

HOW TO CITE:

Morris CD, Kirkman KP, Zacharias PJK. Will the grass be greener on the other side of climate change? [supplementary material]. S Afr J Sci. 2022;118(11/12), Art. #13844. <https://doi.org/10.17159/sajs.2022/13844/suppl>

Supplementary table 1: Location and physiography of sample sites¹

Site	Location	Latitude (S)	Longitude (E)	Altitude (m asl)	Aspect (°)	Slope (°)	Classification
2	Umfolozi, HiP	28°14'20"	31°48'20"	145	26	5	Sweetveld
3	Umfolozi, HiP	28°19'00"	31°50'20"	274	68	9	Sweetveld
4	Umfolozi, HiP	28°19'10"	31°50'20"	259	26	8	Sweetveld
5	Umfolozi, HiP	28°19'20"	31°50'20"	332	0	0	Sweetveld
6	Hluhluwe, HiP	28°06'10"	32°02'30"	305	74	0	Sweetveld
7	Hluhluwe, HiP	28°05'06"	32°07'25"	122	180	5	Sweetveld
8	Mgambo Farm, Magudu	27°30'35"	31°40'10"	419	85	2	Sweetveld
9	Mgambo Farm, Magudu	27°30'35"	31°40'12"	305	95	6	Sweetveld
10	Mgambo Farm, Magudu	27°30'50"	31°40'00"	427	115	7	Sweetveld
11*	Rondebosch Farm, Magudu	27°46'40"	31°39'10"	488	130	5	Sweetveld
12	Mkuze Game Reserve	27°38'40"	32°09'20"	122	140	15	Sweetveld
13	Mkuze Game Reserve	27°38'40"	32°09'30"	183	40	12	Sweetveld
14	Mkuze Game Reserve	27°38'30"	32°09'45"	183	0	0	Sweetveld
15	Mkuze Game Reserve	27°36'40"	32°13'15"	122	0	0	Sweetveld
16	Mkuze Game Reserve	27°39'50"	32°14'30"	61	85	4	Sweetveld
17	Mkuze Game Reserve	27°40'00"	32°15'00"	61	0	0	Sweetveld
18	Highmoor Nature Reserve, UDP	29°19'15"	29°37'25"	2024	4	12	Sourveld
19*	Highmoor Nature Reserve, UDP	29°15'00"	29°38'40"	1844	0	15	Sourveld
20	Highmoor Nature Reserve, UDP	29°18'55"	29°38'50"	1814	145	19	Sourveld
21	Highmoor Nature Reserve, UDP	29°19'30"	29°37'10"	2057	60	12	Sourveld
22	Cathedral Peak, UDP	28°57'40"	29°14'20"	1768	175	4	Sourveld
23	Cathedral Peak, UDP	28°57'40"	29°14'05"	1783	35	15	Sourveld
24	Cathedral Peak, UDP	28°58'20"	29°15'05"	1844	0	0	Sourveld
25	Cathedral Peak, UDP	28°58'55"	29°14'30"	1899	151	15	Sourveld
26	Cathedral Peak, UDP	28°58'55"	29°14'31"	1899	10	15	Sourveld
27	Cathedral Peak, UDP	28°58'00"	29°16'00"	2057	60	28	Sourveld
28	Ukulinga Research Farm, PMB	29°39'48"	30°24'08"	820	90	10	Mixed veld
29	Ukulinga Research Farm, PMB	29°40'06"	30°24'15"	840	0	0	Mixed veld
30	Worlds View, PMB	29°34'49"	30°20'00"	884	80	15	Mixed veld
31*	Krantzkloof Nature Reserve, Kloof	29°45'18"	30°50'06"	152	180	26	Mixed veld
32	Krantzkloof Nature Reserve, Kloof	29°45'52"	30°51'23"	122	160	13	Mixed veld

*Location uncertain

HiP, Hluhluwe–iMfolozi Park; UDP, uKhahlamba–Drakensberg Park; PMB, Pietermaritzburg

Note: Site 1 was destroyed by Tropical Storm Domoina in 1984.

