

Table S1. Weather data (temperatures, humidity, rainfall, wind information, pressures) from Wilburra Downs (Richmond, QLD – Australia) during all experimental period (September 2023 until 19 December 2023) obtained from Bureau of Meteorology [10].

Date	Temp		Rain	Max wind gust			9:00 AM					3:00 PM				
	Min	Max		Dir ¹	Spd ²	Time	Temp	RH ³	Dir ¹	Spd ²	MSLP ⁴	Temp	RH ³	Dir ¹	Spd ²	MSLP ⁴
	°C	°C		km/h	Local		°C	%	km/h		hPa	°C	%	km/h		hPa
1-Sept	9.1	31.7	0	NW	43	15:02	21.2	28	NE	24	1018.5	31	12	NNW	13	1013.5
2-Sept	7.9	33.2	0	NE	31	10:43	21.5	25	NNE	15	1016.9	32.8	11	NW	9	1011.9
3-Sept	9.1	33.1	0	NNW	41	09:41	24.6	27	N	24	1016.8	32.8	14	NNW	13	1011.8
4-Sept	14.2	33	0	NW	43	11:22	22.7	41	N	19	1016.9	32	17	NNE	17	1012.2
5-Sept	12.9	34.6	0	NNE	48	16:02	24.8	32	WSW	19	1017.2	33.8	16	E	7	1013
6-Sept	14.5	35.9	0	ENE	39	15:18	25.9	27	NE	11	1017	34.9	11	E	17	1012.6
7-Sept	15.8	35.8	0	ENE	28	14:50	24.6	37	N	7	1017.5	35	10	SE	13	1012.8
8-Sept	13.6	34.9	0	SSE	44	16:22	25	36	SE	20	1019.6	34.5	22	SSE	22	1015.4
9-Sept	15.3	35.3	0	SSE	39	15:43	22.2	20	E	22	1021.6	35	17	ESE	28	1015.1
10-Sept	15.1	34.2	0	ESE	43	23:59	24.5	29	ENE	13	1019.9	32.8	20	SSE	19	1015.9
11-Sept	17.2	32.2	0	ESE	44	00:01	23.5	44	ENE	17	1020.8	30.9	26	ESE	20	1016.3
12-Sept	14.1	30.1	0	ENE	61	10:43	23.1	39	ENE	31	1022.6	28.8	19	NNE	31	1018.3
13-Sept	13.5	30.6	0	NE	59	10:19	22.6	37	NE	28	1024	29.6	18	NE	26	1018.8
14-Sept	12	31.6	0	NE	52	10:33	23.7	33	NE	20	1024	30.9	15	SSW	7	1018.4

15-Se P	10	32.4	0	ESE	44	13:09	23.4	37	NN E	19	1023.1	31.2	18	ESE	26	1018
16-Se P	9.3	32.9	0	ESE	54	12:04	23.1	38	NE	11	1021.8	32.6	14	E	24	1016.5
17-Se P	14.2	32.2	0	E	52	13:23	24.1	37	NE	22	1021.8	31.8	15	ESE	24	1015.9
18-Se P	12.2	33.9	0	N	35	15:10	25.6	36	ENE	19	1019	33	18	NW	9	1013.5
19-Se P	16.3	34.2	0	WS W	28	13:23	25.5	44	ENE	13	1018.1	34	22	N	9	1012
20-Se P	18.4	36.2	0	SSW	30	12:23	28	42	N	20	1016.8	35.1	17	WS W	9	1011.6
21-Se P	14.1	37.8	0	SE	41	14:11	28.7	40	N	20	1016.3	36	13	SE	30	1011.6
22-Se P	16.2	38.2	0	SE	44	13:10	26.7	21	SE	19	1016	37.3	9	SE	24	1010.8
23-Se P	16.3	36.5	0	E	37	20:56	27.5	30	NE	17	1016.3	35.8	18	N	9	1011.1
24-Se P	18.1	34	0	ESE	37	10:26	25.4	45	E	20	1017.6	32.4	18	SE	19	1012
25-Se P	17.3	33.8	0	E	46	09:30	25.2	41	ENE	28	1017.7	32.6	15	SSE	13	1012
26-Se P	13.1	33.9	0	ESE	39	14:34	25.3	44	ENE	20	1018.6	33	17	SE	26	1012.9
27-Se P	13.2	34.6	0	E	46	13:15	26.1	43	NE	19	1019.2	33.7	14	ESE	31	1014.2
28-Se P	13	36.6	0	E	52	11:45	26.9	27	NE	17	1020.5	35.2	14	ESE	30	1015.3
29-Se P	15.2	36.2	0	E	61	13:52	26.3	30	ENE	24	1020.2	35.2	15	ESE	24	1014.8
30-Se P	15.7	34.6	0	ENE	48	15:58	24.2	39	E	15	1019.9	33.6	17	ESE	17	1013.2
1-Oct	17.4	35.6	0	SE	39	13:09	27.5	35	NE	19	1016.8	33.8	16	SSE	15	1011.8
2-Oct	13.9	35.9	0	E	41	12:46	27	40	ENE	13	1018	34.1	19	E	20	1012

