



GATTON RESEARCH STATION



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Cover page: Aerial photographs of Gatton Research Station

- Bottom – View of the station from the south

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History

In 1897 an agricultural college was established on the site of the present University of Queensland Gatton College following the purchase in 1896 of a 684 ha parcel of freehold land from the Weinholt brothers. It was operated by the Department of Agriculture and Stock (now the Queensland Department of Primary Industries) and in 1923 the college administration was transferred to the Department of Public Instruction.

During the latter part of World War 2, the Bureau of Investigation was established within the Queensland Department of Public Lands following the enactment of the Land and Water Resources Development Act. One of its functions was to make investigations and surveys for land development and as part of this an irrigation research station was established in 1946 at Lawes with a substation at Theodore.

Research staff for the station were drawn from the Department of Agriculture and Stock, and in 1956 with the disbandment of the Bureau of Investigation, the operation of the station was handed over to the Department of Agriculture and Stock as one of the Regional Experimental Stations then in operation. This later became the Gatton Research Station.

When the then Queensland Agricultural College went autonomous in 1974 and moved from being a secondary education facility to become a Centre of Advanced Education, the Gatton Research Station land was excised off and came under the control of the Department of Primary Industries. This transfer was gazetted on 24 May 1975.

In 1997 all DPI staff in the Lockyer were relocated to a new office complex at the Gatton Research Station to provide a more efficient and comprehensive service to primary producers. Office facilities were provided for approximately 30 staff. In addition to the full time staff, there were facilities available for under graduate, post graduate, and masters students.

In September 1999 additional offices and a laboratory were provided to accommodate an increase in staff plus the relocation of the Post Harvest research team from Hamilton in Brisbane. The latter is a joint project with the University of Queensland Gatton College with these staff utilising laboratory facilities on the Gatton College. The Gatton Research Station office complex can now accommodate 60 staff and post graduate students. A stand alone conference facility suitable for 60-80 people was also provided in the building project.

Adequate laboratory facilities are available on the research station to allow processing of plant and pasture samples, breeding and identifying insects and pests, and cooking tests on potatoes.

Specialist farm equipment including experimental planters and plot harvesters is provided. Also a wide range of general farm equipment is available to service the range of crops and pastures grown on the station.

Historical uses

The Lockyer Valley, an area encompassing approximately 300,000 hectares, has been used for agriculture for over 130 years.

Of this total area, ten per cent is considered to be suitable for cultivation under irrigation.

The Research Station serves the irrigated cropping land in the shires of Gatton, Laidley Esk, Moreton, Kilcoy, and Beaudesert, as well as the Eastern Darling Downs.

The produce grown in the Lockyer Valley include vegetable crops such as potatoes, onions, broccoli, cabbage, cauliflower, beetroot, tomatoes, beans, peas, pumpkins, sweet corn, celery and carrots.

Other crops also grown include lucerne, water melons, cereal grain crops, cucumbers, and capsicum.

The Gatton Research Station services the \$80M fresh and processing vegetable industry in the Lockyer Valley. Furthermore, vegetable research at the station is utilised by other production areas with the agronomic, plant improvement and insect management research impacting on the total \$500M vegetable industry in Queensland.

The research station farm is 100% utilised servicing the following groups:

- Horticulture & Forest Science 50%
- Plant Science 30%
- Animal Science – profitable Dairy systems 20%

Location

Gatton Research Station is approximately 90 km west of Brisbane and 8 km east of Gatton on the Warrego Highway opposite the University of Queensland Gatton College.

Land Area and Use

The total area of Gatton Research Station is 49.44ha with 38ha being used for vegetable, field crop, pasture and lucerne research. The balance comprises roads, grassed waterways and building areas.