Supplementary table 2: Digestibility and nutrient content of *Themeda triandra* leaves sampled at 31 sites from July 1984 to March 1986 in KwaZulu-Natal¹

Site	Location	Month	Year	Digestibility (%)	N (%)	P (%)	K (%)	Ca (%)	Mg (%)	S (%)	Zn (mg/kg)
2	Umfolozi	Jul	1984	29.31	0.99	0.06	0.61	0.15	0.3	0.13	25
2	Umfolozi	Dec	1984	33.58	1.03	0.08	1.01	0.16	0.39	0.13	17
2	Umfolozi	Mar	1985	34.96	1.51	0.11	1.25	0.16	0.35	0.15	21
2	Umfolozi	May	1985	29.1	0.18	0.04	0.75	0.19	0.31	0.14	25
2	Umfolozi	Sep	1985	36.7	0.73	0.06	0.97	0.2	0.31	0.19	18
2	Umfolozi	Dec	1985	42.08	1.31	0.09	1.17	0.21	0.33	0.23	16
2	Umfolozi	Mar	1986	41.38	2.01	0.15	1.14	0.25	0.36	0.23	25
3	Umfolozi	Jul	1984	28.9	0.97	0.06	0.51	0.17	0.3	0.15	20
3	Umfolozi	Dec	1984	38.8	1.39	0.11	1.14	0.21	0.34	0.13	14
3	Umfolozi	Mar	1985	36.42	1.56	0.11	1.17	0.17	0.38	0.13	19
3	Umfolozi	May	1985	28.14	0.95	0.03	0.64	0.31	0.42	0.17	17
3	Umfolozi	Sep	1985	46.96	1.85	0.08	1.83	0.24	0.44	0.16	15
3	Umfolozi	Dec	1985	36.45	1.19	0.07	1.3	0.2	0.3	0.11	13
3	Umfolozi	Mar	1986	40.67	1.5	0.09	1.25	0.31	0.3	0.14	21
4	Umfolozi	Jul	1984	29.2	1.04	0.06	0.6	0.3	0.4	0.13	20
4	Umfolozi	Dec	1984	35.95	1.42	0.09	1.02	0.23	0.3	0.12	20
4	Umfolozi	Mar	1985	35.21	1.59	0.11	1.21	0.22	0.33	0.13	20
4	Umfolozi	May	1985	32.44	0.71	0.04	0.83	0.19	0.47	0.18	15
4	Umfolozi	Sep	1985	49.88	1.59	0.1	1.8	0.24	0.51	0.2	14
4	Umfolozi	Dec	1985	36.87	1.24	0.09	1.47	0.2	0.35	0.16	15
4	Umfolozi	Mar	1986	41.79	1.5	0.13	1.25	0.22	0.28	0.12	23
5	Umfolozi	Jul	1984	26.41	1.11	0.07	0.5	0.2	0.43	0.15	18
5	Umfolozi	Dec	1984	40.44	1.38	0.12	1.14	0.24	0.3	0.14	17
5	Umfolozi	Mar	1985	32.51	1.64	0.11	1.25	0.19	0.31	0.14	20
5	Umfolozi	May	1985	33.8	0.82	0.06	0.91	0.25	0.42	0.18	13
5	Umfolozi	Sep	1985	53.62	0.97	0.07	1.1	0.21	0.36	0.17	13
5	Umfolozi	Dec	1985	36.9	1.2	0.09	1.28	0.19	0.32	0.16	15
5	Umfolozi	Mar	1986	40.04	1.53	0.1	1.37	0.24	0.36	0.14	21
6	Hluhluwe	Jul	1984	26.83	1.31	0.08	0.5	0.27	0.55	0.17	20
6	Hluhluwe	Dec	1984	34.79	0.99	0.1	0.99	0.14	0.26	0.1	16
6	Hluhluwe	Mar	1985	34.81	1.36	0.11	1.05	0.16	0.32	0.12	18
6	Hluhluwe	May	1985	29.26	1	0.07	0.87	0.31	0.41	0.15	23
6	Hluhluwe	Sep	1985	40.89	1.57	0.13	1.77	0.25	0.36	0.15	20
6	Hluhluwe	Dec	1985	33.58	1.14	0.1	1.04	0.17	0.24	0.13	15
6	Hluhluwe	Mar	1986	37.34	1.29	0.1	1.01	0.2	0.38	0.12	15
7	Hluhluwe	Jul	1984	30.74	1.04	0.18	0.64	0.26	0.56	0.14	22
7	Hluhluwe	Dec	1984	35.68	1.55	0.16	1.17	0.14	0.31	0.11	19
7	Hluhluwe	Mar	1985	33.89	1.38	0.15	1.1	0.15	0.25	0.09	21
7	Hluhluwe	May	1985	26.91	1.18	0.18	0.92	0.26	0.41	0.12	18
7	Hluhluwe	Sep	1985	38.55	1.82	0.2	1.64	0.24	0.29	0.12	22
7	Hluhluwe	Dec	1985	33.1	1.3	0.16	1.16	0.2	0.22	0.09	19
7	Hluhluwe	Mar	1986	35.29	1.15	0.14	0.9	0.17	0.34	0.09	16

