

Meteorological data summary for October 2022 for the Blenheim Meteorological station located at the Grovetown Park campus of the Marlborough Research Centre.

Mean temperature, rainfall and wind-run were all below the long-term average (LTA) in October 2022. Sunshine hours were above average.

Table 1: Weekly weather data during October 2022

	Mean (°C)	Mean Max (°C)	Mean Min (°C)	Ground Frosts	Rainfall (mm)	Sunshine (hours)	Windrun (km)
1 st - 7 th	9.0 (-4.2)	13.5 (-4.9)	4.6 (-3.3)	2	6.4	45.2	225.3
8 th - 14 th	13.0 (-0.2)	17.5 (-0.9)	8.5 (+0.6)	0	0.4	49.3	266.0
15 th - 21 st	12.8 (-0.4)	18.6 (+0.2)	6.9 (-1.0)	0	0.0	67.6	242.3
22 nd - 28 th	14.4 (+1.2)	20.1 (+1.7)	8.6 (+0.7)	1	5.8	58.7	239.9
29 th - 31 st (3 days)	18.7 (+5.5)	23.2 (+3.8)	14.2 (+6.3)	0	4.2	26.9	293.0
1 st - 31 st October 2022	12.9 (-0.3)	18.0 (-0.4)	7.8 (-0.1)	3	16.8 (29%)	247.7 (107%)	248.2 (86%)
October LTA (1986 - 2021)	13.2	18.4	7.9	2.1	57.2	230.7	288.0

LTA – Long Term Average

Temperature

Mean temperature of 12.9°C was 0.3°C below the LTA for October of 13.2°C (1986-2021).

October 2021 mean temperature was 13.9°C.

October 2020 mean temperature was 14.3°C.

October 2019 mean temperature was 12.7°C.

October 2018 mean temperature was 13.7°C.

While the mean temperature for October was 0.3°C below the LTA there was a marked temperature gradient from the start to the end of the month. The mean temperature for the first week of October of 9.0°C, was 4.2°C below the LTA. The mean temperature for this first week was almost the same as the LTA mean for July i.e. this first week of the month felt more like mid-winter. In contrast, the mean temperature over the last 10 days of October of 15.7°C was 6.7°C warmer than the first week. And the mean temperature over these last 10 days was similar to an average day in early December.

The warmest maximum temperature of 24.8°C was recorded on 23 October 2022. The coolest minimum air temperature of +0.2°C and grass minimum temperature of -2.7°C were recorded on the morning of 6 October 2022.

October 2022 is only the 3rd year in the 10 year period from 2013 to 2022, when the October mean temperature has been below average. Whereas in the 11 years from 2002 to 2012 the October mean temperature was below average in all 11 years.

Frosts

Three ground frosts were recorded in Blenheim in October 2022. The LTA number of ground frosts for October is 2.1. No air frosts were recorded.

Sunshine

247.7 hours sunshine for October was 107% of the LTA for October of 230.7 hours (1986-2021).

October 2021 recorded 233.8 hours sunshine.

October 2020 recorded 224.8 hours sunshine.

October 2019 recorded 250.5 hours sunshine.

Total sunshine for January to October 2022 was 1985.5 hours, 98% of the LTA of 2019.4 hours.

Sunniest town in New Zealand update.

For the second month in a row Cromwell was the sunniest town in New Zealand with 265.5 hours sunshine. Tekapo was in second position with 257.9 hours. Blenheim was in third place with 247.7 hours sunshine. New Plymouth is still out in front for the year to date.

Rainfall

Rainfall total of 16.8 mm was 29% of the LTA for October of 57.2 mm (1986-2020). This is the 10th lowest October total on record and the lowest total since October 2015 which recorded 6.0 mm.

October 2021 rainfall was 70.2 mm.

October 2020 rainfall was 22.4 mm.

October 2019 rainfall was 28.0 mm.

Total rainfall for January to October 2022 of 709.2 mm was 131% of the LTA of 541 mm.

Total rainfall for January to October 2021 of 619.0 mm was 114% of the LTA of 541 mm.