Site plan, paddock layout and building area – see *appendix 1*

Geographics

The location of the Gatton Research Station is:-

Latitude 27° 33'S
Longitude 152° 20'E

Elevation is 93 metres

The current Property Description

Lot 189, Crown Plan CC3307
Parish of Blenheim
County of Churchill
Shire of Gatton

Registered Owner: The State of Queensland (Represented by the Department of Primary Industries – **GLR No:** 6795)

Dealing No: 705235515

Gazetted: 4 December 2001

Deed of Grant No: 40031078

Title reference No: 50375982

Area: 49.44 Ha

Property Management Plan – see *appendix 2*

The department has a current request with the Department of Natural Resources and Mines for a Deed of Grant over Gatton Research Station for a freehold title to be issued in place of the reserve under the Government Land Management System. The conversion is particularly necessary so that DPI is eligible for compensation from Powerlink who is constructing a 500kv power line through the western side of the station. Native title has been extinguished over Gatton Research Station.

Vegetation

The Research Station has been cleared of native vegetation, which was originally Blue Gum (*Eucalyptus tereticornis*) and Moreton Bay Ash (*Eucalyptus tessellaris*).

Topography

The Research Station is situated on the flat alluvial plain of Lockyer Creek. The alluvium forming this landscape is derived largely from basalt and was laid down during the Quaternary period.

A gentle levee bank with 1-2% slope occurs, for up to 100 metres from Lockyer Creek. Beyond the levee bank, the alluvial plain, in its original state, exhibits gentle to moderate gilgai microrelief.

Soils

On the gentle levee of Lockyer Creek, soils are light textured clay loams to light clays, while away from Lockyer Creek, heavier dark cracking clays dominate.

Soils morphology has been influenced by cultivation, land levelling and filling. Cultivation has encouraged more surface soil cracking, land levelling has altered soil depth, and filling has drastically redistributed soil material.

Generally, the surface soils have a neutral pH, low total nitrogen, high to very high phosphorus and potassium, and medium organic carbon, copper, manganese and zinc. Salinity is low throughout the profiles.

All soils are highly base saturated. Montmorillonite is the dominant clay mineral. Exchangeable sodium levels are low throughout all soil profiles.

Available soil moisture capacities are low throughout the profile.

A 1:5000 soil survey was carried out in 1981 by B. Powell from the then Agricultural Chemistry Branch of DPI. This survey titled "*Soils of The Gatton Research Station*" (QB82005) was published in 1982.

See *appendix 3* for the soils map showing classifications and the distribution of the various soil types.

Irrigation

Irrigation water is available from ground water (2 bores) and from Lockyer Creek. These supplies are licensed, however water allocations have not been set at this point in time. A 90,000 litre concrete tank is used for water storage and is set up with 2 smaller pumps to allow for trickle and solid set irrigation on smaller trial areas.

Water licence number	Pump site	Pump discharge
01175G	Creek pump	30.5 litres/sec
55874G	K block bore	12.5 litres/sec
64310G	O block bore	30.5 litres/sec

The water is normally suited for irrigation of crops, except those with a low salt tolerance.