Site	Location	Month	Year	Digestibility (%)	N (%)	P (%)	K (%)	Ca (%)	Mg (%)	S (%)	Zn (mg/kg)
8	Mgambo Farm	Jul	1984	38.41	1.85	0.2	0.92	0.25	0.45	0.15	24
8	Mgambo Farm	Dec	1984	37.68	1.55	0.19	1.38	0.18	0.34	0.14	18
8	Mgambo Farm	Mar	1985	38.41	1.53	0.14	1.17	0.18	0.26	0.11	20
8	Mgambo Farm	May	1985	29.93	1.08	0.09	1.08	0.2	0.32	0.14	17
8	Mgambo Farm	Sep	1985	35.8	1.4	0.11	1.16	0.2	0.35	0.14	17
8	Mgambo Farm	Dec	1985	41.84	1.71	0.14	1.29	0.21	0.36	0.14	18
8	Mgambo Farm	Mar	1986	40.33	1.62	0.15	1.23	0.19	0.27	0.12	21
9	Mgambo Farm	Jul	1984	38.27	1.91	0.17	1.01	0.21	0.46	0.15	22
9	Mgambo Farm	Dec	1984	37.65	1.39	0.11	1.36	0.14	0.32	0.12	19
9	Mgambo Farm	Mar	1985	34.9	1.62	0.14	1.22	0.17	0.3	0.13	22
9	Mgambo Farm	May	1985	25.73	0.73	0.06	0.7	0.16	0.29	0.14	18
9	Mgambo Farm	Sep	1985	35.5	1.43	0.11	1.13	0.19	0.34	0.16	20
9	Mgambo Farm	Dec	1985	44.1	2.1	0.17	1.54	0.22	0.39	0.18	23
9	Mgambo Farm	Mar	1986	36.64	1.7	0.15	1.28	0.18	0.13	0.14	23
10	Mgambo Farm	Jul	1984	36.04	1.64	0.16	0.75	0.23	0.65	0.13	22
10	Mgambo Farm	Dec	1984	40.82	1.31	0.11	0.97	0.18	0.31	0.11	20
10	Mgambo Farm	Mar	1985	34.78	1.37	0.12	1.03	0.16	0.32	0.12	21
10	Mgambo Farm	May	1985	31.51	1.71	0.15	1.58	0.25	0.5	0.13	20
10	Mgambo Farm	Sep	1985	37.38	1.45	0.14	1.3	0.22	0.42	0.12	20
10	Mgambo Farm	Dec	1985	43.26	1.2	0.12	1.02	0.19	0.33	0.12	21
10	Mgambo Farm	Mar	1986	36.52	1.44	0.12	1.08	0.17	0.37	0.13	22
11	Rondebosch Farm	Jul	1984	31.05	0.92	0.08	0.6	0.12	0.3	0.17	20
11	Rondebosch Farm	Dec	1984	31.76	1.44	0.1	1.07	0.12	0.24	0.13	17
11	Rondebosch Farm	Mar	1985	35.54	1.66	0.13	1.15	0.26	0.23	0.14	18
11	Rondebosch Farm	May	1985	27.19	1.74	0.14	1.67	0.23	0.36	0.2	15
11	Rondebosch Farm	Sep	1985	35.6	1.68	0.12	1.69	0.19	0.33	0.21	14
11	Rondebosch Farm	Dec	1985	43.21	1.64	0.12	1.61	0.17	0.29	0.21	15
11	Rondebosch Farm	Mar	1986	37.31	1.74	0.14	1.2	0.27	0.24	0.15	19
12	Mkuze	Jul	1984	35.12	1.42	0.11	0.84	0.31	0.4	0.22	18
12	Mkuze	Dec	1984	35.33	1.47	0.09	1.01	0.22	0.37	0.16	17
12	Mkuze	Mar	1985	35.99	1.65	0.1	1.13	0.35	0.28	0.14	19
12	Mkuze	May	1985	31.46	1.98	0.15	1.84	0.32	0.5	0.22	17
12	Mkuze	Sep	1985	37.23	1.13	0.06	1.15	0.25	0.34	0.14	19
12	Mkuze	Dec	1985	37.49	1.65	0.1	1.51	0.2	0.29	0.16	18
12	Mkuze	Mar	1986	37.85	1.48	0.11	1.26	0.23	0.35	0.19	21
13	Mkuze	Jul	1984	34.93	1.64	0.13	0.95	0.34	0.48	0.18	25
13	Mkuze	Dec	1984	36.71	1.35	0.12	1.01	0.2	0.45	0.13	16
13	Mkuze	Mar	1985	35.75	1.5	0.11	1.2	0.33	0.29	0.12	20
13	Mkuze	May	1985	28.93	1.95	0.17	1.95	0.35	0.45	0.2	21
13	Mkuze	Sep	1985	35.84	1.89	0.14	1.9	0.29	0.38	0.17	18
13	Mkuze	Dec	1985	40.54	1.75	0.12	1.73	0.25	0.32	0.15	17
13	Mkuze	Mar	1986	37.1	1.15	0.1	1.1	0.2	0.32	0.14	16
14	Mkuze	Jul	1984	40.68	1.66	0.17	1.19	0.18	0.34	0.15	21
14	Mkuze	Dec	1984	37.91	1.36	0.13	1.17	0.13	0.27	0.13	15

