**Weather Data summary for July 2020 for the Blenheim Meteorological station located at the Grovetown Park campus of the Marlborough Research Centre.**

**Table 1: Weekly temperatures, rainfall, sunshine and frosts recorded in Blenheim during July 2020**

| | Mean Max | Mean Min | Mean. Diff. | Rainfall (mm) | Sunshine (hours) | Total Ground Frosts | Total Air Frosts |
|---|---|---|---|---|---|---|---|
| **1-7 July** | 13.8 | 1.8 | 7.8 -0.2 | 5.4 | 40.5 | 4 | 2 |
| **8-14 July** | 13.3 | 1.6 | 7.5 -0.5 | 0.0 | 42.6 | 4 | 2 |
| **15-21 July** | 12.8 | 5.6 | 9.2 +1.2 | 11.0 | 18.1 | 1 | 0 |
| **22-28 July** | 14.9 | 1.4 | 8.2 +0.2 | 0.4 | 58.6 | 5 | 2 |
| **29-31 July** | 16.6 | 6.0 | 11.3 +2.8 | 0.0 | 13.0 | 0 | 0 |
| | | | | | | | |
| **1-31** | **14.0 +0.8** | **2.9 +0.2** | **8.5 +0.5** | **16.8 26%** | **172.8 107%** | **14** | **6** |
| **LTA 1986-2019** | **13.2** | **2.7** | **8.0** | **63.6** | **162.2** | **14.9** | **7.1** |

**July 2020 mean temperature and sunshine hours were slightly above average, number of frosts was very close to average, rainfall and wind-run were well below average.**

**Rainfall**

Total rainfall of 16.8 mm was 26% of the long-term average for July of 63.6 mm (1986-2019). July 2020 recorded 102.8 mm less rainfall than July 2019.

July 2019 rainfall was 119.6 mm.
July 2018 rainfall was 71.6 mm.
July 2017 rainfall was 62.4 mm.

Total rainfall for January to July 2020 of 220.2 mm is 59% of the long-term average of 371.9 mm.

Previous press releases this year have detailed the very low rainfall from January to April 2020 and the need for well above average rainfall over winter in order to recover some of the rainfall and soil moisture deficit prior to the start of the new growing season in spring. Blenheim did record above average rainfall in May and June, however the low rainfall total in July means that the three month May to July 2020 total was slightly below average. The January to July 2020 rainfall total is now the fifth lowest on record for Blenheim, for the 91 years 1930 to 2020 (Table 2).

**Table 2: Lowest January to July rainfall totals on record for Blenheim, for the 91 years 1930 to 2020**

| Year | Rainfall total | Rainfall deficit |
|---|---|---|
| January-July 2001 | 165.2 mm | 206.7 mm |
| January-July 1973 | 178.0 mm | 193.9 mm |
| January-July 1969 | 205.5 mm | 166.4 mm |
| January-July 2003 | 205.8 mm | 166.1 mm |
| January-July 2020 | 220.2 mm | 151.7 mm |
| Long-term average | 371.9 | - |

At the end of April 2020 Blenheim had a rainfall deficit for the first four months of 2020 (Jan-April) of 141.2 mm. At the end of July 2020 the rainfall deficit for the first seven months of 2020 is now slightly higher at 151.7 mm (Table 2). Low rainfall over winter often goes unnoticed as there is little demand for water for irrigation. Lawns and pasture also generally look fairly green over winter. However, winter is the normal time when rainfall percolates through the soil and replenishes moisture to depth in the soil profile. With low rainfall over summer and autumn in 2020 the soil was very dry in early May. There was some recharge of soil moisture in

May and June; however July's low rainfall has not helped replenish soil moisture. Blenheim needs significant rainfall from August to November 2020 to avoid the onset of a spring drought.

**Temperature**
The mean temperature of 8.5°C was 0.5°C above the long-term average for July of 8.0°C.

July 2019 mean temperature was 9.7°C. Equal warmest July on record with July 2005 (1930-2020)
July 2018 mean temperature was 9.2°C. Fifth warmest on record
July 2017 mean temperature was 8.0°C.

The average daily maximum temperature of 14.0°C was 0.8°C above average
The average daily minimum temperature of 2.9°C was 0.2°C above average

**Frosts**
July 2020 recorded 14 ground frosts and 6 air frosts
July 2019 recorded 8 ground frosts and 2 air frosts
July 2018 recorded 17 ground frosts and 1 air frost
Long-term average ground frost number for July is 14.9 over the past 34 years (1986-2019).
Long-term average air frost number for July is 7.1 over the past 34 years (1986-2019).

July 2020 recorded close to average number of ground and air frosts.
The coldest ground frost of -4.2°C was recorded on the 25th July 2020.
The coldest air frost of -1.7°C was also recorded on the 25th July 2020.

Average ground frost temperature in July 2020 = -2.8°C
Average ground frost temperature in July 2019 = -2.2°C
Average ground frost temperature in July 2018 = -2.0°C

**Sunshine**
172.8 hours sunshine for July 2020 is 107% of the long term average for July of 162.2 hours (1986-2019).

July 2019 recorded 137.2 hours sunshine
July 2018 recorded 174.2 hours sunshine
July 2017 recorded 157.0 hours sunshine

Total sunshine in Blenheim for January to July 2020 is 1458.7 hours; or 104% of the long-term average total of 1404.1 hours.