Ground water:- 2300 μ S/cm

Creek water:- 1200 μ S/cm

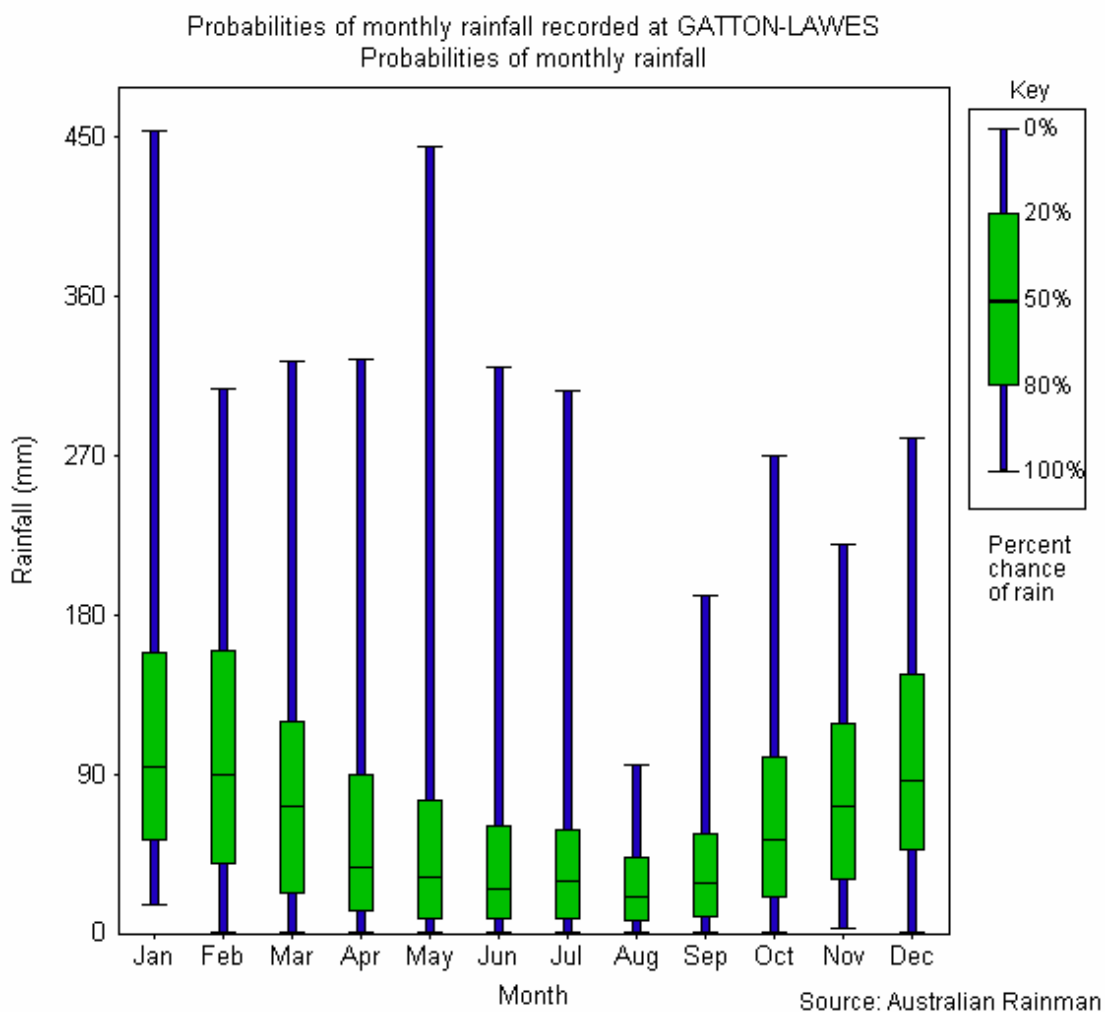
Irrigation water can be delivered to any portion of the station. While the majority of irrigation is from overhead sprinklers there are facilities available for flood and trickle irrigation.

Climate

The climate is sub-humid and subtropical with long hot summers and short mild to cold winters.

The average annual rainfall of 778mm is summer dominant with approximately 70 per cent falling between October and March. There is a large variation in annual rainfall amount and monthly distribution.

The average annual evaporation rate is 1893mm.



Appendix 4 provides a climatological summary for Gatton Research Station using data from 1968 to 2000.

Unique Features Associated with Location

Features presented by Gatton Research Station offer opportunities for a range of activities unable to be replicated elsewhere. These unique features include:

- * Located in the centre of Queensland's "Salad Bowl"
- * Proximity to major population and supply centres
- * Proximity to other major DPI centres
- * Proximity to UQ Gatton College
- * Horticultural activity of area is increasing in diversity

- * Soil types suitable for complete range of horticultural and field crops, lucerne and pastures
- * Good reliable irrigation supplies
- * Security of tenure for long term activities
- * First class office and conference facilities
- * The extended summer allows for 2 crops/generations of breeding plots to be completed
- * The winter climate is ideally suited to rusts and other diseases for the cereal breeding program

Clients - Current and Potential

Gatton Research Station provides services to a range of clients including, departmental resident and non-resident projects, external collaborators and agribusiness.

Community Interactions

Gatton Research Station has involvement with a range of community groups and institutions. These interactions are mutually beneficial and provide opportunities for Department of Primary Industries to receive community recognition.

Work experience: A range of secondary school and university students are given work experience and industrial placements each year.

Tour groups: International, national and local groups frequent Gatton Research Station for informative enjoyable guided tours of our activities.

UQ Gatton College: Cooperative borrowing and equipment bartering arrangements provide greater effectiveness of resource use with this neighbouring organisation. The station is a site for tours and practical classes by students inspecting field and trial crops, and also provides them with a variety of crops for collecting insect, weed and disease samples as part of their study requirements.

