Electric supplementary materials

Title:

A global comparison of the nutritive values of forage plants grown in contrasting environments

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Content:

Tables S1–S2

Table S1 Articles included in the database including author, year of publication, country, site name, site latitude (lat) and longitude (long), mean annual rainfall (MAR), mean annual temperature (MAT), altitude (alt) and bioclimatic zone. Zones were allocated as per the Koppen-Geiger classification. Note that some articles refer to more than one site.

Reference	Country	Lat	Long	MAR	MAT	Alt	Zone
Ajayi et al. 2008	Nigeria	7.25	3.75	1349.1	26.2	161	Equatorial
Akgun et al. 2008	Turkey	39.92	41.27	37.9	4.4	1850	Tundra
Al-Masri 2013	Syria	35.37	39.77	148.4	20.6	203	Arid
Albayrak and Türk 2013	Turkey	37.75	30.55	498.1	12.8	1035	Temperate
Al-Ghumaiz and Motawei 2011	Saudi Arabia	26.31	43.77	160.6	24.7	652	Arid
Amole et al. 2015	Nigeria	7.00	3.50	1037.0	-	155	Equatorial
Andrzejewska et al. 2016	Poland	54.08	18.82	600.5	8.3	4	Temperate
Andrzejewska et al. 2016	Poland	53.20	17.85	566.6	-	95	Temperate
Annese et al. 2006	Italy	41.10	15.85	450.0	-	180	Temperate
Balseca et al. 2015	Ecuador	-0.23	-79.25	2700.0	23.5	425	Equatorial
Beecher et al. 2015	Ireland	52.16	-8.26	1040.0	10.0	70	Temperate
Bélanger and Mcqueen 1997	Canada	45.92	-66.60	1065.0	5.6	26	Tundra
Berhane et al. 2006	Ethiopia	13.46	39.02	-	-	1375	Temperate
Bryant et al. 2012	New Zealand	-43.63	172.47	581.2	11.5	22	Temperate
Callow et al. 2003	Australia	-27.77	152.67	815.0	19.9	40	Temperate
Catanese et al. 2009	Argentina	-37.18	-62.13	602.7	15.9	181	Temperate
Cherney and Cherney 1997	United States	41.11	-73.81	1327.0	11.5	100	Temperate
Cherney and Cherney 1997	United States	42.44	-76.50	963.9	8.4	120	Tundra
Conaghan et al. 2008	Ireland	53.50	-6.67	877.3	6.3	83	Temperate
Čop et al. 2009	Slovenia	46.05	14.47	914.8	10.8	300	Temperate
Distel et al. 2005	Argentina	-38.45	-63.75	400.0	15.0	95	Temperate
Dong et al. 2003	China	37.67	103.53	385.7	-1.0	3000	Arid
dos Santos et al. 2003	Brazil	-8.01	-34.95	2310.3	25.7	23	Equatorial
Drobná and Jančovič 2006	Slovakia	48.59	17.83	595.0	9.2	163	Temperate
Ducati et al. 2015	Brazil	-24.56	-54.07	450.0	22.5	419	Temperate
Elgersma et al. 2014	Denmark	56.48	9.57	-	-	51	Temperate
Fraser et al. 2004	UK	52.42	-4.08	1174.0	10.0	230	Temperate
Gierus et al. 2012	Germany	54.45	9.95	811.0	10.2	20	Temperate
Golaszewska et al	Poland	53.59	19.86	626.2	7.4	151	Temperate
Griggs et al. 2007	United States	41.77	-111.82	509.6	9.1	1406	Tundra
Haferkamp and Grings 2002	United States	46.37	-105.08	498.3	8.2	719	Arid
Hirata et al. 2008	Japan	31.98	131.47	2378.0	17.3	11	Temperate
Homolka et al. 2012	Czech Republic	50.04	14.63	626.0	8.9	240	Temperate
Kambashi et al. 2014	DRC	5.42	14.82	-	-	926	Equatorial
Karadag and Buyukburc 2004	Turkey	40.22	36.02	471.9	11.8	623	Temperate
Keating and O'Kiely 2000	Ireland	53.50	-6.67	877.3	6.3	92	Temperate
King et al. 2012	Ireland	53.50	-6.67	877.3	6.3	83	Temperate
Kobayashi et al. 2008	Japan	35.17	132.50	1603.9	15.9	53	Temperate

