



Potato Progress

Research and Extension for Washington's Potato Industry
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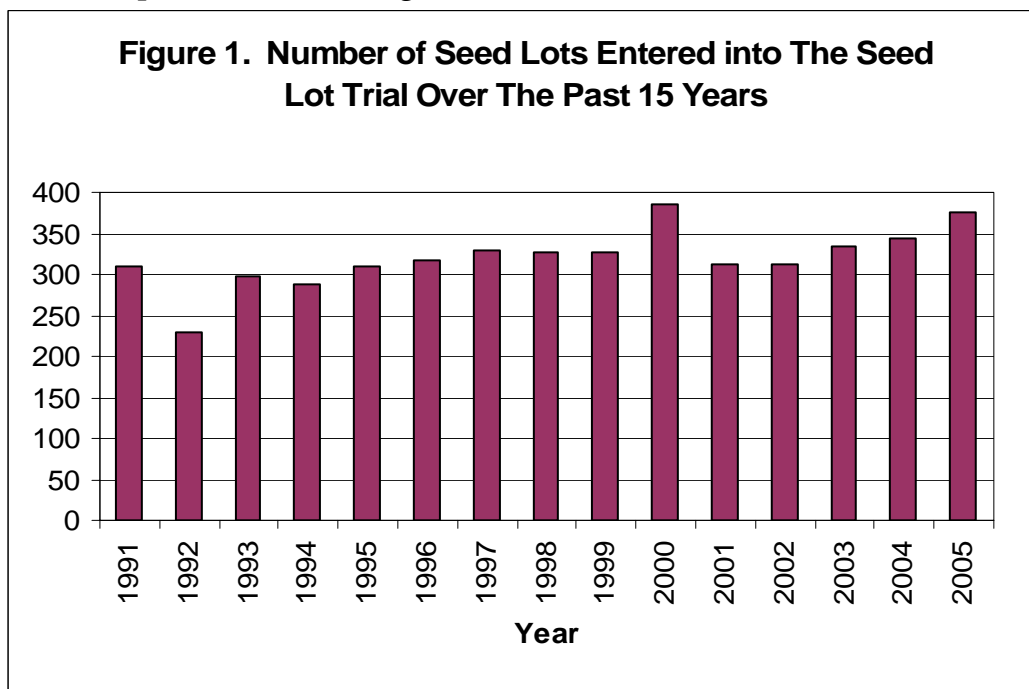
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2005 Washington State Commercial Seed Lot Profile and Potato Field Day Preview

Mark J. Pavek & Edward P. Driskill Jr., Washington State University, Pullman, WA

Seed lots samples entered into the commercial seed lot trial were up in number for the third consecutive year. There were 376 seed lots submitted this year, compared with 343 in 2004 and 335 in 2003 (Figure 1.). The number of seed lots entered in a given year depends on several factors, but two important factors include 1) the number of informed and willing participants and 2) the number of seed lots received in WA. The number of seed lots entered in the trial does not always represent an increase in the number of acres planted in Washington.



The 2005 seed lot profile was quite similar to the one from 2004 (Table 1). There were no significant changes in the total percent of seed lots coming from each seed growing region. The only notable change in the varieties submitted was a 5% increase in the number of Norkotah samples compared with 2004. In addition, 45% of the Russet Norkotah seed lots were Colorado selection 3 (C-3), 39% were standard Norkotah, 8% Texas selection 278 (TX-278), 6% C-8, and 2% TX-273. New and numbered Tri-State varieties being grown included A88338-1, A8893-1, A9045-7, Gemstar, Defender, Western Russet, and Summit.

Table 1. 2005 Washington Seed Lot Profile - Potato Varieties by Seed Growing Region

Source	Alturas		Burbank		Norkotah		Ranger		Shepody		Umatilla		Other		% of Total	
	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005	2005	2005	2004	2005
	----- % -----															
CAN	0	6	17	15	6	6	19	11	6	8	15	17	14	18	14	12
CO	0	0	0	0	40	46	0	0	0	0	0	0	14	0	6	8
ID	29	50	9	8	0	5	21	18	39	44	15	14	16	7	16	15
MT	53	39	68	69	35	29	42	47	10	6	62	64	16	18	46	46
OR	6	6	3	4	0	3	8	14	39	31	0	0	16	14	8	9
OTHER	0	0	1	0	5	3	1	5	6	6	3	0	5	29	3	4
WA	12	0	2	4	15	8	7	5	0	6	5	6	19	14	7	6
% of TOTAL	5	5	32	30	12	17	21	21	9	10	11	10	11	7	100	

Norkotah category includes all strains of Russet Norkotah (C-3, C-8, TX-223, TX-278)

2004 "OTHER" sources include ND, NV, NE, SD

2005 "OTHER" sources include ND, NE, WY, Unknown

2005 "OTHER" Varieties entered: A8893-1, A88338-1, A9045-7, GemStar (A9014-2), Defender (A90586-11), Western R. (A7961-1), Cal Red, Colorado Rose, D.R. Norland, Mazama, Middleton, Rosara, Santana, Summit, Yellow Gold Dust, Yellow Santinas, Yukon Gold.