Cultural and Environmental Heritage

No cultural heritage issues are known to currently exist. Native title has been extinguished.

Risk Management

Workplace Health and Safety

A Workplace Health and Safety Committee meets every three months. Two accredited workplace health and safety officers are located at Gatton Research Station.

No radioactive substances are located on Gatton Research Station.

Gatton Research Station is a registered workplace, Certificate of Registration W20739, with Dept of Employment Training and Industrial Relations. There is no registered plant under the Workplace Health and Safety Legislation on the station.

Workplace Rehabilitation

An accredited Rehabilitation Officer is located at Gatton Research Station.

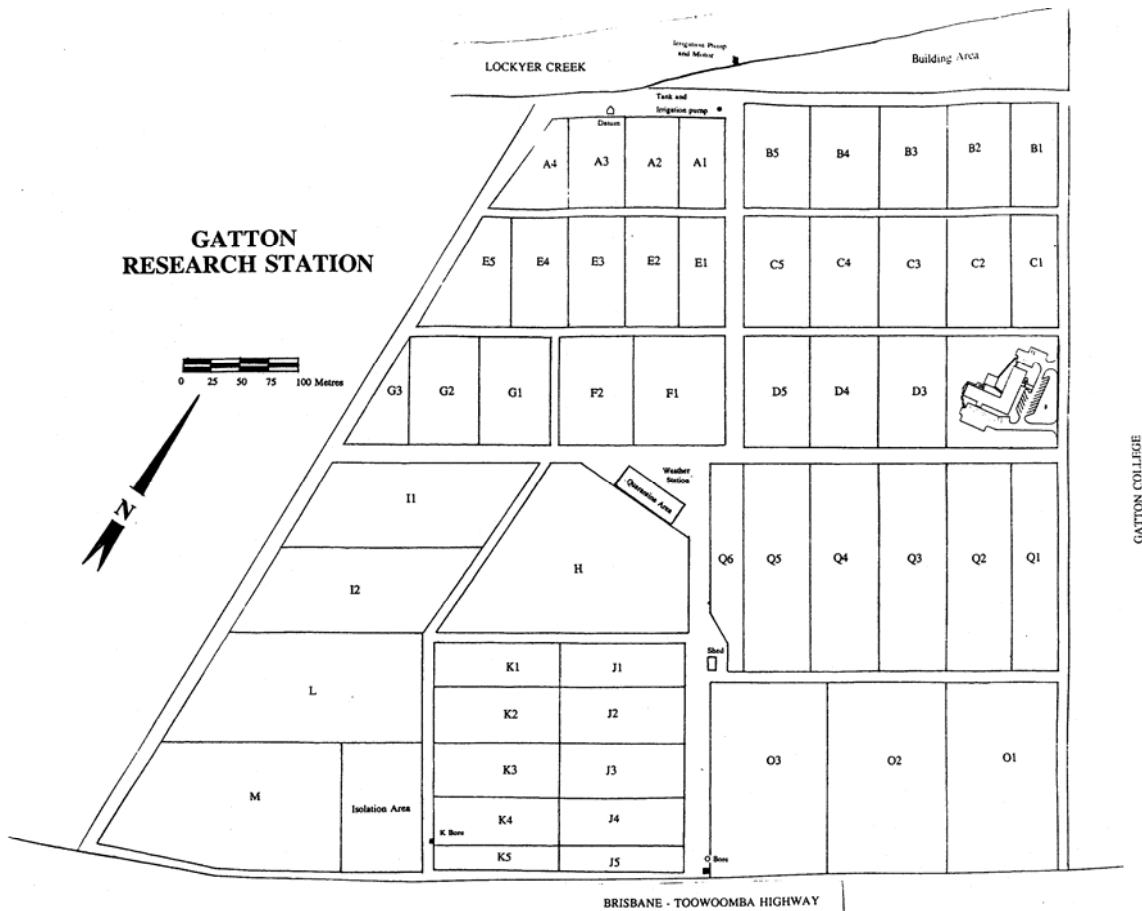
LQMS

A Laboratory Quality Management System is being documented for all laboratory facilities.