Reference	Country	Lat	Long	MAR	MAT	Alt	Zone
Lee et al. 2001	UK	52.37	-4.08	1174.0	10.0	100	Temperate
Maasdorp et al. 1999	Zimbabwe	-17.50	31.03	815.0	18.3	1480	Temperate
McCartney et al. 2008	Canada	52.82	-104.60	439.0	0.7	483	Tundra
McCartney et al. 2008	Canada	52.47	-113.73	466.0	2.4	855	Tundra
Mceniry et al. 2014	Ireland	53.50	-6.67	877.3	6.3	83	Temperate
Miguel et al. 2012	Brazil	-27.78	-50.31	1578.1	20.7	920	Temperate
Mtengeti et al. 2008	Tanzania	-5.12	37.63	900.0	-	400	Equatorial
Mupangwa et al. 1997	Zimbabwe	-17.65	31.61	848.0	29.0	1254	Temperate
Nashiki et al. 2005	Japan	39.73	141.13	1180.0	9.3	110	Tundra
Ramirez 2007	Mexico	25.72	-100.03	500.0	22.0	393	Arid
Ramirez et al. 2009	Mexico	25.41	-99.78	360.0	22.0	272	Arid
Safari et al. 2011	Tanzania	-4.42	35.20	646.0	-	1791	Equatorial
Sahin et al. 2012	Turkey	39.91	41.27	409.4	5.7	1905	Tundra
Santos et al. 2016	Brazil	0.00	0.00	-	-	-	Arid
Skladanka et al. 2010	Czech Republic	49.52	15.97	617.0	6.9	560	Temperate
Smit et al. 2005	Netherlands	51.97	5.67	771.4	9.3	7	Temperate
Stout et al. 1997	Canada	50.70	-120.40	257.0	9.5	349	Tundra
Suleiman et al. 1999	Canada	53.76	-113.34	455.8	3.0	674	Tundra
Surmen et al. 2013	Turkey	41.24	36.51	709.3	14.6	4	Temperate
Taffarel et al. 2016	Brazil	-24.56	-54.07	1720.0	22.5	420	Temperate
Tas et al. 2005	Netherlands	51.97	5.67	771.4	9.3	7	Temperate
Tefera et al. 2009	Swaziland	-26.89	31.94	-	-	116	Temperate
Tefera et al. 2009	Swaziland	-26.22	31.92	-	-	259	Temperate
Ulyatt et al. 2002	New Zealand	-35.30	173.90	-	-	83	Temperate
Weller and Cooper 2001	UK	52.27	-4.08	1823.8	10.0	257	Temperate
Yayneshet et al. 2009	Ethiopia	13.70	40.25	519.0	21.6	143	Arid
Yayneshet et al. 2009	Ethiopia	13.72	39.53	500.0	19.4	2000	Arid
Zemenchik et al. 2002	United States	43.30	-89.35	-	-	317	Tundra
Zemenchik et al. 2002	United States	42.83	-90.78	-	-	313	Tundra
Zhao et al. 2012	Mongolia	42.26	118.93	380.0	4.5	900	Arid

Table S2 Mean dry matter (DM), acid detergent lignin (ADL), acid detergent fibre (ADF), mineral ash (Ash), crude protein (CP), neutral detergent fibre (NDF), dry matter digestibility (DMD) and organic matter digestibility (OMD). All values are states as percent by dry matter (% DM). Hybrids are denoted by an "x".