The potato field day will begin at 8:30 am on Friday, June 24 at the WSU Othello Research Farm (program enclosed). In addition to viewing the seed lots, you will be able to participate in one of three concurrent sessions. Sessions I and II will allow you to view a sample of this year's in-field research. We anticipate that all three sessions will offer CCA credits, and that Sessions II and III will offer pesticide applicator recertification credits. A hosted lunch, offered between 11:30 and 1:30, will complete the field day. For additional information, please visit our website at potatoes.wsu.edu.

Upcoming Field Days

Seed Lot Field Day, WSU Othello:

June 24, 8:30 am

Potato Cropping Systems Field Day, USDA-ARS Paterson site:

July 15, 8:30 am

Potato Pest Management Field Day/Seminar, Eltopia:

August 3, 8:00 am

WSU Potato Field Day – June 24, 2005

Located at WSU Othello Research Unit

(6 miles East of Hwy. 26/17 Junction, On Booker Rd, ¼ Mile South of Hwy. 26)

8:30 - 9:00 am Coffee and rolls

9:00 - 10:20 am Visit Seed Lot Trial

Concurrent Session I

Potato Cultural Practices Field Tour

- 10:30 am **Effects of Reduced In-Season Nitrogen on 8 Potato Varieties**
Mark Pavek, Ed Driskill, and Zach Holden - Washington State University, Pullman
- 10:45 am **Effects of Seed Maturity, Pre-Plant Handling and In-row Spacing on Tuber Set and Size Development**
Rick Knowles, Lisa Knowles, and Nora Fuller - WSU, Pullman
- 11:00 am **Moderating Tuber Size Development in Norkotah Selections Through Stem Number Manipulation**
Rick Knowles, Lisa Knowles, and Nora Fuller - WSU, Pullman
- 11:15 am **Early Harvest Ranger – Economics of Seed Piece Spacing**
Mark Pavek, Ed Driskill, and Zach Holden - WSU, Pullman
- 11:30 am **Crop Growth & Storability Profiles for Newly Release Cultivars**
Rick Knowles, Mark Pavek, Lisa Knowles, Ed Driskill, Nora Fuller, Zach Holden – WSU, Pullman
- 11:40 am **Are Some Potato Cultivars Really More Susceptible to PVY and Why?**
Dan Hane and Phil Hamm - OSU, Hermiston
- 11:50 am - 1:30 pm **HOSTED LUNCH**

Concurrent Session II

Potato Pest Management Field Tour

- 10:30 am **How Fulfill (pymetrozine) and Novodor (B.t. tenebrionis) Affect Insects in Potatoes**
Gary Chang and Bill Snyder - WSU, Pullman
- 10:45 am **Conserving Beneficial Nematodes**
Ricardo Ramirez II and Bill Snyder - WSU, Pullman
- 11:05 am **Application Timing of Fungicides for Black Dot Control**
Tom Cummings and Dennis Johnson - WSU, Pullman
- 11:20 am **Predator Diversity and the Biological Control of Potato Pests**
Cory Straub and Bill Snyder - WSU, Pullman
- 11:35 am **Beneficial Insects (and Spiders) in Potato Fields**
Bill Snyder - WSU, Pullman
- 11:55 am - 1:30 pm **HOSTED LUNCH**

Concurrent Session III

Potato Pest Management Workshop

- 10:30 am **Management summary for Sclerotinia stem rot, Bacterial Stem Rot, Verticillium Wilt, and Black Leg**
Dennis Johnson and Tom Cummings – WSU - Pullman
- 11:00 am **Management of Beet Leafhoppers and Potato Purple Top**
Joseph Munyaneza – USDA-ARS Yakima, Andy Jensen – WA Potato Commission
- 11:30 am **Wireworm Field Studies at the Wapato Laboratory: 1) Baiting to Predict Damage, and 2) Depth of Soil Profile**
Dave Horton, USDA-ARS, Wapato
- 12:00 pm **Potato Tuber Moth: Biology and Potential Control Methods**
Sandy DeBano – OSU, Hermiston
- 12:30 - 1:30 pm **HOSTED LUNCH**

Potato Growth and Accumulated Heat Units: How does this year compare?

