A Matter of Degree

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As the last of winter shakes itself off, growers of any crop affected by winter chilling are realising just how important winter chill can be. While the South Island enjoyed good chilling conditions over this past winter, the North Island has not fared so well as described in last month's Weather Sense. Using the Hawkes Bay as an example, this past winter has had the lowest number of hours below 7ºC of the past six years (656 hours, Table 1). This low winter chill follows on from the previous season which had the highest winter chilling at 954 hours below 7ºC. (As an aside, if you are a MetWatch user wanting to do this type of analysis for your own area, historical data is on the web site at www.hortplus.com in the Free Stuff area)

Table 1. Hawkes Bay total winter chilling (hours < 7ºC) 1 June - 31 August

1997	1998	1999	2000	2001	2002
881	697	879	737	954	656

So how different were the winter temperatures between these years? Table 2 shows the average temperature information for Hawkes Bay for the period 1 June - 31 August including average Daily Temperature, average of the Maximum Daily Temperature, and average of the Minimum Daily Temperature.

Table 2. Hawkes Bay average daily temperature information 1 June - 31 August

	1997	1998	1999	2000	2001	2002
Max (ºC)	13.2	14.2	14.5	14.5	13.8	14.8
Min (ºC)	2.7	4.0	2.6	3.3	1.6	4.3
Average (ºC)	7.6	9.0	8.0	8.6	7.5	9.5

The difference in the average Daily Temperature between the 2002 and the 2001 winters which are the extremes, was just 2ºC (9.5ºC vs 7.5ºC respectively). Doesn't actually sound like that much, but what a difference! This is part of the dillema of planning for possible climate change. What we perceive as relatively small changes can have very large cumulative effects on the crops and on the environment in general.

Table 2 also shows the average Daily Minimum and Maximum Temperatures. The average Daily Maximums range from a low of 13.2ºC in 1997 to a high of 14.8ºC during this past winter. This is a range of 1.6ºC between the year with the highest vs lowest average Daily Maximum Temperature. The average Daily Minimums have a greater range of 2.7ºC ranging from 1.6 in 2001 to 4.3 in 2002. How cold are the nights seems to be an important factor in driving the winter chilling for this six years of Hawkes Bay data.

Finally, how consistent are the temperatures during the winter? Is a cold winter always cold?! Figure 1 illustrates the average Daily Maximum and Minimum temperatures for each month during the winter for the six seasons of Hawkes Bay data

we have been examining. Clearly, there are large differences between years in when winter chilling is accumulated.

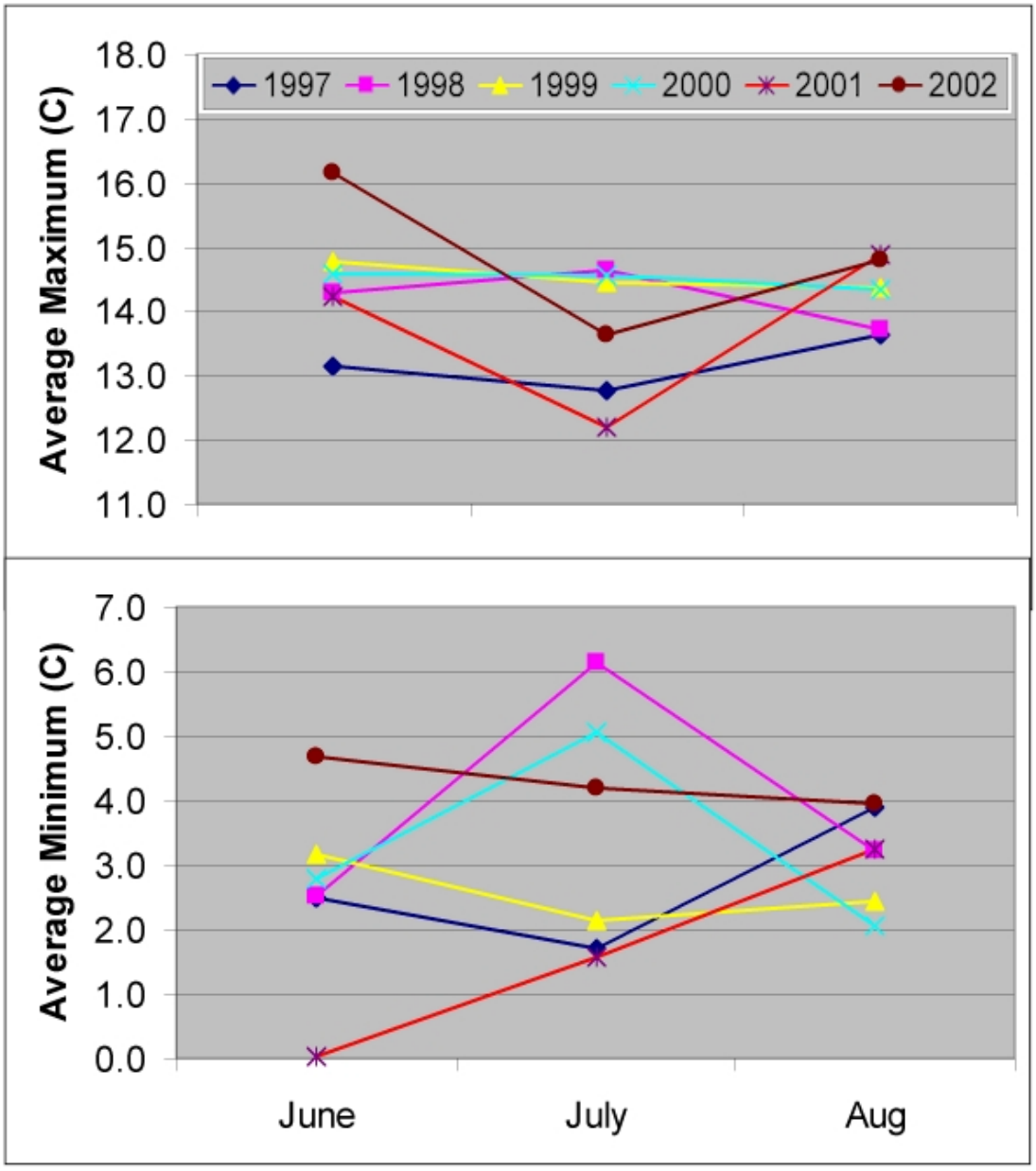

Figure 1. Average Daily Minimum and Maximum Temperatures for each month of the winters of 1997-2002.

Next month it is on to hotter topics when we look at how the Spring is progressing throughout New Zealand in comparison with previous years.