Site	Location	Month	Year	Digestibility (%)	N (%)	P (%)	K (%)	Ca (%)	Mg (%)	S (%)	Zn (mg/kg)
14	Mkuze	Mar	1985	32.78	1.72	0.11	0.96	0.23	0.35	0.14	19
14	Mkuze	May	1985	30.77	1.59	0.12	0.92	0.26	0.36	0.17	23
14	Mkuze	Sep	1985	37.6	1.71	0.13	1.6	0.22	0.32	0.16	21
14	Mkuze	Dec	1985	42.72	1.83	0.15	2.18	0.2	0.3	0.16	19
14	Mkuze	Mar	1986	34.42	1.81	0.12	1.01	0.24	0.37	0.15	20
15	Mkuze	Jul	1984	30.82	1.55	0.12	1	0.15	0.4	0.15	19
15	Mkuze	Dec	1984	37.83	1.41	0.1	0.92	0.12	0.33	0.13	14
15	Mkuze	Mar	1985	34.51	1.44	0.11	1.16	0.22	0.28	0.12	18
15	Mkuze	May	1985	30.12	1.24	0.08	0.7	0.23	0.35	0.14	16
15	Mkuze	Sep	1985	36.02	1.43	0.1	1.29	0.22	0.32	0.14	16
15	Mkuze	Dec	1985	40.31	1.54	0.12	1.71	0.21	0.3	0.15	16
15	Mkuze	Mar	1986	41.39	1.25	0.14	1.54	0.12	0.3	0.14	18
16	Mkuze	Jul	1984	35.58	1.86	0.12	0.94	0.25	0.47	0.18	21
16	Mkuze	Dec	1984	35.57	1.47	0.1	0.9	0.15	0.35	0.14	14
16	Mkuze	Mar	1985	31.14	1.46	0.11	1	0.23	0.3	0.14	18
16	Mkuze	May	1985	27.21	0.94	0.08	0.55	0.25	0.28	0.17	14
16	Mkuze	Sep	1985	31.89	1.29	0.29	0.1	1.22	0.22	0.28	15
16	Mkuze	Dec	1985	35.86	1.57	0.12	1.71	0.21	0.29	0.12	17
16	Mkuze	Mar	1986	41.49	1.54	0.13	1.73	0.17	0.34	0.13	21
17	Mkuze	Jul	1984	35.91	1.47	0.15	0.83	0.19	0.35	0.12	16
17	Mkuze	Dec	1984	37.7	1.32	0.17	1.01	0.12	0.36	0.13	18
17	Mkuze	Mar	1985	37.45	1.88	0.18	1.35	0.24	0.38	0.12	22
17	Mkuze	May	1985	28.59	1.02	0.12	0.77	0.25	0.31	0.11	21
17	Mkuze	Sep	1985	45.17	1.99	0.2	1.97	0.23	0.44	0.14	24
17	Mkuze	Dec	1985	37.27	1.3	0.19	1.7	0.17	0.25	0.09	17
17	Mkuze	Mar	1986	43.59	1.3	0.19	1.73	0.15	0.33	0.14	21
18	Highmoor	Jul	1984	21.58	0.5	0.03	0.33	0.08	0.3	0.08	16
18	Highmoor	Dec	1984	42.52	1.7	0.14	1.22	0.13	0.39	0.12	16
18	Highmoor	Mar	1985	27.81	1.11	0.09	0.95	0.15	0.32	0.12	12
18	Highmoor	May	1985	26.33	0.5	0.03	0.7	0.21	0.4	0.11	9
18	Highmoor	Sep	1985	24.47	0.44	0.03	0.32	0.13	0.37	0.08	13
18	Highmoor	Dec	1985	31.48	1.28	0.1	0.93	0.18	0.3	0.12	12
18	Highmoor	Mar	1986	25.37	1.18	0.1	0.81	0.19	0.44	0.13	16
19	Highmoor	Jul	1984	21.46	0.54	0.03	0.4	0.11	0.26	0.08	19
19	Highmoor	Dec	1984	34.02	1.52	0.12	1.12	0.11	0.34	0.11	14
19	Highmoor	Mar	1985	24.51	1.13	0.08	0.91	0.18	0.35	0.11	17
19	Highmoor	May	1985	21.26	0.74	0.06	0.85	0.18	0.28	0.1	11
19	Highmoor	Sep	1985	20.59	0.53	0.03	0.47	0.14	0.3	0.07	21
19	Highmoor	Dec	1985	28.48	0.96	0.08	1.02	0.15	0.25	0.09	11
19	Highmoor	Mar	1986	27.26	1.02	0.08	0.84	0.16	0.28	0.09	14
20	Highmoor	Jul	1984	22.53	0.5	0.02	0.35	0.07	0.24	0.1	15
20	Highmoor	Dec	1984	32.26	1.51	0.11	1.02	0.13	0.34	0.15	12
20	Highmoor	Mar	1985	23.9	1.22	0.09	0.81	0.19	0.37	0.13	14
20	Highmoor	May	1985	21.92	0.49	0.03	0.57	0.26	0.41	0.12	14