3-Oct	16.2	35.9	0	WN W	30	14:14	26.9	47	NN E	13	1016.5	35	20	WN W	13	1011
4-Oct	19.1	35.4	0	W	44	16:19	28.1	46	W	20	1016.9	34.9	30	WS W	24	1011.6
5-Oct	13.9	33.1	0	SE	44	08:17	22.7	18	SE	31	1020.4	32	12	SSE	13	1015.1
6-Oct	12.8	35.1	0	S	31	12:20	23.2	19	SE	19	1019.4	34.2	10	SSE	24	1013.6
7-Oct	13.6	37.2	0	ESE	33	22:50	26.6	30	NE	13	1016.8	36.1	17	NW	11	1012.1
8-Oct	23.3	35	0	E	43	12:53	27.3	43	NE	22	1019.2	33.9	24	E	20	1014.6
9-Oct	18.2	34.1	0	E	41	13:38	25.2	45	NE	13	1020.9	32.7	20	E	13	1014.2
10-Oct	17	35	0	S	28	16:56	26.8	43	NN E	13	1017.7	33.1	22	E	11	1012.7
11-Oct	16.9	36.8	0	E	43	13:26	28.5	37	E	17	1017.7	35.5	16	ENE	13	1013.5
12-Oct	18.2	36.2	0	E	48	10:19	30.7	21	ENE	22	1019.2	35.1	15	SE	24	1014.4
13-Oct	19	38.1	0	SSW	39	15:57	30.3	25	NN E	11	1017.5	37.3	13	SSW	20	1013.2
14-Oct	13.6	37.2	0	SSW	30	15:27	26.4	15	SE	17	1016.7	36.8	10	SSW	13	1011.4
15-Oct	13.1	38.9	0	NW	35	10:36	29.9	19	N	17	1015.5	36.2	11	N	9	1010.7
16-Oct	14.9	38.4	0	SSW	48	14:37	29.6	10	WN W	19	1015.4	36.9	8	SSW	17	1011.7
17-Oct	15	38.7	0	SE	48	08:37	29.6	16	SE	30	1016.2	37.3	9	SSW	6	1012
18-Oct	17	39	0	N	31	09:27	31	15	NN E	17	1016.8	37.3	14	N	6	1012.5
19-Oct	21.5	37.5	0	SE	44	18:56	28.9	41	NN E	9	1016.7	35.1	22	NN E	9	1011.6
20-Oct	21.1	38.8	0	NE	52	12:42	31.3	33	N	19	1014.7	36.4	19	ENE	17	1009.5
21-Oct	24.1	38.8	0	SW	44	18:12	31.6	32	N	28	1014.2	37.9	19	WS W	2	1009.4
22-Oct	21.3	39.5	0	ESE	50	16:03	32.3	31	NN W	28	1015.4	36.8	21	NW	22	1010
23-Oct	16.1	39.6	0	SSW	44	15:32	31.7	16	SSE	19	1015	38.2	8	S	7	1009.9
24-Oct	17.3	40.5	0	WS W	33	14:10	33	13	ENE	11	1013.2	39.5	8	SW	22	1008.7
25-Oct	17	41.8	0	NN W	41	08:48	33.5	26	N	28	1013.3	41	10	ESE	9	1008.4
26-Oct	17.2	38.1	0	S	50	15:51	28.2	19	SE	26	1015.7	36.5	11	S	24	1011
27-Oct	17.7	34.2	0	SE	56	08:29	23.4	14	ESE	39	1019	33.4	9	SSE	28	1013.3
28-Oct	16	37.5	0	ESE	39	21:50	27.9	31	E	20	1016.4	37	18	W	15	1012