Species	ADF	ADL	Ash	CP	DM	NDF	DMD	OMD
Acacia boliviana	30	-	-	16	91	59	-	57
Acacia etbaica	25	11	7	17	91	40	-	-
Acacia seyal	22	7	8	17	89	38	-	-
Aeschynomene histrix	31	8	8	21	40	62	-	-
Agropyron cristatum	31	-	-	17	-	-	64	8
Albizia amara	34	16	7	21	91	58	-	-
Alopecurus pratensis	33	-	-	15	-	58	-	-
Andropogon gayanus	47	16	10	7	93	64	-	-
Aristida adscensionis	50	9	-	5	-	79	41	-
Aristida longiseta	-	-	-	-	-	87	-	-
Aristida sciurus	38	-	-	5	90	61	-	-
Arrhenatherum elatius	-	-	-	8	-	61	-	74
Artemisia herba-alba	47	-	10	10	-	57	-	-
Astragalus spinosus	53	-	8	10	-	64	-	-
Avena strigosa	31	4	10	16	-	55	73	-
Balanites aegyptiaca	29	11	11	16	91	42	-	-
Bauhinia cheilantha	50	15	4	12	47	68	54	-
Bothriochloa insculpta	44	8	-	6	90	74	47	-
Bouteloua curtipendula	-	6	-	11	-	74	-	-
Brachiaria brizantha	47	20	2	8	22	73	62	-
Brachiaria decumbens	46	18	-	9	23	71	63	-
Brachiaria eruciformis	37	-	-	5	92	64	-	-
Brachiaria fasciculata	-	6	-	14	-	64	-	-
Brachiaria ruziziensis x decumbens	49	19	-	8	23	71	62	-
Brachypodium pinnatum	-	-	-	9	-	73	-	-
Bromus inermis	30	-	7	15	-	54	70	15
Calliandra calothyrsus	-	-	-	17	90	51	-	51
Capparis spinosa	30	-	14	23	-	41	-	-
Capparis tomentosa	27	10	10	18	92	45	-	-
Carum carvi	27	5	12	14	-	32	74	-
Cenchrus ciliaris	47	9	-	6	94	76	49	35
Centrosema pubescens	27	8	9	18	39	57	-	-
Chamaecrista rotundifolia	29	8	13	24	-	43	78	-
Chloris ciliata	-	4	-	13	-	70	-	-
Chloris pycnothrix	47	9	-	3	97	78	-	40
Chloris virgata	36	-	-	9	90	60	-	-
Chondrosum gracile	-	-	-	-	-	83	-	-
Chondrosum trifidum	-	6	-	11	-	74	-	-

Species	ADF	ADL	Ash	CP	DM	NDF	DMD	OMD
Cichorium intybus	28	4	14	10	-	33	72	-
Clitoria ternatea	43	6	4	15	29	60	65	-
Combretum molle	33	9	9	15	89	46	-	-
Cymbopogon caesius	40	-	-	7	90	62	-	-
Cynodon dactylon	45	-	-	17	25	78	55	-
Cynodon nlemfuensis	39	9	-	8	96	76	-	44
Dactylis glomerata	32	2	9	13	20	58	75	74
Dactyloctenium aegypticum	40	-	-	8	90	62	-	-
Dichrostachys cinerea	31	11	7	17	91	50	-	-
Digitaria abyssinica	38	5	10	11	90	73	-	-
Digitaria insularis	-	6	-	11	-	72	-	-
Diospyros abyssinica	35	11	19	14	90	48	-	-
Echinochloa crusgalli	36	-	-	12	-	62	-	-
Elymus gmelinii	-	-	5	15	-	-	-	-
Elymus hispidus	31	-	-	17	-	-	-	-
Elymus lanceolatus	32	-	-	16	-	-	-	-
Elymus nutans	-	-	6	14	-	-	-	-
Elymus sibiricus	34	-	-	14	-	-	61	34
Elymus smithii	-	-	-	18	-	-	-	-
Elymus trachycaulus	32	-	-	15	-	-	-	-
Enneapogon cenchroides	36	-	-	6	91	62	-	-
Enteropogon macrostachus	52	10	-	6	-	78	38	-
Eragrostis braunii	39	5	8	8	90	81	-	-
Eragrostis curvula	43	4	9	8	90	81	-	-
Eragrostis superba	33	-	-	8	90	63	-	-
Festuca arundinacea	29	2	8	14	21	60	71	-
Festuca arundinacea x Lolium multiflorum	-	-	-	8	-	58	-	74
Festuca pratensis	41	-	11	11	-	54	-	-
Festuca rubra	28	-	-	16	-	-	-	-
Gliricidia sepium	44	9	7	18	23	51	78	-
Grewia mollis	30	16	13	13	91	58	-	-
Heteropogon contortus	38	-	-	6	90	64	-	-
Hilaria belangeri	-	-	-	-	-	79	-	-
Holcus lanatus	33	-	-	11	-	54	-	-
Hordeum brevisubulatum	-	-	6	14	-	-	-	-
Hordeum vulgare	-	-	-	16	26	56	66	-
Hyparrhenia cymbaria	43	-	-	6	91	71	-	-
Hyparrhenia hirta	56	9	-	4	-	80	41	-
Kummerowia striata	-	-	-	17	-	-	-	73
Lablab purpureus	31	11	12	20	75	46	84	-
Lathyrus sativus	-	-	11	20	-	-	-	-
Lavandula angustifolia	41	-	9	10	-	50	-	-