Site	Location	Month	Year	Digestibility (%)	N (%)	P (%)	K (%)	Ca (%)	Mg (%)	S (%)	Zn (mg/kg)
20	Highmoor	Sep	1985	30.6	0.86	0.05	0.77	0.22	0.29	0.1	11
20	Highmoor	Dec	1985	35.31	1.15	0.08	0.91	0.19	0.22	0.1	10
20	Highmoor	Mar	1986	27.67	0.91	0.07	0.75	0.15	0.23	0.12	10
21	Highmoor	Jul	1984	20.07	0.45	0.02	0.19	0.07	0.34	0.09	21
21	Highmoor	Dec	1984	46.46	1.62	0.12	1.03	0.11	0.51	0.15	15
21	Highmoor	Mar	1985	27.45	1.24	0.08	0.82	0.15	0.36	0.12	13
21	Highmoor	May	1985	25.75	0.43	0.02	0.51	0.19	0.5	0.13	13
21	Highmoor	Sep	1985	24.06	0.32	0.02	0.22	0.12	0.3	0.08	10
21	Highmoor	Dec	1985	32.29	1.39	0.1	1.09	0.17	0.29	0.13	14
21	Highmoor	Mar	1986	30.22	0.97	0.07	0.84	0.19	0.2	0.13	14
22	Cathedral Peak	Jul	1984	19.76	0.37	0.01	0.15	0.07	0.26	0.09	16
22	Cathedral Peak	Dec	1984	34.83	1.3	0.1	0.92	0.15	0.35	0.16	15
22	Cathedral Peak	Mar	1985	26.96	0.98	0.07	0.73	0.18	0.36	0.15	16
22	Cathedral Peak	May	1985	20.98	0.37	0.02	0.51	0.16	0.25	0.13	18
22	Cathedral Peak	Sep	1985	19.71	0.33	0.02	0.26	0.1	0.23	0.08	16
22	Cathedral Peak	Dec	1985	23.65	0.54	0.04	0.37	0.1	0.25	0.1	14
22	Cathedral Peak	Mar	1986	30.89	0.93	0.07	0.66	0.14	0.31	0.16	14
23	Cathedral Peak	Jul	1984	23.46	0.44	0.01	0.16	0.08	0.23	0.08	16
23	Cathedral Peak	Dec	1984	35.98	1.15	0.08	0.97	0.12	0.29	0.14	12
23	Cathedral Peak	Mar	1985	26.6	1.01	0.06	0.74	0.15	0.31	0.15	15
23	Cathedral Peak	May	1985	23.76	0.33	0.02	0.46	0.15	0.26	0.13	13
23	Cathedral Peak	Sep	1985	23.79	0.39	0.03	0.36	0.09	0.21	0.1	13
23	Cathedral Peak	Dec	1985	33	1	0.08	0.5	0.12	0.29	0.14	12
23	Cathedral Peak	Mar	1986	26.88	0.9	0.05	0.7	0.15	0.3	0.18	15
24	Cathedral Peak	Jul	1984	24.53	0.42	0.01	0.12	0.07	0.19	0.08	20
24	Cathedral Peak	Dec	1984	38.14	1.32	0.09	0.91	0.14	0.35	0.16	14
24	Cathedral Peak	Mar	1985	24.89	1.15	0.06	0.75	0.15	0.36	0.14	16
24	Cathedral Peak	May	1985	23.37	0.28	0.01	0.36	0.11	0.26	0.13	13
24	Cathedral Peak	Sep	1985	23.67	0.35	0.02	0.24	0.09	0.23	0.09	19
24	Cathedral Peak	Dec	1985	25.24	0.56	0.04	0.37	0.1	0.27	0.1	18
24	Cathedral Peak	Mar	1986	27.83	0.89	0.06	0.64	0.14	0.36	0.14	15
25	Cathedral Peak	Jul	1984	19.13	0.41	0.02	0.22	0.06	0.22	0.07	19
25	Cathedral Peak	Dec	1984	36.51	1.34	0.09	1.11	0.13	0.32	0.14	14
25	Cathedral Peak	Mar	1985	28.4	1.04	0.06	0.93	0.14	0.33	0.12	13
25	Cathedral Peak	May	1985	24.47	0.36	0.01	0.54	0.14	0.34	0.13	13
25	Cathedral Peak	Sep	1985	22.32	0.35	0.02	0.22	0.11	0.27	0.07	12
25	Cathedral Peak	Dec	1985	24.77	0.55	0.03	0.38	0.12	0.27	0.07	13
25	Cathedral Peak	Mar	1986	29.82	0.89	0.05	0.8	0.15	0.32	0.11	14
26	Cathedral Peak	Jul	1984	21.46	0.44	0.01	0.21	0.07	0.2	0.1	45
26	Cathedral Peak	Dec	1984	35.82	1.19	0.08	0.9	0.11	0.3	0.2	13
26	Cathedral Peak	Mar	1985	25.77	1.02	0.06	0.85	0.13	0.26	0.14	13
26	Cathedral Peak	May	1985	26.16	0.35	0.02	0.62	0.13	0.31	0.15	13
26	Cathedral Peak	Sep	1985	22.74	0.42	0.01	0.26	0.09	0.24	0.1	12
26	Cathedral Peak	Dec	1985	24.93	0.64	0.02	0.36	0.1	0.26	0.12	13