29-Oct	17.8	37.1	0	E	33	22:50	27.2	44	NE	11	1016.4	36.2	15	WNW	7	1010.5
30-Oct	22.1	38	0	NN E	33	07:26	28.6	38	NE	15	1015.4	36.8	18	SE	9	1009.9
31-Oct	19.1	39.9	0	SSE	35	16:09	29.2	32	NN E	15	1016.2	38.6	11	S	15	1010
1-Nov	18.2	41.1	0	S	28	14:27	32.3	20	N	13	1013.6	40.6	10	S	17	1008.5
2-Nov	21.1	41.7	0	SW	35	14:58	34.4	12	NN W	20	1012.2	41.2	10	SW	24	1007.2
3-Nov	20.9	41.4	0	SSW	35	15:02	29.8	25	NN E	11	1012.1	41.3	12	S	19	1006.4
4-Nov	21.6	40.8	0	SE	31	22:15	31.5	38	NN E	17	1011.9	40	18	WSW	17	1007.1
5-Nov	24.7	39.5	0	SW	43	16:17	32.2	40	NW	24	1012.8	38.6	14	WNW	15	1008.3
6-Nov	18.9	39.7	0	NW	37	13:55	29.8	45	NN E	17	1012	38.3	14	N	17	1006.5
7-Nov	24.3	39.2	0	ESE	48	21:04	28.8	45	NE	19	1013	37.4	16	N	9	1006.7
8-Nov	24.2	37.8	0	SE	57	17:01	30.3	41	NN E	15	1013	36.6	27	ESE	7	1006.5
9-Nov	24.1	39	0	SSE	37	15:03	30.3	45	NE	19	1013.9	37.1	22	ENE	9	1007.6
10-Nov	24.2	37.4	0	S	37	02:06	30.8	43	N	22	1013.7	35.5	24	SE	13	1009.7
11-Nov	26.1	40.1	0	ESE	46	15:53	32	33	NN E	19	1015.3	38.3	15	E	22	1010.5
12-Nov	22.4	39.8	0	ESE	50	16:12	31.4	33	ENE	9	1015.8	37.4	20	ESE	24	1010.2
13-Nov	21.2	39.1	0	SE	61	16:14	30.5	37	NN E	15	1014.3	38.5	14	E	20	1008.4
14-Nov	17.7	41.1	0	E	44	15:06	32.4	27	N	17	1012.7	39.5	11	E	17	1007.7
15-Nov	19.3	41.6	0				32.2	24	N	20	1012.5	40.3	13	SE	11	1007.2

16- No v	25. 4	42					34.4	38	NW	26	1011. 3	39.1	21	NW	19	1007. 1
17- No v	26. 6	42. 2		SSW	59	19: 28	36.1	22	E	17	1010	41.6	17	SSW	20	1006. 4
18- No v	24. 2	42. 6	0	S	37	14: 18	34.5	25	E	20	1010. 9	41.8	15	W	17	1006
19- No v	26. 9	38. 9	0	SSW	59	15: 25	34.8	27	NW	28	1012. 3	35.2	31	SSW	35	1010. 4
20- No v	21. 5	34. 6	0.6	E	39	02: 25	29.7	51	ENE	20	1014. 4	33.6	29	SSE	13	1011. 2
21- No v	24. 6	37. 5	0	NE	50	19: 37	29	52	NN E	15	1013. 6	36.8	25	SW	13	1009. 7
22- No v	21. 9	39. 2	0	SSW	65	15: 15	31.4	44	N	13	1013. 5	38.3	26	S	19	1007. 1
23- No v	21. 3	35. 8	16. 2	SSE	39	00: 25	26.2	66	ENE	13	1012. 7	34.3	37	S	13	1007. 9
24- No v	24	30. 9	0	SSE	41	14: 25	29.3	57	NN E	9	1010. 7	25.1	78	SSE	20	1010. 2
25- No v	20. 9	35. 3	0.6	W	31	13: 41	26.9	63	NN E	11	1010. 6	33.7	37	WS W	15	1006. 5
26- No v	23. 7	37	0	NE	41	13: 40	29.7	61	N	11	1009. 5	28.5	76	NW	6	1005. 8
27- No v	21. 8	30. 8	23. 6	W	54	19: 33	22.3	97	ESE	9	1010. 2	29	68	NN E	11	1005. 9
28- No v	20. 8	36. 3	21	NN W	31	08: 15	28.3	71	N	17	1010. 3	35	40	NW	9	1006. 2
29- No v	22	39. 8	0	NN W	33	11: 03	32.5	56	NW	17	1009. 4	38.1	28	N	13	1005. 5
30- No v	24. 2	38. 5	0	S	56	14: 47	33.3	46	N	9	1008. 8	26.4	73	SSW	35	1005. 6
1- De c	23. 5	38. 8	2.6	W	48	16: 36	31.9	52	NW	26	1008. 4	38	36	NW	26	1003. 9
2- De c	23. 1	30. 6	1.2	SW	44	12: 47	23.1	87	N	17	1011. 1	28.2	66	ENE	11	1008. 7