Appendix 1

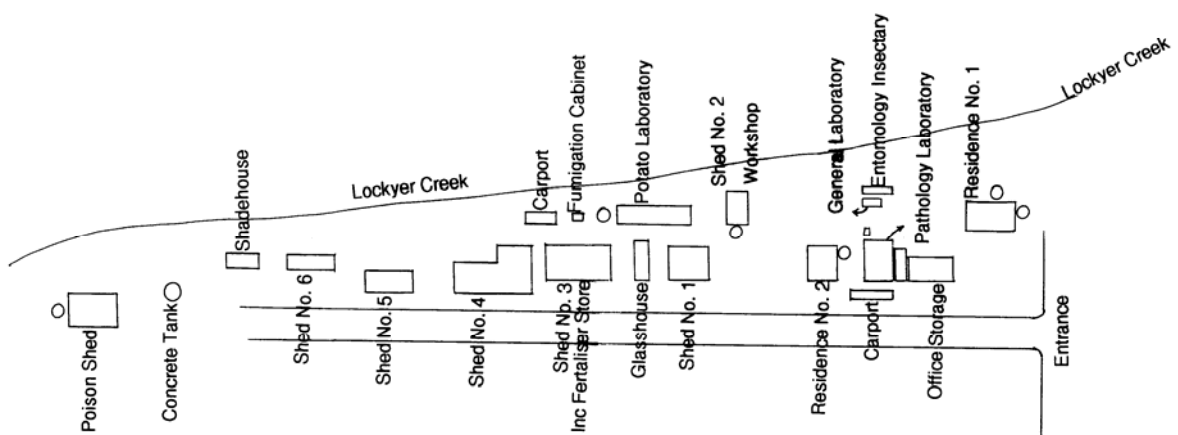
Site Plan

Layout - Gatton Research Station



Layout – Building Area (labs, sheds and houses)

