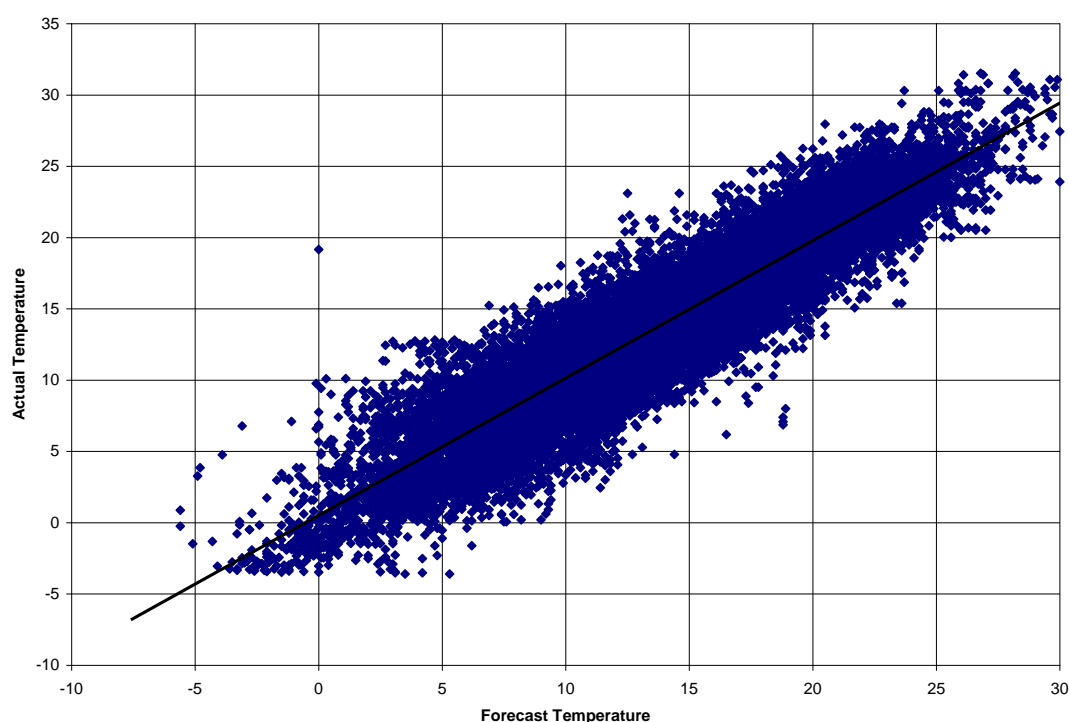


## Weather Forecast Accuracy : Part 2 Temperature

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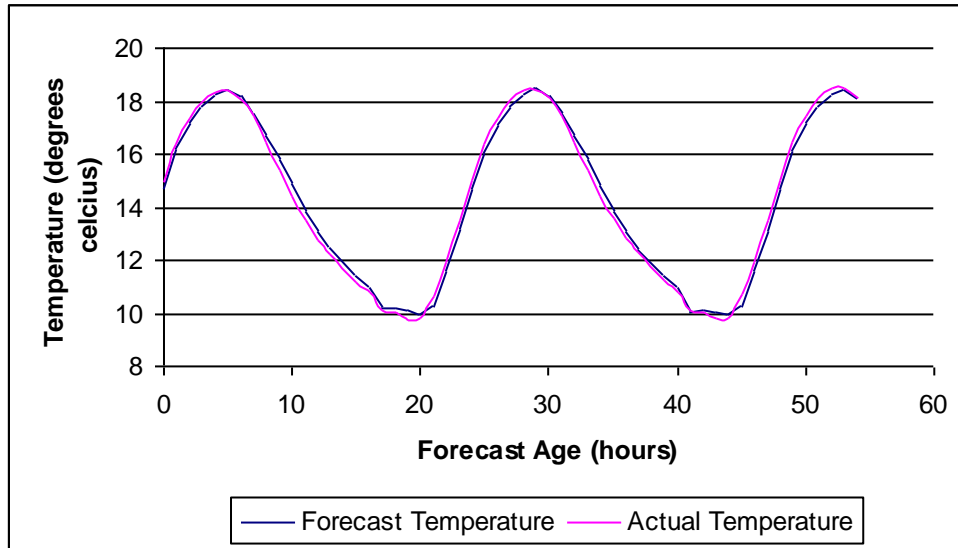
Last month we looked at the accuracy of rainfall. This month we will look at temperature. The forecasts cover the period 2004 to 2008 and were produced at 11am each day and cover the whole country. 35 locations in all, including all the major horticultural areas from Kerikeri to Clyde.