3- De c	23	38. 9	0	SSE	50	19: 42	30.6	59	NN W	20	1011. 9	38.2	31	WS W	11	1007. 6
4- De c	24. 8	40. 5	0.2	SSE	35	15: 40	33	44	NW	11	1011. 3	40.1	20	SE	17	1006. 8
5- De c	23. 5	40. 6	0	ESE	39	12: 36	33.7	39	NW	11	1011. 9	40.2	22	E	24	1006. 8
6- De c	24. 3	40. 2	0	ESE	44	12: 42	31.8	38	NE	15	1014	38.4	21	ESE	31	1008. 7
7- De c	20. 8	38. 1	0	ESE	52	14: 01	31.8	40	ENE	9	1012. 2	37.9	20	E	30	1007. 5
8- De c	19. 5	37. 7	0	E	46	15: 38	30.2	45	ENE	15	1012. 7	36.8	19	ESE	9	1007. 6
9- De c	20. 9	38. 7	0	E	35	22: 38	30.4	42	NN E	11	1011. 2	37.5	17	WS W	9	1005. 9
10- De c	23. 9	38. 8	0	S	35	12: 58	31.2	42	NN E	17	1009	37.9	24	ESE	7	1002. 8
11- De c	23. 2	39. 6	0	E	46	22: 28	31.7	43	NE	17	1007. 6	38.9	25	SSW	19	1002. 8
12- De c	26. 1	39. 8	0	E	56	21: 12	30.7	53	ESE	24	1008. 4	38.8	33	ESE	28	1003. 2
13- De c	26. 3	40	0	E	46	20: 31	31.4	47	ENE	24	1008. 8	37.3	32	E	22	1004. 4
14- De c	24. 4	39. 8	0	NE	43	16: 45	31.2	50	NE	22	1008. 6	37.3	37	NE	22	1004
15- De c	24. 6	39. 4	0	NE	37	17: 13	29.8	57	ENE	20	1007. 8	38	34	ENE	13	1003. 4
16- De c	25. 6	38. 3	0	NE	43	17: 43	30.5	54	NE	17	1007. 5	35.5	34	ENE	20	1003. 7
17- De c	25. 5	37. 8	0	NN E	43	13: 30	32.1	51	ENE	22	1007. 9	30.2	61	NE	28	1004. 8
18- De c	23. 6	38. 5	0	NE	41	20: 32	30.4	47	ENE	17	1009. 2	37.5	31	NE	13	1004. 9
19- De c	23. 9	41. 2	0	S	56	22: 26	31.3	38	NE	17	1009. 2	39.9	23	NN E	9	1003. 6

¹Dir is wind direction. ² Spd is wind speed. ³RH is relative humidity. ⁴ MSLP is mean sea level pressure.

Table S2. Weather variables (evaporation and temperature humidity index [THI]) during the experimental period – Trial 2 at Wilburra Downs (Richmond, QLD – Australia).