Mark J. Pavek, Edward P. Driskill Jr., and Zachary J. Holden
Washington State University

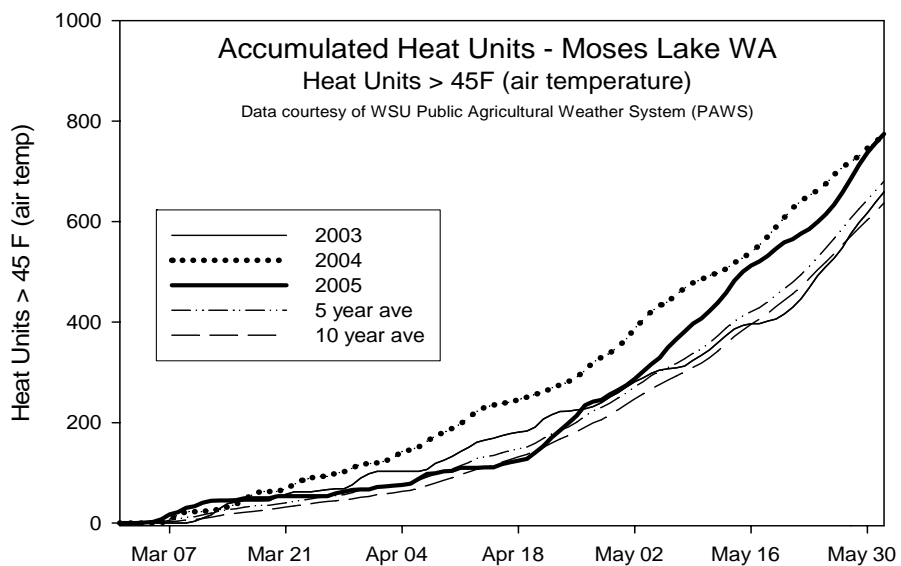
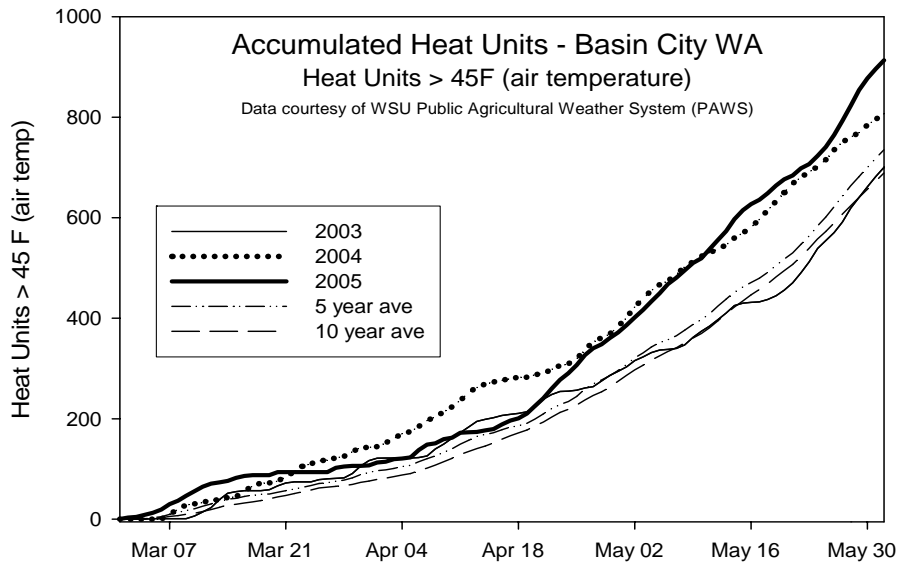
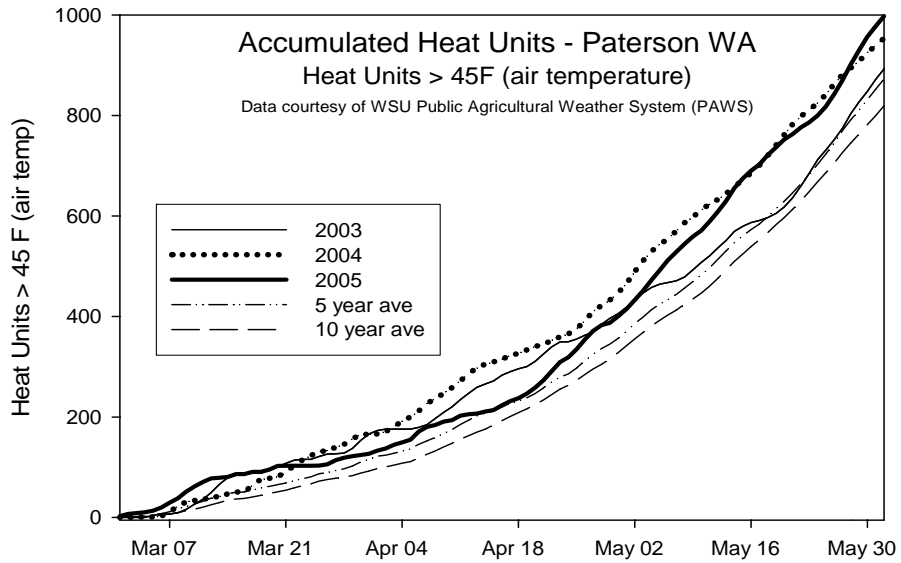
Soil moisture and temperature are most commonly cited as the major factors that contribute to potato sprout growth and emergence rate. Additional factors include seed size and health, sprout health, sprout/eye location on the mother seed tuber, soil fertility, cultivar, mother-tuber physiological age, volume and mechanical resistance of soil, and seed tuber dormancy. Rapid sprout emergence can promote early-season disease resistance in potato shoots and stems and allow plants to capture solar radiation early in the season. It is important to note, however, that early emergence does not always equal an increase in yield.