GATTON RESEARCH STATION BUILDING AREA

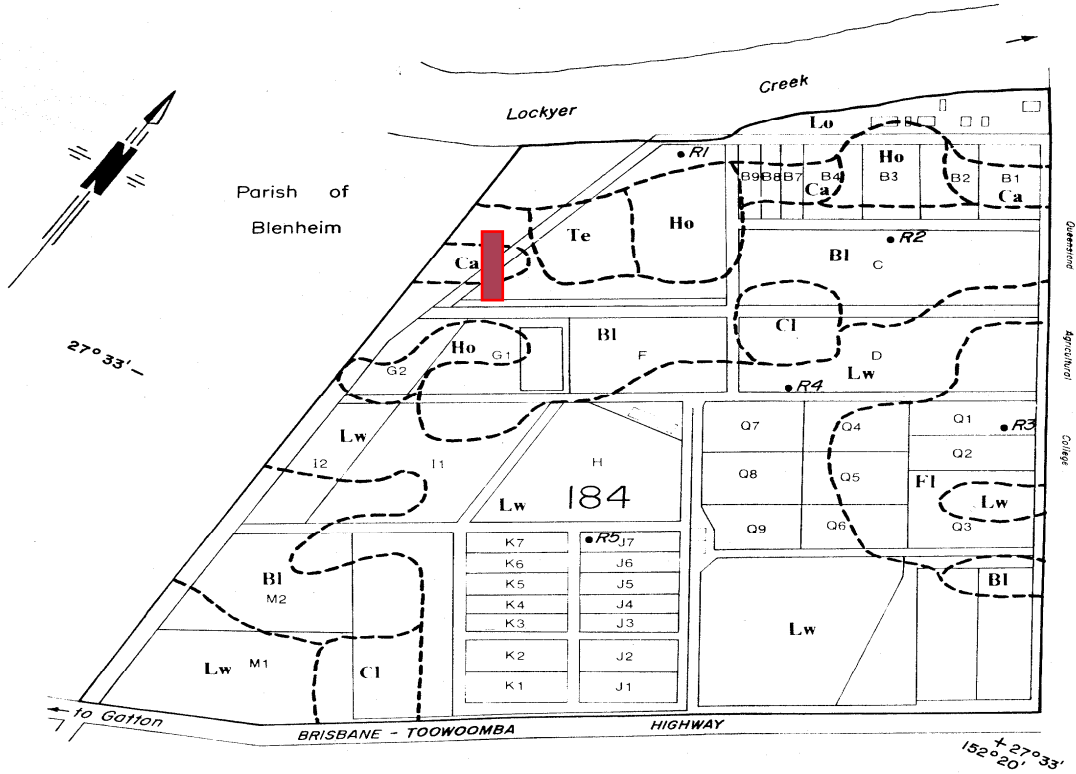


**GLR 6795
Gatton Research Station**

<i>Land Category:</i>	Operational. The land does not have intrinsic value to the community.
<i>Essential:</i>	The land is essential to one of the core operations of the Department of Primary Industries being a major site for research on horticultural and agricultural cropping and pastures, and is required to meet future needs.
<i>Appropriate Uses:</i>	Primary Industry Research – Horticultural and agricultural cropping and pastures and associated infrastructure.
<i>Management:</i>	Department of Primary Industries is responsible for the management of the property on behalf of the Government.
<i>Public Obligations:</i>	There are no apparent public obligations affecting this property. Site may have access for members of the public conducting business associated with core operations.
<i>Appropriateness of Leases and Licences:</i>	A lease or licence may only be issued for the purpose consistent with the core business of Gatton Research Station.

Department of Primary Industries contact

John Dulley
Manager (Administration)
Department of Primary Industries
Phone: 07 32393973



REFERENCE

MAP UNIT	MAJOR SOIL CHARACTERISTICS	GREAT SOIL GROUP*	PPF**
SOILS OF THE LEVEES			
L_o LOCKYER	Dark clay loam to light clay with dark or brown neutral to alkaline structured subsoil over friable, dark or brown D-horizons at 45-100 cm.	Prairie soils	Uf 6.32 Gn 3.43
Ca CAVENDISH	Dark clay loam to light clay with calcareous structured light-medium to medium clay subsoil.	Chernozems	Gn 3.43
Te TENTHILL	Dark, weakly self-mulching, cracking light to medium clay to 50-70 cm over friable brown D-horizon.	Black earths	Ug 5.16 Ug 5.17
Ho HOOPER	Dark, weakly self-mulching, cracking light clay to 15-30 cm over dark light to medium clay to 40-90 cm over brown, calcareous medium clay to 90-130 cm over friable brown D-horizon.	Black earths	Ug 5.15
SOILS OF THE ALLUVIAL PLAINS			
Lw LAWES	Dark, moderately self-mulching, cracking medium clay to 10-30 cm over dark clay becoming grey-brown or brown, calcareous medium to heavy clay with depth. This is underlain at 70-140 cm by a friable brown D-horizon. Variants with light-medium clay or medium-heavy clay surface soils are common.	Black earths	Ug 5.15 Ug 5.16
Bl BLENHEIM	Dark, weakly or moderately self-mulching, cracking, light to medium clay to 15-30 cm over dark medium to heavy clay to 60-110 cm over grey-brown or brown medium clay becoming brown calcareous light-medium clay at depth.	Black earths	Ug 5.15 Ug 5.16
Cl CLARENDON	Dark, moderately self-mulching, cracking medium to heavy clay to 20-25 cm over dark or grey heavy clay to 100 cm over grey or brown, calcareous heavy clay to 150 cm.	Black earths	Ug 5.15 Ug 5.16
F1 FLAGSTONE	Grey or dark, weakly crusting, moderately self-mulching, cracking light to medium clay to 15-30 cm over light grey or grey-brown and increasingly calcareous subsoil to 90-120 over friable, brown D-horizon.	Grey clays	Ug 5.16 Ug 5.2

* After Stace et al (1968). **A Handbook of Australian Soils".
 **Principal Profile Form (Northcote, 1979).

