

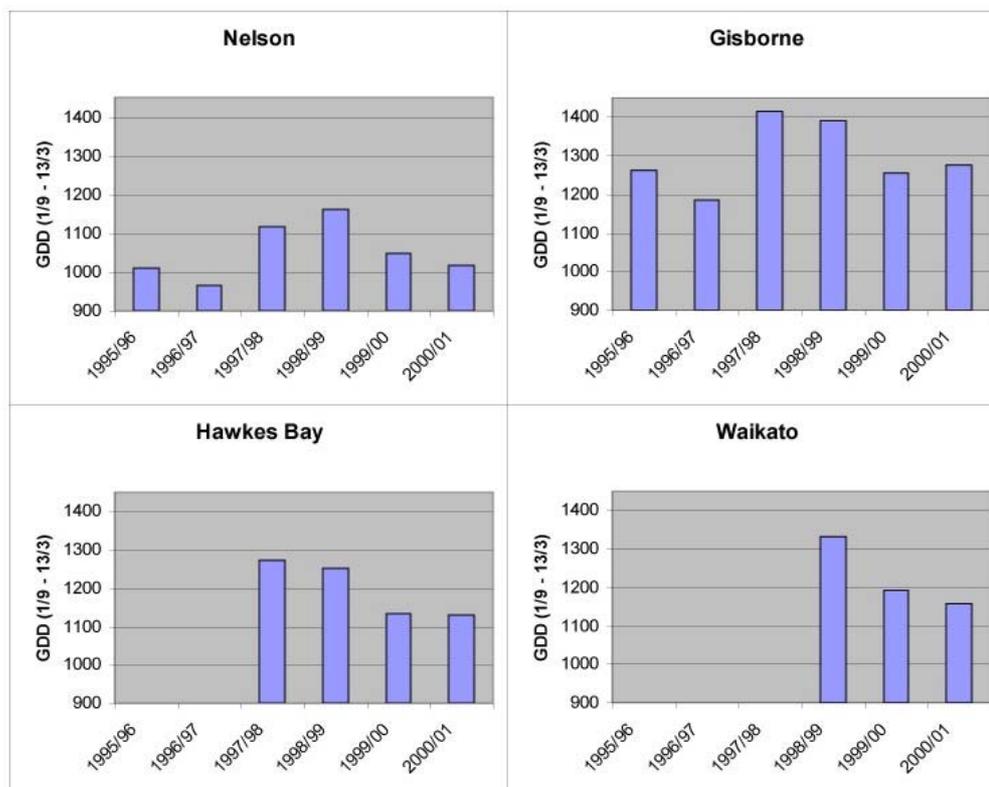
## Cool spring plus hot summer does not an average season make!

Dr Trevor Atkins, HortPlus  
 Trevor.atkins@hortplus.com  
 www.hortplus.com

Let's look this month at the season that was. One of the most critical factors driving the rate of development and maturation of your trees, vines, and plants is heat. Most growers are already familiar with "Growing Degree Days" (GDD) which is the usual measure used to express the amount of heat experienced. We have talked about them in detail in previous Weather Sense so look through your back copies of The Orchardist if you need a refresher, or go to the HortPlus web site at [www.hortplus.com](http://www.hortplus.com) and look in the Frequently Asked Questions section of the Support area.

**Table 1.** Comparison of GDD accumulated 1 Sept to 13 March for various locations over a number of seasons.

Season	Nelson	Hawkes Bay	Gisborne	Waikato
1995/96	1010		1261	
1996/97	967		1184	
1997/98	1116	1274	1416	
1998/99	1161	1253	1391	1331
1999/00	1049	1133	1257	1193
2000/01	1018	1130	1275	1157