Site	Location	Month	Year	Digestibility (%)	N (%)	P (%)	K (%)	Ca (%)	Mg (%)	S (%)	Zn (mg/kg)
26	Cathedral Peak	Mar	1986	30.18	1	0.05	0.72	0.16	0.33	0.19	16
27	Cathedral Peak	Jul	1984	21.16	0.61	0.02	0.14	0.08	0.29	0.12	32
27	Cathedral Peak	Dec	1984	36.88	1.35	0.08	0.85	0.13	0.32	0.22	13
27	Cathedral Peak	Mar	1985	28.65	1.28	0.08	0.82	0.14	0.28	0.17	13
27	Cathedral Peak	May	1985	25.63	0.33	0.01	0.5	0.18	0.27	0.17	12
27	Cathedral Peak	Sep	1985	22.68	0.38	0.03	0.31	0.1	0.21	0.11	11
27	Cathedral Peak	Dec	1985	38.57	1.45	0.1	0.94	0.15	0.29	0.2	13
27	Cathedral Peak	Mar	1986	29.22	0.94	0.06	0.65	0.17	0.35	0.2	13
28	Ukulinga	Jul	1984	35.41	0.92	0.07	0.85	0.16	0.4	0.18	24
28	Ukulinga	Dec	1984	36.5	1	0.09	0.83	0.17	0.4	0.21	18
28	Ukulinga	Mar	1985	38.2	1.77	0.12	1.15	0.15	0.5	0.24	28
28	Ukulinga	May	1985	36.03	0.68	0.05	0.83	0.16	0.43	0.19	19
28	Ukulinga	Sep	1985	34.8	1.17	0.1	0.88	0.16	0.37	0.18	30
28	Ukulinga	Dec	1985	38.5	1.23	0.09	0.83	0.17	0.4	0.21	18
28	Ukulinga	Mar	1986	31.37	1.13	0.09	0.97	0.18	0.28	0.19	22
29	Ukulinga	Jul	1984	37.61	1.33	0.1	0.92	0.19	0.42	0.2	12
29	Ukulinga	Dec	1984	39.53	1.23	0.06	0.57	0.12	0.47	0.21	15
29	Ukulinga	Mar	1985	35.81	1.43	0.08	0.7	0.17	0.5	0.23	18
29	Ukulinga	May	1985	30.84	0.7	0.04	0.68	0.19	0.42	0.2	15
29	Ukulinga	Sep	1985	44.38	1.96	0.16	1.16	0.19	0.42	0.2	23
29	Ukulinga	Dec	1985	37.43	1.02	0.06	0.6	0.18	0.48	0.19	13
29	Ukulinga	Mar	1986	38.76	1.43	0.09	0.86	0.19	0.37	0.21	20
30	Worlds View	Jul	1984	30.86	1.58	0.11	0.98	0.25	0.31	0.18	18
30	Worlds View	Dec	1984	32.24	1.07	0.08	0.9	0.11	0.28	0.13	15
30	Worlds View	Mar	1985	31.28	1.41	0.1	0.8	0.16	0.29	0.14	19
30	Worlds View	May	1985	30.51	0.86	0.04	0.61	0.25	0.32	0.18	15
30	Worlds View	Sep	1985	47.28	2.29	0.19	1.36	0.25	0.31	0.19	21
30	Worlds View	Dec	1985	35.75	1.11	0.07	0.98	0.16	0.25	0.13	16
30	Worlds View	Mar	1986	34.28	1.26	0.08	0.82	0.15	0.29	0.16	27
31	Krantzkloof	Jul	1984	37	1.6	0.11	1.16	0.19	0.31	0.18	19
31	Krantzkloof	Dec	1984	31.68	1.15	0.07	0.91	0.1	0.28	0.14	17
31	Krantzkloof	Mar	1985	29.56	1.69	0.12	1.02	0.19	0.28	0.15	25
31	Krantzkloof	May	1985	28.39	0.97	0.04	0.77	0.2	0.27	0.15	19
31	Krantzkloof	Sep	1985	47.5	2.34	0.18	1.44	0.18	0.35	0.2	20
31	Krantzkloof	Dec	1985	36.54	1.18	0.07	0.96	0.15	0.25	0.15	12
31	Krantzkloof	Mar	1986	33.85	1.15	0.07	0.84	0.15	0.3	0.17	27
32	Krantzkloof	Jul	1984	37.13	1.07	0.08	0.96	0.22	0.39	0.15	17
32	Krantzkloof	Dec	1984	32.79	0.96	0.06	0.91	0.09	0.32	0.12	14
32	Krantzkloof	Mar	1985	34.05	1.25	0.08	0.86	0.16	0.33	0.12	20
32	Krantzkloof	May	1985	34.48	0.79	0.05	0.82	0.19	0.48	0.15	17
32	Krantzkloof	Sep	1985	39.78	1.36	0.12	1.1	0.25	0.3	0.16	18
32	Krantzkloof	Dec	1985	36.91	1.2	0.09	0.95	0.19	0.34	0.1	18
32	Krantzkloof	Mar	1986	37.77	1.18	0.08	0.77	0.2	0.31	0.12	29