Date	Variable	
	Evaporation (mm) ¹	THI ²
11 Sept 2023	7.2	70
12 Sept 2023	6.9	66
13 Sept 2023	6.9	66
14 Sept 2023	7.1	66
15 Sept 2023	6.7	65
16 Sept 2023	6.8	65
17 Sept 2023	7.3	67
18 Sept 2023	7.2	67
19 Sept 2023	7.4	70
20 Sept 2023	8.2	72
21 Sept 2023	8.0	70
22 Sept 2023	9.0	70
23 Sept 2023	8.3	70
24 Sept 2023	7.7	71
25 Sept 2023	7.8	70
26 Sept 2023	7.1	68
27 Sept 2023	7.3	68
28 Sept 2023	8.0	68
29 Sept 2023	8.1	70
30 Sept 2023	7.7	70
1 Oct 2023	8.2	71
2 Oct 2023	7.5	69
3 Oct 2023	7.6	71
4 Oct 2023	7.7	73
5 Oct 2023	8.0	67
6 Oct 2023	8.1	67
7 Oct 2023	8.0	69
8 Oct 2023	8.5	75
9 Oct 2023	7.7	71
10 Oct 2023	7.7	71
11 Oct 2023	8.2	71
12 Oct 2023	8.8	70
13 Oct 2023	9.2	72
14 Oct 2023	8.6	68
15 Oct 2023	8.6	69
16 Oct 2023	9.2	69
17 Oct 2023	9.0	69
18 Oct 2023	9.3	71
19 Oct 2023	8.8	75
20 Oct 2023	9.2	74
21 Oct 2023	9.8	76
22 Oct 2023	9.4	75
23 Oct 2023	9.4	70
24 Oct 2023	9.8	71
25 Oct 2023	9.5	73
26 Oct 2023	9.1	71
27 Oct 2023	8.8	68

28 Oct 2023	8.3	71
29 Oct 2023	8.3	72
30 Oct 2023	9.1	75
31 Oct 2023	9.3	73
1 Nov 2023	9.8	72
2 Nov 2023	10.6	73
3 Nov 2023	10.1	74
4 Nov 2023	9.5	76
5 Nov 2023	9.9	77
6 Nov 2023	8.8	74
7 Nov 2023	9.5	77
8 Nov 2023	9.1	77
9 Nov 2023	9.3	77
10 Nov 2023	9.0	77
11 Nov 2023	10.4	77
12 Nov 2023	9.6	76
13 Nov 2023	9.3	75
14 Nov 2023	9.5	73
15 Nov 2023	9.8	74
16 Nov 2023	10.3	79
17 Nov 2023	11.2	78
18 Nov 2023	10.8	77
19 Nov 2023	10.0	78
20 Nov 2023	7.8	74
21 Nov 2023	8.8	78
22 Nov 2023	8.9	76
23 Nov 2023	7.3	77
24 Nov 2023	6.1	77
25 Nov 2023	7.3	76
26 Nov 2023	6.8	82
27 Nov 2023	5.0	77
28 Nov 2023	7.1	77
29 Nov 2023	8.6	78
30 Nov 2023	7.6	82
1 Dec 2023	8.5	79
2 Dec 2023	5.4	77
3 Dec 2023	8.4	79
4 Dec 2023	9.8	78
5 Dec 2023	9.7	77
6 Dec 2023	9.8	77
7 Dec 2023	8.8	74
8 Dec 2023	8.4	74
9 Dec 2023	9.0	75
10 Dec 2023	9.3	77
11 Dec 2023	9.2	77
12 Dec 2023	9.2	81
13 Dec 2023	9.5	80
14 Dec 2023	8.9	80
15 Dec 2023	8.7	80
16 Dec 2023	8.8	80
17 Dec 2023	7.9	81

18 Dec 2023	8.8	78
19 Dec 2023	9.8	78

¹ Evaporation (mm) was calculated according suggested by Linacre (1977) ² THI was calculated according suggested by Copley *et al.* [12].

References

10. BOM. *Bureau of Meteorology - Average annual, seasonal and monthly rainfall*. Available online: <http://www.bom.gov.au/climate/dwo/IDCJDW4100.latest.shtml> (Accessed on 28 December 2023).
12. Copley, J.P.; Engle, B.N.; Ross, E.M.; Speight, S.; Fordyce, G.; Wood, B.J.; Voss-Fels, K.P.; Hayes, B.J. Environmental variation effects fertility in tropical beef cattle. *Transl. Anim. Sci.* **2022**, *v.6 n.2*. txac035. <https://doi.org/10.1093/tas/txac035>.