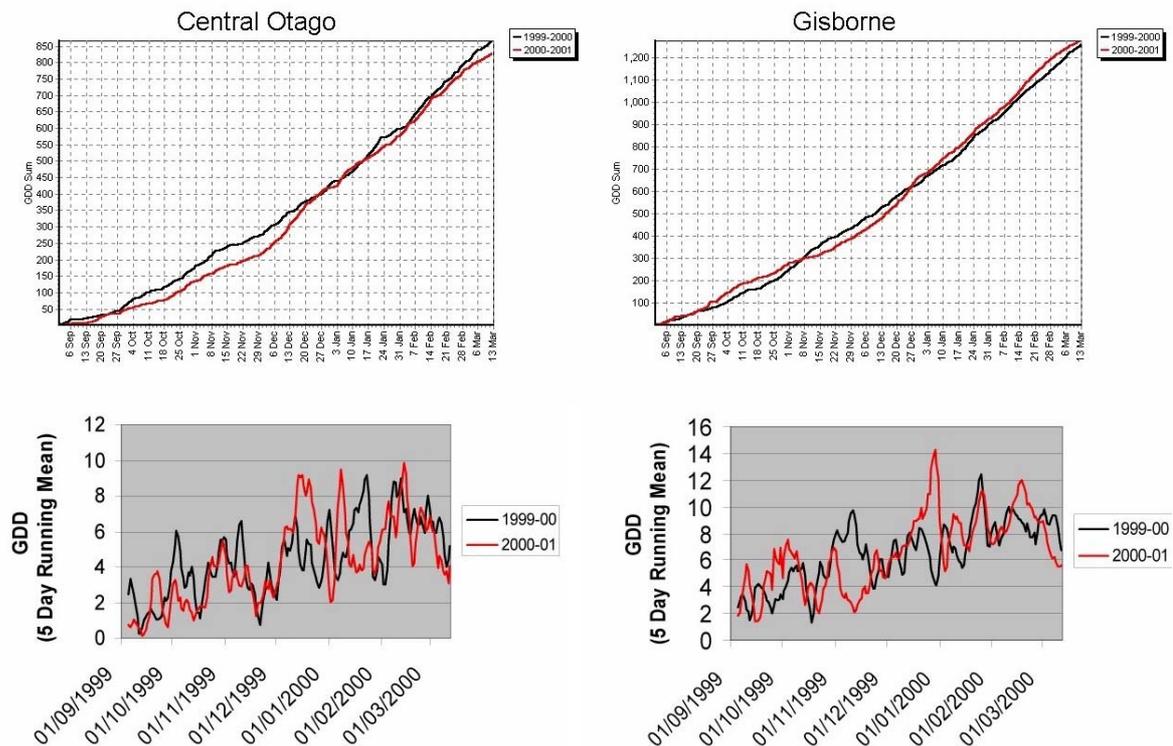


**Figure 1.** GDD accumulated over the past growing season for various locations

So what happened this year? Table 1 and Figure 1 present a comparison of total GDD accumulated during a number of growing seasons at a range of locations using automated weather stations and the HortPlus MetWatch software to process the data.

The total accumulated GDD totals for this season look remarkably similar to the accumulations from last season at all sites! The similar total GDD accumulations suggest that the **timing** of maturation for many crops will be similar between the two seasons. However, if the two seasons are so similar in GDD accumulations then why does the product that has been coming in at harvest look so different between the two seasons? Obviously there is more than temperature involved in answering that, but there are surprising differences in the temperature profiles for the two seasons if we delve a bit deeper into the GDD data.

Figure 2 shows the accumulation of GDD over the growing season at two sites comparing accumulations between this year and last year. Central Otago and Gisborne were the extremes of highest and lowest GDD accumulation in the previous figures. The top graphs show cumulative GDD accumulation over the season while the bottom graphs show the daily GDD making up those totals in order to better illustrate seasonal differences (expressed as a 5 day moving average - a trick to make trends show up better).



**Figure 2.** Comparison of GDD accumulation between 1999-2000 and 2000-2001.

So the bottom line to the season was that while most of the country had a very cool Spring (diabolically cold according to some), the very warm summer period meant that the total accumulated GDD was similar between this season and last season.