Supplementary table 3: Topsoil (0–200 mm) elements and physical characteristics measured at 31 sites in KwaZulu-Natal¹

Site	K	Ca	Mg	Na	Exchangeable acidity	P	K	Ca	Mg	Na	Exchangeable acidity	Effective cation exchange capacity	pH	Acid saturation	Field moisture capacity	Sand	Silt	Clay	Organic matter
	(m _{eq} /100 g)					(mg/kg)					(m _{eq} /100 g)		(%)	(kg _{water} /kg _{soil})	(%)	(%)	(%)	(%)	
2	0.34	13.26	8.09	0.27	0.02	0	134	2658	984	61	2	219.8	5.3	0.1	0.4399	37.6	12.7	49.7	3.047
3	0.63	16.75	9.2	0.22	0.03	3	247	3358	1118	50	3	298.3	5.3	0.1	0.4446	37	8.7	54.3	3.591
4	1.15	9.79	3.84	0.14	0.03	0	450	1963	467	32	3	149.5	5.1	0.2	0.4872	50.8	7.7	41.3	3.537
5	0.88	14.04	8.26	0.3	0.03	4	343	2814	1004	68	3	235.1	5.3	0.1	0.4913	60.6	10.7	46.5	3.863
6	1.3	12.52	8.33	0.19	0.02	1	508	2509	1013	43	2	223.6	5	0.1	0.5466	33	18.2	48.8	4.97
7	0.42	18.32	7.53	0.28	0.04	11	165	3671	916	65	4	265.9	5.4	0.2	0.5194	32.9	23	44.1	5.205
8	0.98	14.53	7.92	0.14	0.03	4	382	2911	963	32	3	236	5.5	0.1	0.4708	51.6	10.8	37.6	3.41
9	0.42	12	6.51	0.17	0.04	1	165	2405	792	38	4	191.4	5.3	0.2	0.4851	45.8	8.4	45.8	3.718
10	0.31	18.42	9.16	0.25	0.03	4	120	3692	1113	58	3	271.7	5.7	0.1	0.5203	40.2	5.8	54	4.788
11	0.57	5.3	4.68	0.21	0.03	0	224	1062	569	49	3	107.9	5	0.3	0.3663	62.8	15.6	21.6	2.758
12	0.59	3.72	3.9	0.23	0.02	2	231	746	474	52	2	84.6	4.8	0.3	0.4577	55.5	22	22.5	2.485
13	1.58	11.65	5.55	0.07	0.02	2	619	2335	675	15	1	188.7	5.1	0.1	0.5622	39.2	17.1	43.7	4.879
14	1.06	6.9	5.19	0.74	0.02	1	413	1383	632	170	2	139.1	5.2	0.2	0.4174	30.7	12.8	56.5	2.72
15	1.02	4.45	3.08	0.1	0.02	0	398	891	375	22	1	86.7	5.3	0.2	0.3634	71.9	1.9	26.2	1.469