Total rainfall for January to October 2020 of 356.8 mm was 66% of the LTA of 541 mm.

Evapotranspiration

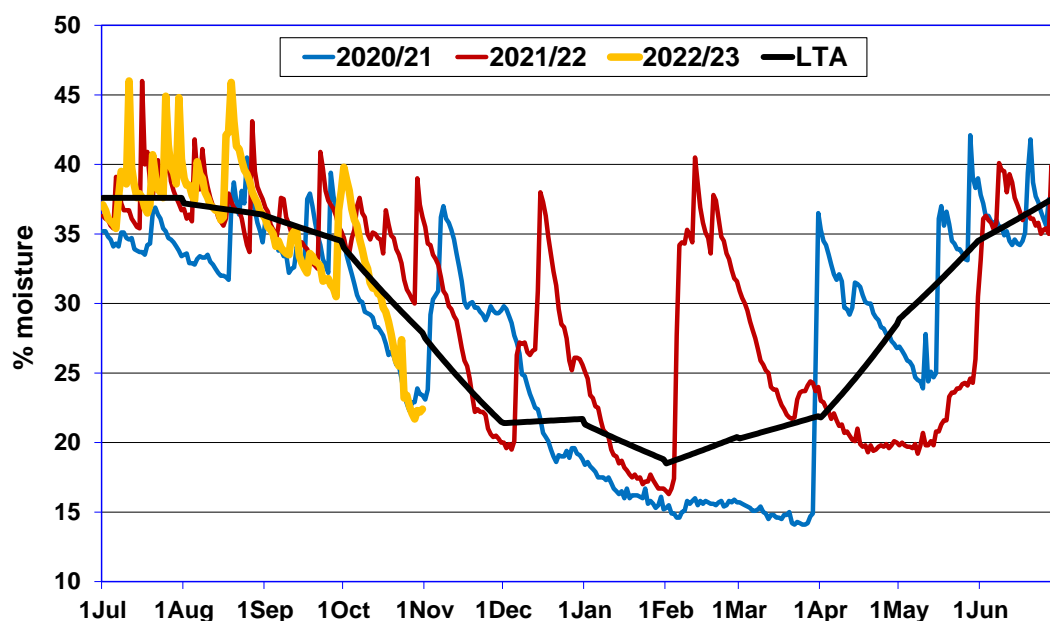
Evapotranspiration for October 2022 was 109 mm, 106% of the LTA of 102.8 mm.

Soil Moisture

Average topsoil moisture during October was 29.5%, compared to the LTA during October of 31.7% (2003-2021).

On 1 October 2022 topsoil moisture was 39.8 %, which is slightly above field capacity. This is the highest 1 October value for the 21 years 2002 to 2022. With little rain during October shallow soil moisture fell to 22.4% on 31 October (Figure 1); i.e. a loss of 17.4% moisture. This is the largest soil moisture loss from the topsoil over the 21 years of measurement 2002 to 2022. The LTA topsoil moisture loss during October is 6.1% (2003-2021).

Figure 1: Shallow soil moisture (5-35 cm depth) at the Grovetown Park weather station in Blenheim



Moisture Deficit

Moisture deficit is rainfall minus potential evapotranspiration

For October 2022 this was: 16.8 mm rain – 109.0 mm potential evapotranspiration = -92.2 mm; this was 49.8 mm above the LTA.

Many people will still remember the very wet winter that Blenheim / Marlborough experienced in 2022 (June to August). By far the wettest winter on record for Blenheim for the 93 years 1930 to 2022. However, what was a large water surplus over winter is rapidly turning into a water deficit, with only 50% of the LTA rainfall having been recorded during September and October 2022.

Wind

October 2022 average daily wind-run was 248.2 km. This was 86% of the October LTA (1996-2021) of 288 km. Average wind speed was 10.3 km/hr, compared to the LTA of 12.0 km/hr. There were 11 days during October when the daily wind-run was above the LTA, 20 days recorded below average.

Plant & Food Research / Marlborough Research Centre

rob.agnew@plantandfood.co.nz