● R2 Soil sample site
 A, B, C, D. Block designation
 --- Soils boundary

QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRIES
GATTON RESEARCH STATION
SOILS
 by B. Powell and N. Christianos

Appendix 4 **Climatological Summary**

Gatton Research Station using data from 1968 to 2000

Site number 040436 Opened Jan 1968 Still Open

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Daily Maximum Temperature	31.4	30.5	29.7	27.0	23.7	21.0	20.5	22.2	25.3	27.8	29.8	31.3
Highest Temperature	44.2	39.5	39.5	36.5	32.0	28.0	30.0	34.4	37.2	40.6	42.2	44.5
Lowest Maximum Temperature	22.0	20.1	19.2	18.0	15.0	12.8	12.0	12.8	15.5	18.0	19.4	20.9
Mean number of days over 30°C	21.6	16.1	14.5	3.9	0.2	0.0	0.0	0.1	3.3	8.2	14.2	20.4
Mean number of days over 35°C	4.1	2.2	1.4	0.2	0.0	0.0	0.0	0.0	0.2	1.1	3.1	4.3
Mean Daily Minimum Temperature	19.3	19.1	17.3	14.1	11.1	7.5	6.3	6.8	9.6	13.0	15.8	18.1
Lowest Temperature	11.5	8.3	7.2	5.0	1.3	-1.9	-2.2	-0.5	0.0	4.0	3.3	8.3
Highest Minimum Temperature	28.0	25.4	29.0	21.3	20.5	16.6	16.3	16.1	20.0	22.0	24.5	25.9
Mean Number of days below 2°C	0.0	0.0	0.0	0.0	0.1	1.6	4.0	2.0	0.3	0.0	0.0	0.0
Mean Number of Days below 0°C	0.0	0.0	0.0	0.0	0.0	0.3	1.2	0.1	0.0	0.0	0.0	0.0
Mean Daily Terrestrial Minimum	16.8	16.8	14.9	12.0	9.0	5.3	4.0	3.9	6.7	10.5	13.3	15.5
Lowest Daily Terrestrial Minimum	2.8	8.5	3.0	0.1	-1.5	-3.8	-5.5	-4.5	-3.6	-1.5	-0.5	0.5
Number of Days Terrestrial below -1°C	0.0	0.0	0.0	0.0	0.1	1.2	3.1	2.3	0.4	0.1	0.0	0.0
Mean 9am Temperature	25.6	24.9	23.8	20.8	17.0	13.4	12.5	14.2	18.1	21.4	23.6	25.1
Mean 9am Relative Humidity	71.9	74.5	74.0	74.3	78.7	77.7	75.5	70.9	66.2	65.7	66.5	69.1
Mean 9am Cloud Cover	4.7	4.8	3.9	3.2	3.3	2.6	2.7	2.5	2.6	3.8	4.2	4.3
Mean Number of Days with Strong Wind	0.1	0.3	0.4	0.4	0.3	0.7	0.8	0.3	0.4	0.3	0.2	0.2
Mean Number of days with Gales	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Mean Daily Pan Evaporation	7.4	6.4	6.2	5.1	3.3	2.9	3.1	4.0	5.4	6.5	6.8	7.6
Mean Number of Days with Hail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Mean Number of Days with Frost	0.0	0.0	0.0	0.0	0.1	1.2	3.5	1.6	0.3	0.0	0.0	0.0
Mean Number of Days with Fog	0.2	0.1	0.2	0.2	0.2	0.4	0.3	0.2	0.1	0.1	0.1	0.3
Mean Number of Days with Thunder	0.5	0.3	0.4	0.1	0.0	0.1	0.0	0.0	0.2	0.5	1.1	1.1
Mean Monthly Rainfall	115.7	102.9	69.5	59.5	68.2	31.6	42.2	28.1	31.7	69.5	89.6	104.6
Highest Monthly Rainfall	482.1	278.2	174.6	363.6	439.6	195.8	300.5	100.1	90.2	241.6	213.2	267.2
Lowest Monthly Rainfall	22.6	14.8	4.4	0.0	2.6	0.0	0.0	0.0	0.0	8.8	4.4	30.9
Mean number of Rain Days	10.7	10.6	9.4	7.5	8.5	5.6	6.2	6.0	5.4	8.5	10.0	9.6
Highest number of Rain Days	22	18	17	20	18	11	15	14	14	15	17	17
Lowest number of Rain Days	2	3	4	0	2	0	0	0	0	3	2	4

