



Potato Progress

Research and Extension for Washington's Potato Industry

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Potato Progress Switching to E-mail or Fax Distribution

In an effort to cut postage costs, the Commission is moving most of its newsletter distributions to e-mail and fax. **If you want to continue to receive *Potato Progress*, you will need to be sure that we have a valid e-mail address or fax number (unless you have neither).** Note that the e-mail form of *Potato Progress* will arrive as a PDF, and so you will need Acrobat Reader on your computer to view the attachment. The form below will help you supply us with one of these two options.

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Does this spring seem warmer to you?

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Many potato growers have commented that this spring seems warmer than usual. Newly planted fields are jumping out of the ground and plant growth is ahead of schedule. Comparing climate data from the Columbia Basin with the two previous years and five and ten year historical averages show that this is a warm one. Comparing accumulated heat units from March 1 through May 15 from locations in the south, central, and north Columbia Basin indicate that regardless of the location in the Basin more heat units have accumulated this season than average.

Heat units provide an excellent tool to compare year to year differences between growing seasons. A heat unit is simply a measure of heat over time. Biological systems (potatoes, frogs, politicians, etc.) respond to heat by speeding up (well maybe not the politicians), so comparing accumulated heat units from year to year can give an indication where we are in the growing season. A heat unit is simply calculated by subtracting a designated base temperature from the average daily temperature. If the average daily temperature was 50° F, the heat units would be calculated: $50 - 45 = 5$ heat units. To get accumulated heat units, these heat units would be added to the next day's units, which are added to the next day's and so on. By looking at the date and the heat units that have accumulated gives a great comparison between locations and years. Base 45° F heat units downloaded from the Washington State University Public Access Weather System (WSU PAWS) are used for comparisons in this discussion.

South Basin: Data from Mattawa show that heat units started accumulating somewhat earlier than the last two seasons (Fig. 1). Heat unit accumulation in 2004 was similar to last season's until 3/20, but since then, there has been considerably higher accumulation. This season's weather conditions have resulted in continued higher accumulations than 2002, 2003, and the five and ten year averages. Between March 1, 2004 and May 15, 2004 the total accumulated heat units for Mattawa are 200 units higher (a 41% increase) than for the same time period in 2003 and 276 heat units higher (67% higher) than 2002 (Table 1). Total heat units accumulated between March 1, 2004 and May 15, 2004 are more than a third greater than the five and ten year averages for this location.

Central Basin: The data collected from the Basin City site (Fig. 2) show similar, but less dramatic trends as seen at the Mattawa site (Fig. 1). Heat unit accumulation was similar to 2003 until March 17, when the 2004 results exceeded 2003. Even more dramatic differences in accumulation between 2003 and 2004 were seen from April 26 to May 15. Heat unit accumulation in both years was considerably higher than 2002 and the five and 10 year averages. Total heat units at Basin City for March 1 through May 15, 2004 are 140 units higher (32% increase) than at the same time in 2003 and 257 units higher (82% higher!) than in 2002 (Table 1). The May 15, 2004 accumulation was 34 and 31% greater than the five and ten year averages, respectively.

North Basin: Heat unit accumulation at Moses Lake (Fig. 3) follows a similar pattern as recorded at the Basin City location (Fig. 2). Heat unit accumulation was similar to 2003 early in the season, but from April 1 to May 15 heat unit accumulation in 2004 was considerably higher than 2003. Heat unit accumulation in 2004 was higher than the five and 10 year averages, and much higher than 2002. Moses Lake March 1, 2004 through May 15, 2004 accumulated heat units were higher than in the same period in

2003 by 135 units (34% increase) and 228 units higher (76% increase) than in 2002 (Table 1). The 2004 heat units are 36% and 37% above the five and 10 year accumulation averages for this location.

What does all this data mean? Regardless of your location in the Columbia Basin in 2004 it has definitely been warmer. Heat unit accumulation is far greater than recent years, as well as historical averages. Potato plants planted at similar times in past years may be farther along than expected, so don't get caught behind on fertility and irrigation.

Table 1. Total accumulated base 45° F heat units, difference in accumulated heat units, and percent change between 2004 and 2003, 2002, and the five and ten year averages for March 1 through May 15 at the Mattawa, Basin City and Moses Lake, WA WSU PAWS sites.

Year	Mattawa			Basin City			Moses Lake		
	Total Heat Units	Change from 2004	Percent Increase	Total Heat Units	Change from 2004	Percent Increase	Total Heat Units	Change from 2003	Percent Increase
2004	686	-	-	569	-	-	528	-	-
2003	486	200	41	430	140	32	393	135	34
2002	410	276	67	312	257	82	300	228	76
5 Year	510	176	34	424	146	34	388	141	36
10 Year	512	174	34	435	134	31	386	142	37