Blenheim was the sunniest town in July 2020 with 172.8 hours, followed closely by Richmond with 171.6 hours. However, Blenheim is currently only in fourth place for total sunshine hours from January to July 2020. At the end of July Whakatane was 124.6 hours ahead of Blenheim.

**Highest sunshine totals around New Zealand from January to July 2020**

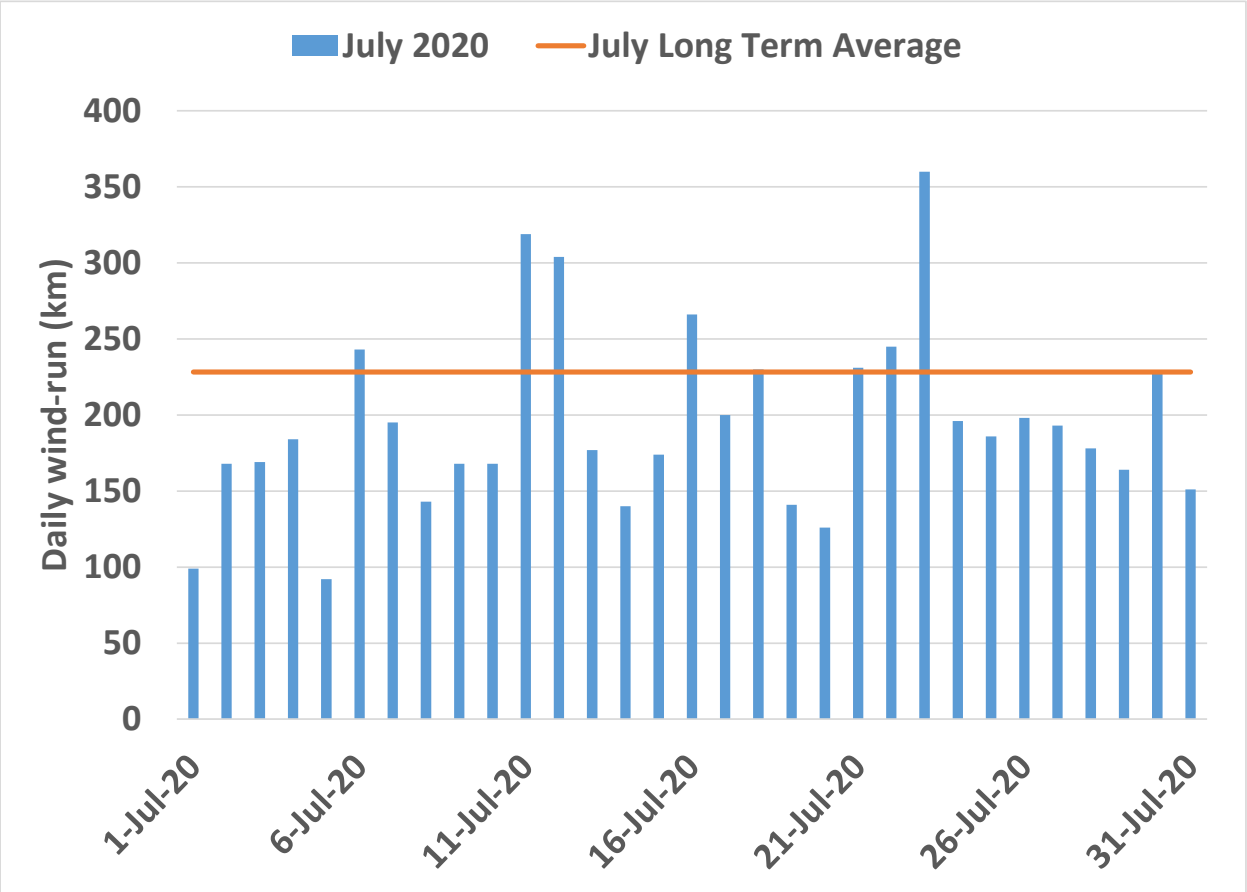
| | |
|---|---|
| Whakatane | 1583.3 hours |
| Richmond | 1552.4 hours |
| New Plymouth | 1519.7 hours |
| Blenheim | 1458.7 hours |

**Soil Moisture**
The average shallow soil moisture (0 to 35 cm depth) at the Grovetown Park weather station average for July was 34.7%. Given the low July rainfall the topsoil moisture was below the long-term average for July of 37.8%. Field capacity is about 38%.

**Wind-run**

Average daily wind-run during July 2020 was 194.7 km; this was 85% of the long-term average daily wind-run for July of 228.2 km. Only 6 of the 31 days during July recorded above average wind-run (Figure 1). Many days recorded far lower than average wind-run. This continues the trend that has occurred over the last 10 years for Blenheim with the vast majority of months having recorded below average wind-run; i.e. Of the 127 months from January 2010 through until July 2020 only 23 months (or 18%) have recorded above average wind-run; 104 months have recorded below average wind-run (or 82%).

**Figure 1: Daily wind-run during July 2020 compared to long-term average daily wind run for July**




*Rob Agnew*
*Plant & Food Research / Marlborough Research Centre*

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