16	0.81	3.82	2.52	0.06	0.02	0	316	766	307	14	1	72.3	5	0.2	0.3401	70	2.7	27.3	2.031
17	1.38	10.16	5.78	0.25	0.02	3	538	2036	703	58	2	175.9	5.3	0.1	0.477	58.6	10.1	31.3	3.083
18	0.23	0.77	0.35	0.02	1.44	3	89	154	42	4	130	28.1	4.3	51.5	0.6429	57.2	9.7	33.1	6.257
19	0.42	1.21	0.61	0.03	3.98	2	164	243	74	7	359	62.5	4	63.7	0.7767	49.2	13.4	37.4	5.985
20	0.22	0.87	0.39	0.02	1.92	6	88	174	48	6	173	34.2	4.2	55.9	0.7639	58.6	3	38.4	7.744
21	0.31	0.77	0.54	0.08	0.94	1	120	153	65	18	85	26.4	4.4	35.7	0.8664	49	18.4	32.6	7.944
22	0.3	1.09	0.98	0.05	0.83	0	118	219	120	11	74	32.5	4.3	25.4	0.663	53.4	14.5	32.1	7.418
23	0.34	1.19	1.24	0.06	2.15	0	133	239	151	13	193	49.8	4.1	43.1	0.6454	17.8	19	63.2	6.91
24	0.28	1.26	0.93	0.04	1.02	0	111	253	113	10	92	35.3	4.3	28.7	0.665	9.4	26.9	63.7	6.638
25	0.24	1.51	1.49	0.03	1.6	0	93	303	181	7	144	48.7	4.3	32.9	0.8641	46.5	21.7	31.8	7.799
26	0.28	2.75	4.38	0.03	2.07	0	110	551	532	7	186	95.1	4.2	21.8	0.6134	30.7	14.9	54.4	5.151
27	0.19	1.18	1.33	0.05	1.4	0	75	236	161	12	126	41.5	4.3	33.7	0.5614	20.6	21.2	58.2	7.127
28	0.19	13.44	8	0.24	0.09	10	74	2694	973	56	8	475.2	4.9	0.4	0.262	15.1	20.1	64.8	4.79
29	0.15	8.23	5.48	0.3	0.15	1	59	1649	667	69	14	143.1	4.6	1	0.3401	34.2	28.4	37.4	4.22
30	0.32	1.21	1.39	0.08	1.3	1	127	243	169	19	117	43	4.3	30.2	0.4577	48.4	24.3	27.3	4.05
31	0.14	0.21	0.59	0.1	1.8	1	55	42	72	24	162	28.4	4.1	63.3	0.5622	14.4	7	78.6	3.64
32	0.11	0.29	0.35	0.03	1.54	3	45	58	43	7	138	23.2	4.1	66.2	0.4174	41	49.1	9.9	1.94

Reference

1. Zacharias PJ. The seasonal patterns in plant quality in various ecological zones in Natal [MSc thesis]. Pietermaritzburg: University of Natal; 1990. <https://researchspace.ukzn.ac.za/handle/10413/20233>