



Potato Progress

Research and Extension for Washington's Potato Industry

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Volunteer Potato Forecast for the Columbia Basin 2004

Rick Boydston, Marc Seymour, and Dallas Spellman, USDA-ARS, Prosser, WA

Volunteer potatoes frequently plague growers in the Columbia Basin due to mild winter temperatures. Potatoes normally are killed when they reach temperatures of 28° F. Although air temperatures dropped well below temperatures required to kill potatoes in early November, late December, and early January, significant snow cover during the latter two events prevented killing temperatures from developing beyond the top 4-5 inches of the soil profile.

Soil Temperature Data 2003-2004:

Based on Agrimet weather station data from Odessa, WA and Hermiston, OR, cool air temperatures in early November probably caused the most damage to potato tubers, as temperatures reached below 28° F in the top 2-3 inches of soil in the upper Columbia Basin near Odessa, WA. At the 4 in. depth in Odessa, minimum soil temperatures in early November reached 28° F for three consecutive nights. Potatoes buried lower than 4 inches were probably not harmed. In the lower Columbia Basin it appears soil temperatures at 2 inches deep never reached lower than 32° F the entire 2003-04 winter season (Hermiston OSU Agrimet station data), although subsequent field sampling indicates that many tubers below 2 inches deep did freeze. Soil temperatures respond to ambient air temperatures, but can vary widely between locations because of the presence of snow cover, which was substantial in most of the Columbia Basin this winter.

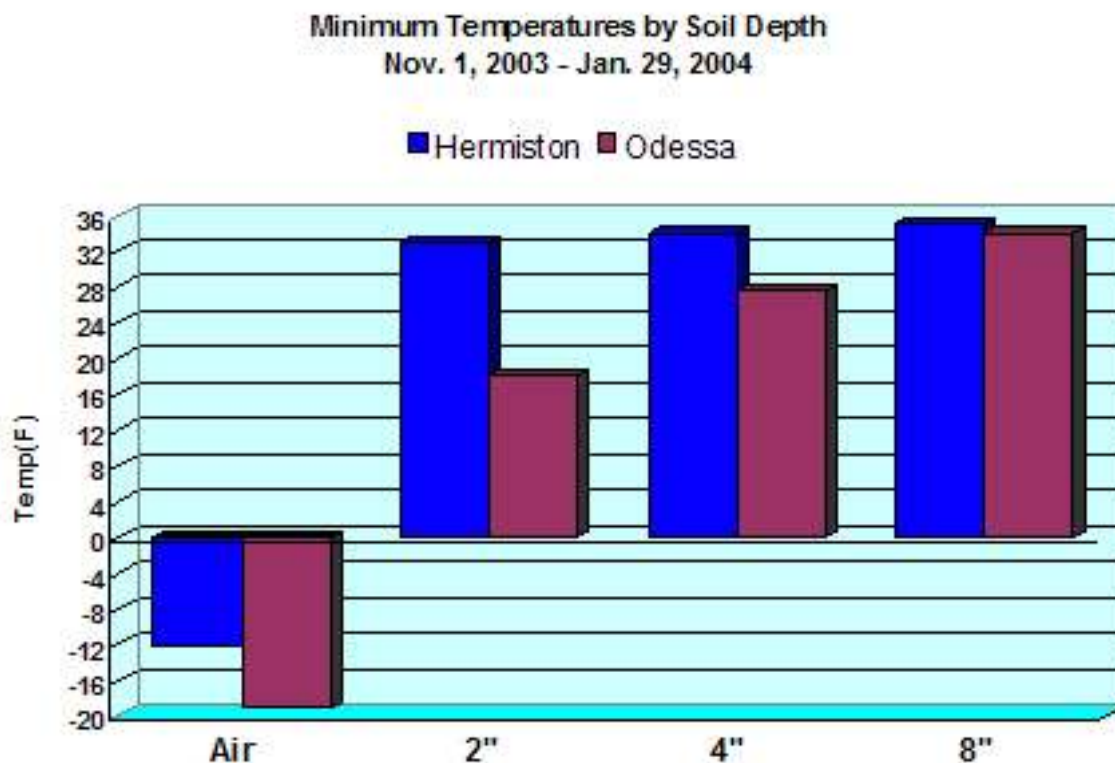
Field Sampling:

Examination of potato fields near Prosser, WA on January 29, 2004 revealed that potato tubers above 3 inches deep were killed and that no injury to tubers occurred at deeper soil depths. Surveys of potato fields near Paterson and Othello, WA in early February revealed that greater than 90% of tubers above 4 inches deep were dead. In addition, about 60% of tubers at 4 inches to 6 inches deep were dead.

Forecast and Recommendations for Volunteer Potato Control:

It appears volunteer potato tuber mortality in the upper soil profile in the Columbia Basin has been substantial this winter. Therefore, we anticipate lower volunteer potato populations this crop year than has been the case for the last several years. However, moderate populations of volunteer potatoes will still emerge from below 4 inches deep. Depending on early spring soil temperatures, emergence of volunteer plants could be somewhat delayed compared to the past several years because most viable tubers will be sprouting from deeper depths.