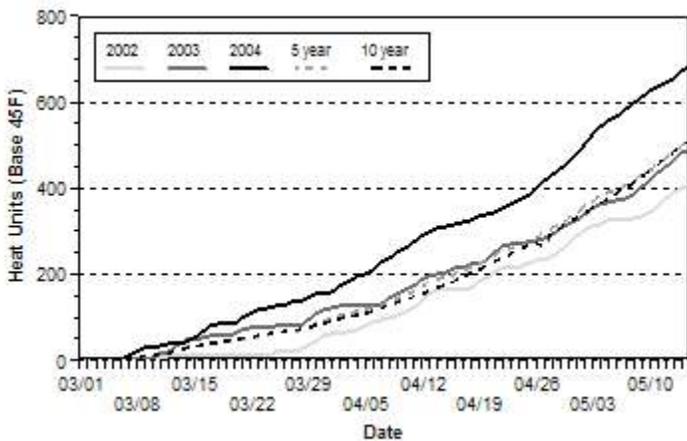


Figure 1. Base 45 F heat units accumulated from March 1 through May 15 during 2002, 2003, 2004 and the five and ten year averages at the Mattawa, WA WSU PAWS site.

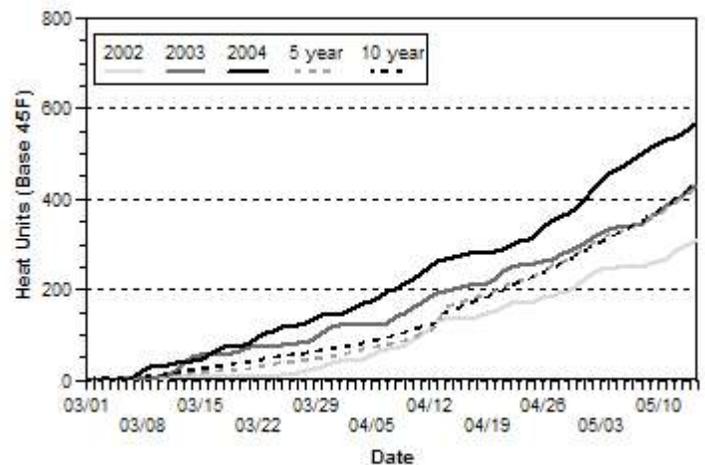


Figure 2. Base 45 F heat units accumulated from March 1 through May 15 during 2002, 2003, 2004 and the five and ten year averages at the Basin City WSU PAWS site.

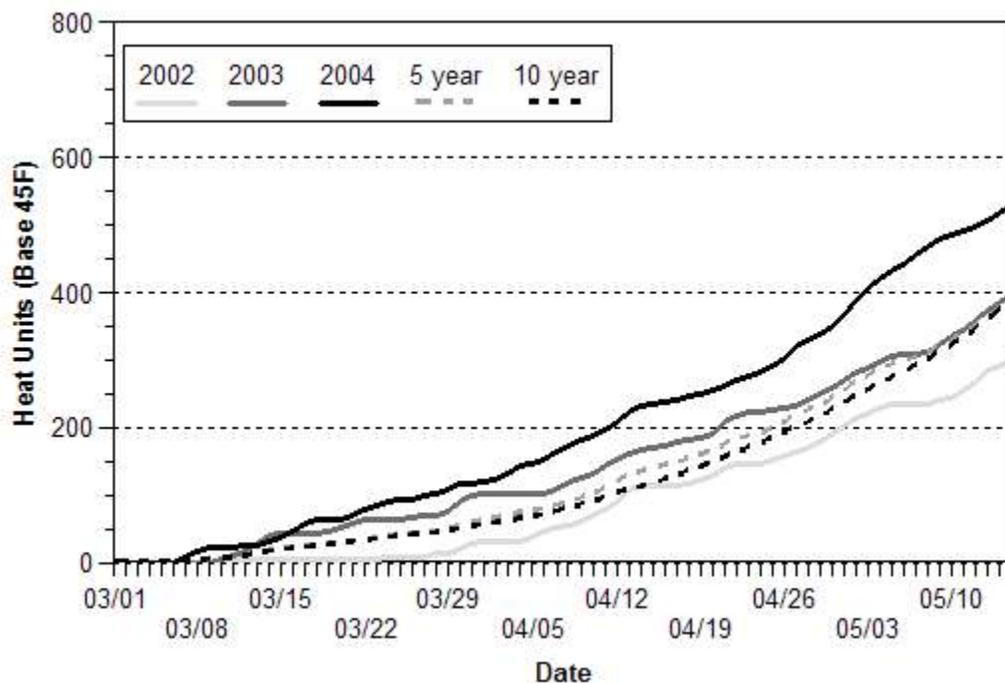


Figure 3. Base 45 F heat units accumulated from March 1 through May 15 during 2002, 2003, 2004 and the five and ten year averages at the Moses Lake WSU PAWS site.

Upcoming Field Days

Seed Lot Field Day: June 25, WSU Research Unit, Othello

A program for this field day will be in *Potato Progress* soon.

USDA-ARS Paterson Field Day: July 8

Beet Leafhopper Counts

For the most recent beet leafhopper counts region-wide, see the following web site:

www.potato.prosser.wsu.edu

All evidence gathered so far is pointing toward beet leafhopper as the most important vector of the “purple top” or “yellows” disease caused by the BLTVA phytoplasma. Data at the above web site only reflect beet leafhopper numbers. Beet leafhopper numbers region-wide have been steadily increasing for weeks, but are still not extremely high.