Accumulated heat units, also known as day-degrees and degree-days, are often used to demonstrate or predict sprout emergence. They are calculated by taking the average daily temperature from each day and subtracting the growing base temperature (45 F). The heat units for each day are then added over time to provide accumulated heat units (see figures below). Although potatoes can form sprouts near 40 F, growth is extremely slow. To calculate accumulated heat units, we used a base temperature of 45 F because it is generally more conducive for vegetative growth.

The amount of heat units required in the soil for sprouts to break the soil surface depends on all the factors above and changes for each situation. In general, the faster heat units are accumulated, the quicker plants will emerge. The figures below were calculated with above-ground (ambient temp) heat units because soil temps for all time periods were not available. Above-ground heat units are still relevant because soil temps gradually warm as the average daily air temperatures increase.

How does 2005 compare to years previous?

At Paterson, Basin City, and Moses Lake accumulated heat units on May 30 were above the 5 and 10 year averages and quite similar to 2004 (see figures below). Until late April the heat units at all locations were near the 5 and 10 year averages, but well below the values from 2004. Despite the slow accumulation during early April, heat units accumulated rapidly between the 4th week of April and early June, due to a rapid increase in the ambient temperature at all locations. Some of the early-planted (March) crops this year were slow to come out of the ground, but those planted in late April emerged quite rapidly when soil moisture was adequate. By comparing the figures to each other, it is easy to see the differences in heat unit accumulation as measurements move between north and south basin. Between March and June 2005, Paterson accumulated approximately 1000 heat units, Basin City 900, and Moses Lake 800.



Useful Web Sites, Phone Numbers

There are a number of regularly updated phone lines and web pages that are available for the Washington potato industry:

Topic	Phone Number	Web Site Address
Late Blight	1-800-984-7400	http://www.wsu.edu:8080/~djohnsn/
Aphids	1-888-673-6273	http://www.wsu.edu/~potatoes/
Tuber Moth		http://www.potatoes.com/Research.cfm
Beet Leafhopper		http://www.potatoes.com/Research.cfm
Cultivar Evaluations		http://www.wsu.edu/~fullern/

Gary Reed Retires from Oregon State University

On March 31, long-time superintendent and entomologist at Oregon State University Hermiston officially retired. Gary tirelessly served the potato industry of the Columbia Basin for over 15 years, becoming the point man for entomology in potatoes in the Pacific Northwest. He led the Hermiston Experiment Station through a dramatic transformation during the 1980s, converting an animal research farm into a state-of-the-art plant science research station. Gary has mentored dozens of young people during his career, and guided several graduate students to higher degrees. Among other honors, in 2004, he was named Man of the Year of Hermiston. In retirement, Gary will be pursuing his many interests including bass fishing (home-made lures especially), water resources issues, and community service.

A retirement dinner will be held in Gary's honor on June 22, at the Hermiston Experiment Station. Gather at 6:00 pm and have a prime rib dinner with local baked potatoes at 7:00. The cost will be \$14, and Gary has requested no gifts. **Please RSVP to Marcia at 541-567-6337 or Annette at 541-567-8321 before June 20.**