Volunteer potato 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.



- On higher value crops with nematode problems such as carrot or onions, spring fumigate with metham sodium (Vapam, Busan, and others) and 1, 3,-dichloropropene (Telone II). 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 mesotrione (Callisto), fluroxypyr (Starane), atrazine (Aatrex, Atrazine), glyphosate (Roundup), dicamba + diflufenzopyr (Distinct), dicamba (Banvel, Clarity), and oxyfluorfen (Goal). Follow labels closely for labeled crops, proper rates, timing of applications, and crop rotation restrictions.
- When possible, apply postemergence herbicides such as Callisto, Starane, Roundup, Distinct, and Banvel when potatoes are just beginning to form tubers. If applications are made earlier, mother tubers often resprout and the volunteer plants will require additional herbicide applications. If applications are made later, yield loss may have already occurred and many new tubers will have already formed which will infest next year's crop.

- 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. In corn, Callisto herbicide has reduced new daughter tuber formation greater than other postemergence herbicides.
- Select competitive crops and those 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 contact Rick Boydston, USDA-ARS, 24106 N Bunn Road, Prosser, WA 99350. (509) 786-9267. Email: boydston@pars.ars.usda.gov

Potato Seed Health

Gary Pelter, WSU Grant-Adams Extension

Information is available to any producer willing to contact the appropriate seed certification agency for the state or province in which your potential seed grower is located. You can obtain information about the seed grower, cultivars produced and their acreage in addition to field inspection data on certain viral, fungal, and bacterial pathogens detected in specific seed lots of interest. In addition, information can be gained about some more serious potato pathogens(bacterial ring rot, late blight, potato wart, etc.) that ay have been found on the farm over the previous ten years. When you contact the state or Canadian certification agency, request a completed North American Certified Seed Potato Health Certificate. To view a Health Certificate form or to locate U.S. and Canadian seed certification agencies go to www.ume.maine.edu/PAA.

Water Repellent Soils

Andy McGuire, WSU Grant-Adams Extension

Water repellent, or hydrophobic, soils can be a problem in the Columbia Basin, especially in Quincy type soils. The reduced water infiltration of these soils can cause ponding which can lead to increased soilborne diseases and risk of leaching, and decreased plant growth. It can also lead to runoff with associated erosion and poor application uniformity of water, pesticides, and fertilizers. Water repellency is the result of organic substances, such as waxes, coating soil particles. Dr. Maria Draglia, OSU, has been studying these soils near Hermiston and found that it is the silt fraction of Quincy soils that is hydrophobic. She has also found that problem fields can be located right next to fields with no water repellency problems, but with the same soil types. Although her research is not completed, she thinks that these differences might be due to small differences in the clay or silt fractions of the soils, brought on by different management. See http://cropandsoil.oregonstate.edu/people/faculty/dragila/quincy_soil.htm for more information.

22nd Annual Western Washington Potato Workshop

Friday, February 27th, 2004
Cotton Tree Inn, Mount Vernon

7:30 am	Coffee and pastries
7:50 am	Welcome <i>Dyvon Havens</i>
8:00 am	My Vision for the WSU Vegetable Extension Program, <i>Mark Pavek</i>
8:15 am	Export Opportunities for Washington Potatoes, <i>Andy Jensen</i>
8:35 am	Pink Rot of Potatoes, <i>Dave Lambert</i>
9:05 am	Phostrol for Controlling Water Rots on Potatoes, <i>Debbie Inglis</i>
9:35 am	Managing Verticillium Wilt in Potato in the Pacific Northwest, <i>Dennis Johnson</i>
10:05 am	Coffee Break
10:25 am	Liquid MaximL Application and Features, <i>Sam Thornton</i>
10:45 am	Rhizoctonia: 2003 Field Trial Results, <i>Debbie Inglis</i>
11:05 am	How to Submit Potato Samples for Diagnosis, <i>Jenny Glass</i>
11:25 am	New Skagit Marketing Strategies: Are We Ready for Change? <i>Bob Rose</i>
11:45 am	New Skagit Ag Economic Study: We're Worth More Than You Think! <i>Don Stuart</i>
12:05 am	LUNCH <u>Luncheon speaker:</u> <i>Jim Kropf</i> – Expansion of the WSU Mount Vernon Research and Extension Unit: An Exciting Milestone for Northwest Agriculture
1:00 pm	New and Threatening Diseases of Potatoes, <i>Dave Lambert</i>
1:45 pm	Flea Beetle Management: How Are You Doing? <i>Bob Vernon</i>
2:15 pm	Practical Aspects of Planting Mustard Green Manures for Disease Control, <i>Andy McGuire and Dale Gies</i>
3:00 pm	New Buffer Requirements and Cholinesterase Testing: What They Mean for You, <i>Jim Jesernig</i>