A comparison of forecast temperatures and actual temperatures is shown in Figure 1. From this figure we can see that the forecast isn't too bad. Closer inspection of the graph shows that forecast at low temperatures is a bit low (5°C forecast vs. 6°C actual). At high temperatures we seem to have the opposite occurring (25°C forecast vs. 24°C actual).



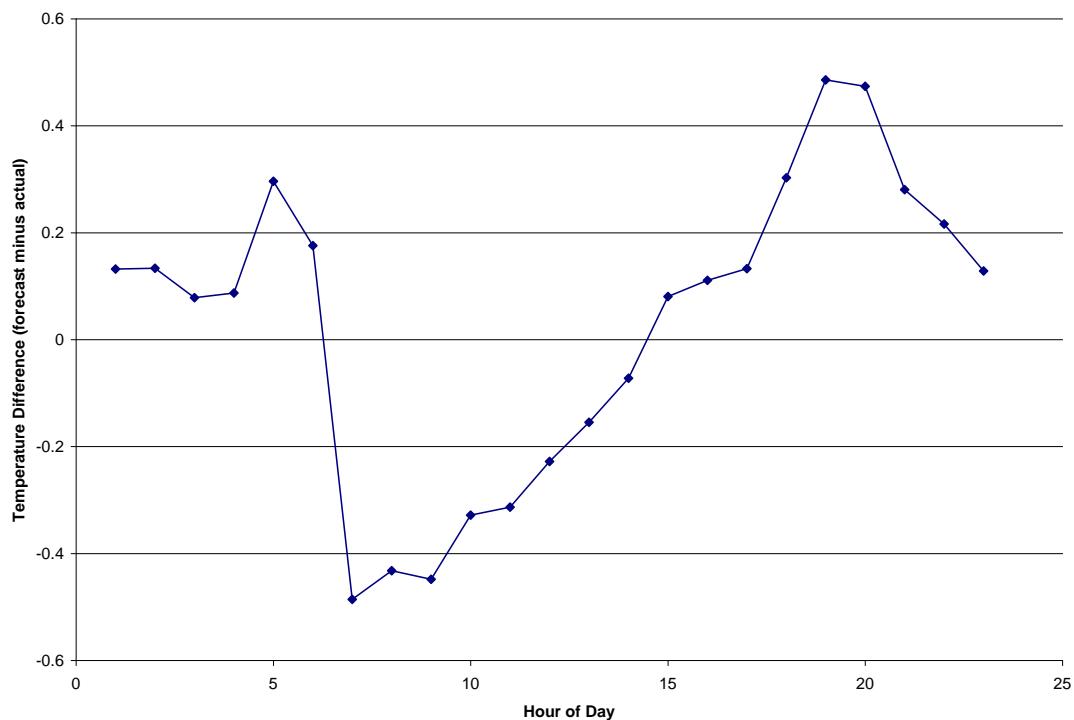
**Figure 1**

Figure 2 shows a comparison of forecast temperatures and actual temperatures in relation to the time since the forecast was prepared. I was expecting the forecast to degrade as time passed but that doesn't seem to be the case. If we look in very close detail at figure 2 we can see the trend produced in figure 3.



**Figure 2**

From this we can see a trend emerging. Perhaps the temperature forecast early in the morning is too high by 0.5°C and the afternoon maximum is too low by about the same amount. This is the direct opposite of the trend shown in figure 1 and has important implications for frost and sunburn prediction. Perhaps for frost prediction, a small amount should be subtracted from the forecast.



**Figure 3**

So far I haven't talked about the accuracy of individual forecast. We can see from Figure 1 what the variation is like. I will need to go scientific on you to answer this question and use the standard deviation. This statistic measures how far values will vary from the average assuming a normal or bell shaped distribution. From what I have looked at, it seems that the temperature forecast is within 2°C 68% or about 2/3rds of the time. There was no trend with time after the forecast was generated or with the temperature value. Low temperatures had the same variation as high temperatures. We can see that just by looking at Figure 1.

Overall, the short term, hourly forecasted temperature values look very good. A very slight over and under prediction can be easily compensated for by growers. Each forecast temperature was within 2°C of the actual value 2/3rds of the time. Users of HortPlus Matwatch Online and pipfruit growers will know that the forecasts are updated 4 times per day so there is no excuse for not knowing what the short term conditions will be like. In future articles I will look at the medium term outlook accuracy in future articles. This forecast will impact heavily on things like the codling moth model.