Species	ADF	ADL	Ash	CP	DM	NDF	DMD	OMD
Leptochloa mucronata	-	6	-	12	-	70	-	-
Leucaena leucocephala	27	5	6	19	59	52	74	88
Lolium multiflorum	25	2	9	15	22	45	74	72
Lolium multiflorum × Festuca pratensis	-	-	11	12	-	-	-	-
Lolium perenne	31	2	9	18	18	49	74	81
Lolium perenne × Festuca pratensis	-	-	10	11	-	-	-	-
Lotus corniculatus	27	6	9	22	-	41	68	-
Macroptilium atropurpureum	33	9	17	28	-	42	74	-
Manihot pseudoglaziovii	34	10	7	10	22	43	79	-
Medicago sativa	30	7	10	21	17	42	71	67
Melilotus officinalis	27	5	11	20	-	33	70	-
Melinis repens	-	8	-	10	-	72	-	-
Mimosa caesalpiniifolia	55	16	4	12	44	68	45	-
Nassella clarazii	26	-	-	16	-	55	-	-
Noaea mucronata	50	-	9	10	-	59	-	-
Panicum coloratum	40	5	7	9	90	83	-	-
Panicum deustum	40	-	-	6	90	63	-	-
Panicum hallii	-	5	-	13	-	71	-	-
Panicum maximum	47	10	12	7	41	73	47	48
Panicum miliaceum	36	4	11	17	90	71	-	-
Panicum obtusum	-	6	-	14	-	65	-	-
Paspalum unispicatum	-	4	-	11	-	68	-	-
Pennisetum clandestinum	26	-	10	23	-	46	63	-
Pennisetum polystachion	40	-	2	7	19	78	-	-
Pennisetum purpureum	44	-	9	9	17	73	50	52
Phalaris aquatica	-	-	-	10	-	68	-	-
Phalaris arundinacea	31	-	-	-	-	60	-	-
Phleum pratense	31	3	7	15	23	52	88	-
Plantago lanceolata	34	8	10	12	-	40	64	-
Poa attenuata	35	-	-	13	-	-	57	18
Poa pratensis	29	-	-	15	-	56	-	-
Psophocarpus scandens	6	2	10	19	20	23	-	-
Sanguisorba minor	24	4	10	13	-	30	64	-
Sehima galpinii	37	-	-	5	91	65	-	-
Setaria grisebachii	-	6	-	14	-	72	-	-
Setaria incrassata	41	7	10	7	90	76	-	-
Setaria macrostachya	-	7	-	13	-	74	-	-
Stipa ichu	36	-	-	10	-	66	-	-
Stylosanthes guianensis	32	6	10	19	28	51	-	-
Terminalia brownii	36	14	11	14	90	50	-	-
Tragus berteronianus	43	-	-	5	90	78	-	-
Tridens eragrostoides	-	5	-	13	-	73	-	-
Tridens muticus	-	7	-	11	-	75	-	-

Species	ADF	ADL	Ash	CP	DM	NDF	DMD	OMD
Trifolium alexandrinum	-	-	-	18	-	-	-	71
Trifolium ambiguum	26	-	-	20	-	39	88	-
Trifolium pratense	28	5	12	19	16	41	76	-
Trifolium repens	24	-	-	25	29	38	88	-
Trifolium resupinatum	-	-	-	20	-	-	-	73
Triticosecale	-	-	10	8	-	-	-	-
Urochloa mosambicensis	43	-	-	6	91	66	-	-
Vicia pannonica	-	-	14	17	-	-	-	-
Vicia sativa	32	6	10	24	88	46	-	-
Vicia villosa	-	-	12	18	-	-	-	-
Vigna unguiculata	25	5	13	21	16	36	-	-
Ximenia americana	32	4	7	13	90	47	-	-
Ziziphus spina-christi	29	9	6	14	90	48	-	-

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