What it all means will depend on the type of crop in question. Pipfruit which would have been flowering through the cool spring period can be expected to have suffered in fruit size and possibly have increased problems with mixed maturity for example.

Finally, for those of you living in other areas of New Zealand and wanting to see GDD accumulation data for this season for your region check Figure3 and Table2.

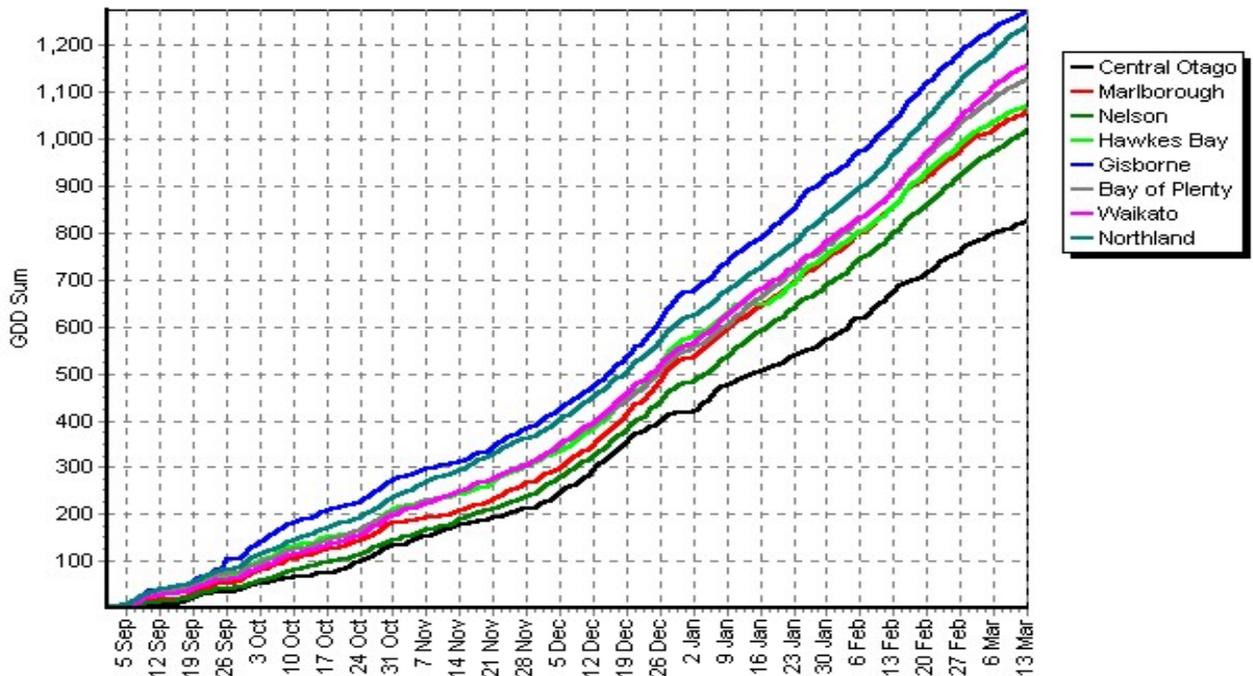


Figure 3. GDD accumulated over the past growing season for various locations

Table 2. GDD 1 Sept to 13 March 2000/01

Station	GDD
Central Otago	827
Marlborough	1059
Nelson	1018
Hawkes Bay	1130
Gisborne	1275
Bay of Plenty	1128
Waikato	1157
Northland	1239

While on the topic of temperatures, with winter approaching it is also a good time to start thinking about monitoring winter chilling for many crops. See the HortPlus website at [www.hortplus.com](http://www.hortplus.com) for details of how you can cost-effectively (cheaply!) monitor winter chilling on your property with your computer. But you don't need to go high tech, even if you just go to your local merchant and buy a min/max thermometer, you will be getting a finger on the pulse of the season.

**Hans**, you could use this figure for Figure 1 instead of the four bar charts if you wanted, but despite being less flash I think the bar charts are easier to read and will come out better in print.

