Table 1: Blenheim Weather Data – October 2005

	October 2005	October LTA	Period of LTA	Deviation from or % of LTA	October 2004
Growing Degree Days for month	85.8	96.0	(1947-2004)	89%	87.8
Growing Degree Days Total from July onwards	202.9	158.4	(1947-2004)	128%	134.1
Mean Maximum (°C)	17.9	18.0	(1932-1980)	-0.1°C	17.2
Mean Minimum (°C)	7.4	7.2	(1932-1980)	+0.2°C	8.1
Mean Temp (°C)	12.7	12.7	(1932-2000)		12.7
Grass Frosts (<= -1.0°C)	2	5	(1932-1980)	3 fewer	2
		2.1	(1986-2004)	equal	
Air Frosts (0.0°C)	0	0.8	(1932-1980)		0
		0.1	(1986-2004)		
Sunshine hours	225.5	225	(1935-2000)	100%	169.8
Sunshine hours – lowest		140.7	1983		
Sunshine hours – highest		299.6	1969		
Sunshine hours total - 2005	1997.1	1962	(1935-2000)	102%	1895.6
Rainfall (mm)	53.6	55	(1930-2000)	97%	83.0
Rainfall (mm) – lowest		2.3	1961		
Rainfall (mm) – highest		161.0	2001		
Rainfall total (mm) – 2005	462.0	552.0	(1930-2000)	84%	631.0
Evapotranspiration – mm	100.4	99.6	(1996-2004)	101%	87.0
Avg. Daily Windrun (km)	252.9	316.3	(1996-2004)	80%	296.5
Mean soil temp – 10cm	11.9	11.8	(1986-2004)	+0.1°C	11.5
Mean soil temp – 30cm	13.8	13.6	(1986-2004)	+0.2°C	12.7

Temperature

The mean temperature for October 2005 at 12.7°C was the same as recorded in October 2004 and equal to the long-term average mean for October. As in October 2004 the daily temperatures covered a large range. October 2004 had three very hot days from the 13th to the 15th. October 2005 had a warm period in the last week from 24th to 31st. The first three weeks of October 2005 had average temperatures of 12.1°C, 11.4°C and 12.0°C whereas the final week recorded 15.7°C, 3°C above average. Prior to the final week of October the average temperature was 0.9° below the long term average.

Growing Degree Days

October 2005 brought to an end the run of above average monthly growing degree-days that occurred in July, August and September.

Table 2: Growing Degree Days July-October

Year	Total GDD July-Oct	October GDD
2005	203	85.8
2004	134	87.8
2003	134	73.4
2002	185	84.3
2001	223	135.6
2000	189	110.5
1999	216	135.7
1998	223	128.6
1988	276	136.1
LTA (1947-2004)	158.4	96.0

Table 2 indicates that the growing degree days for October were slightly lower than the long term average. However due to the fact that GDD's were well above average for July to September the seasonal total for 2005 remains well ahead of average. Table 2 contrasts the slightly lower than average growing degree days for October 2005 with some of the warm years (1988, 1998-2001).

The fact that temperatures were warmer in July, August and September gave rise to an earlier than normal bud burst in the grapes. However the subsequent development of grapevine leaf emergence and shoot growth was restricted during

the first three weeks of October by the cool weather. The hot final week of October resulted in a marked increase in plant growth.

Sunshine
Up until 24th October the sunshine hours for the month were well behind the long-term average. In association with the warm last week of October 2005 the five days from 25 to 29 October recorded 63 hours sunshine (28% of the total for October), and dragged the total for the month up to equal the long-term average.

Rainfall
Blenheim received 53.6mm of rainfall for October or 97% of the long-term average. However 45.2mm (84%) was received in the first 10 days of the month. Blenheim's total rainfall for January to October 2005 was 462mm. In contrast, for the same period in 2004, 631mm of rainfall was received.

Wind Run
Most of you are probably aware that October is normally a windy month in Marlborough. This was not the case for October 2005. Average daily wind run at 252.9km was only 80% of the average for the past nine years. The period of average is fairly short (1996-2004) as in 1996 the measurement of wind run was automated and the anemometer moved from a manually read anemometer at 3 metres height to an automated anemometer at 10 metres height. Hence the manual and automated readings are not able to be averaged. November and December have been slightly windier than October in recent years so I would definitely expect that to be the case in 2005.

Soil Moisture and Evapotranspiration
Soil moisture levels in the upper part of the profile (5-35cm) as measured at the Marlborough Research Centre meteorological station rose in the first 11 days of October in association with the 45mm of rainfall received during that period. The soil moisture peaked at 34% on 11 October. With little rainfall in the rest of October the soil moisture fell to 23% by 31 October. The soil moisture in this situation is being measured below a mown grass surface so much of the moisture loss was due to evapotranspiration.

Table 3: Evapotranspiration contrasted with rainfall and soil moisture

	Calculated Evapotranspiration	Rainfall	Soil Moisture Increase/Decrease
1-11 October	29.6mm (2.7mm/day)	45.2mm	+7.5%
12-31 October	70.8mm (3.54mm/day)	8.4mm	-11.4%
October Total	100.4mm (3.2mm/day)	53.6mm	-3.9%

I have included table 3 to illustrate the obvious. A short period of above average rainfall (1-11Oct) restricted daily evapotranspiration to an average 2.7mm. The rainfall total exceeded the evapotranspiration losses by the grass hence the total soil moisture increased by 7.5%. The remainder of the month (12-31October) received little rain and evapotranspiration losses by the grass were increased (3.5mm/day) with warmer weather hence soil moisture fell by 11.4%. I have previously mentioned that there was far less wind during October than normal. This was a saving grace for pastoral farmers as it preserved the moisture that was in the soil to some extent. Had there been more wind then soil moisture would have dropped even faster in the latter part of the month and grass growth would have been restricted. Two hot windy days on 27th and 28th October each recorded 6.1mm evapotranspiration or double daily average for the month.

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