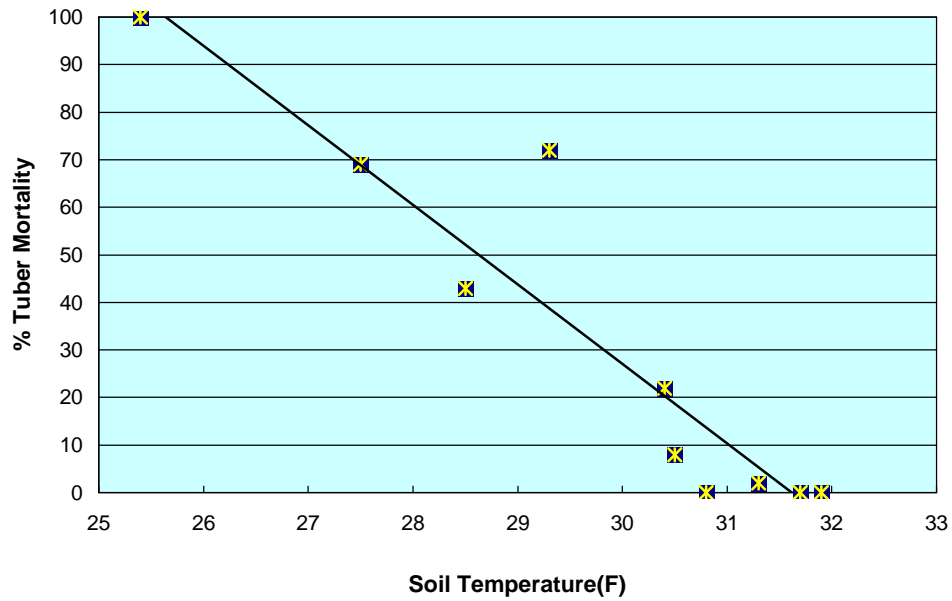
As the growing season gets underway, it's time to mark your calendars for the upcoming potato field days planned by local scientists and extension staff.

Othello—Seed lot field day	6/28
Patterson—USDA-Prosser research	7/8
Pasco—Specialty varieties	7/23
Lynden—Variety trials	7/25
Mt. Vernon—WSU Mt. Vernon research	8/20
Othello-Johnson	8/26

Minimum Soil Temperatures by Depth
December 2001 - March 2002



Tuber Mortality & Soil Temperature
ARS Data 1994 - 2000



Compendium of Potato Diseases

The second edition of a very useful book called the *Compendium of Potato Diseases* was recently published. The book has detailed information on virtually every potato disease and disorder of interest, including many color and black-and-white photographs. It can be ordered online at: <http://www.shopapspress.org/comofpotsece.html>, or by phone at 1-800-328-7560. An abbreviated table of contents follows. If you would like to look through the Commission's copy, stop by the office in Moses Lake any time.

Introduction

Part I. Disease in the Presence of Infectious Pathogens

- Diseases Caused by Bacteria
- Disease of Unknown Cause
- Diseases Caused by Fungi
- Diseases Caused by Plant-Parasitic Nematodes
- Diseases Caused by Phytoplasmas
- Diseases Caused by Viruses and Viroids
- Disease Caused by Insect Toxin

Part II. Disease in the Absence of Infectious Pathogens

- Nutrient Imbalances
- Physiological Disorders and Injuries Affecting Potato Plants
- Physiological Disorders of Tubers: External Symptoms
- Physiological Disorders of Tubers: Internal Symptoms
- Chemical Injury
- Tuber Mechanical Damage

WSPC Seeks Four New Research Council Members

The Washington State Potato Commission funds a large amount of potato-related research each year in the Pacific Northwest. The Commission uses an established procedure for solicitation of research proposals. Proposals are reviewed and funding recommendations made by the Research Council. Research Council members are drawn from the WSPC Research Committee, interested growers, potato processing companies, ag/chem companies, other potato companies, and includes three at large positions. There are currently four vacant slots among the seventeen voting members on the Council. The Commission is seeking volunteers and/or nominations of interested individuals from the Washington potato industry, including growers, who would like to serve on the WSPC Research Council. Membership on the Council entails about three meetings per year, all in the late fall and winter months. Please send nominations or volunteer to Andrew Jensen, Director of Research and Technical Affairs, Washington State Potato Commission, 108 Interlake Rd., Moses Lake, WA 98837; ajensen@potatoes.com; (509) 765-8845.

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