A listing of forage accessions established in published evaluation studies carried out by CSIRO in southern and central Queensland, Australia (1950–2000)

R.M. JONES
Formerly CSIRO Livestock Industries, Brisbane, Australia

Abstract

This paper gives a listing of all published reports of trials involving early stage evaluation of forage accessions carried out by CSIRO in southern and central Queensland during the period 1950–2000. Almost all of these trials were grazed.

The experiments were established at 78 sites between 1953 and 1997. They included 189 accessions of temperate legumes, 44 accessions of temperate grasses, 735 accessions of tropical legumes and 586 accessions of tropical grasses. Where no seedlings emerged following sowing, those accessions have not been included. Based on persistence and yield, each accession in each sowing was rated as: 1 (showing no promise), 2 (intermediate) or 3 (showing some promise). References to the relevant publications are given.

While ratings are given and brief comments are made about the results of testing within the 4 groups defined above, the objective of this publication is to inform readers which accessions were sown at which site, rather than to summarise results. It is pointed out that most of the cultivars which are still being widely sown are those selected from evaluations in the 1950s–1970s, while 'second generation' cultivars developed from screening a wider range of accessions have usually received limited acceptance.

Contents of paper

As two of the tables in this paper are extremely large, the full paper is not presented here as printed copy but is available on the web at www.tropicalgrasslands.asn.au/*downloads*. The following paragraphs summarise the contents of the paper.

Correspondence: R.M. Jones, 20 Fairholme St., Kenmore, Qld 4069, Australia. E-mail: rmdjjones@bigpond.com

Methods

This section outlines the criteria for incorporating the results of a trial in this paper. In each trial, accessions are listed only if seeds germinated and seedlings emerged. The Methods section also recognises the difficulties presented by changes in botanical nomenclature over time and outlines the limitations of the 1–3 rating scale used to indicate the potential of an accession.

Results and Discussion

Table 1 (presented here as well as on the web) lists all experimental sites (1–78), with details of location, soil type and annual rainfall, as well as the references to the published results of all trials carried out at that site. It is presented here to provide an indication of the scope of the work.

Table 2 lists 51 references in alphabetical order, indicating the sites where the trials reported in that publication were carried out.

Tables 3–6 provide data on the performance of: temperate legumes (Table 3), temperate grasses (Table 4), tropical legumes (Table 5) and tropical grasses (Table 6). In each table, individual accessions are listed as rows, with columns showing the sites at which they were sown, the years of sowing and the reference numbers in which results were reported. Ratings of individual accessions, based on persistence and yield, are presented: 1 (showing no promise), 2 (intermediate) and 3 (showing some promise).

Table 7 lists the limited references that give data on pasture quality. Information provided is: whether the samples were cut or plucked to simulate what is eaten by grazing animals (1 trial only); whether data were from temperate

Table 1.

Site number, location, soil type, rainfall and reference numbers for this site in remaining tables

Site No.	Stat. Divis.	Locality	Latitude	Longitude	Soil type	Rainfall (mm)	References (& paper no. in remaining tables)
Published papers							
1	Brisbane	Samford	27°21′	152°47′	yellow podsolic	1100	Cameron *et al.* (1989) [7][+][1]
2	Brisbane	Samford	27°21.39′	152°52.87′	gleyed podsolic	1100	Jones (2001) [27]
3	Brisbane	Samford	27°21′	152°47′	gleyed podsolic	1100	Strickland (1978) [47], Cook *et al.* (1994) [10][+]
4	Brisbane	Samford	27°21.78′	152°53.02′	gleyed podsolic	1100	Jones (2001) [27]
5	Brisbane	Samford	27°21′	152°47′	gleyed podsolic	1100	Strickland (1974) [46], Strickland and Haydock (1978) [49],
6	Brisbane	Samford	27°21′	152°47′	red podsolic	1100	Jones *et al.* (1969) [24], Edye and Miles (1976) [12]
7	Brisbane	Samford	27°21′	152°47′	red/yellow podsolic	1100	Jones *et al.* (1967) [23], Bray *et al.* (1988) [3][+]
8	Brisbane	Samford	27°21′	152°47′	alluvial/prairie	1100	Blumenthal *et al.* (1999) [2][+]
9	Brisbane	Dayboro	27°11.25′	152°47′39″	krasnozem	1100	Jones (2001) [27]
10	Moreton	Beerwah	26°50′	153°02′	gleyed podsolic	1600	Bryan & Evans (1971) [6], Strickland & Haydock (1978) [49], Jones & Evans (1982) [30], Jones & Clements (1987) [29]
11	Moreton	Beerwah	26°50′	153°02′	lateritic podsolic	1600	Bryan (1968) [5]
12	Moreton	Conondale	26°44′	152°43′	prairie	1340	Rees (1972) [37]
13	Moreton	Eskdale	27°09′	152°10′	solodic	750	Mannetje (1967) [34]
14	Moreton	Esk	27°15.54′	152°28.35′	prairie	930	Roe and Jones (2000) [39]
15	Moreton	Lawes	27°34′	152°20′	black earth/prairie	780	Edye (1967) [11], Edye and Miles (1976) [12], Minson and Hacker (1995) [35]
16	Moreton	Lawes	27°34′	152°20′	solodic	780	Edye and Miles (1976) [12]
17	Moreton	Jimboomba	27°49′62″	152°59′83″	podsolic	990	Roe and Jones (2000) [39]
18	Moreton	Boonah	27°51.90′	152°39.85′	prairie	810	Jones and Rees (1972) [31]
19	Moreton	Grandchester	29°41.04′	153°19.05′	yellow podsolic	880	Bray *et al.* (2000) [4]
20	Darling Downs	Pittsworth	27°45.77′	151°44.22′	black earth	660	Jones and Rees (1972) [31], Strickland (1974) [46]
21	Darling Downs	Pittsworth	27°44.24′	151°44.38′	neutral krasnozem	660	Jones and Rees (1972) [31]
22	Darling Downs	Pittsworth	27°49.36′	151°34.81′	Ug5.1	660	Jones and Rees (1997) [32], Rees *et al.* (1995) [38]
23	Darling Downs	Pittsworth	27°50.46′	151°34.88′	Ug5.1	660	Jones and Rees (1997) [32], Rees *et al.* (1995) [38]
24	Darling Downs	Brigalow	26°51′	150°47′	brigalow clay	634	Pengelly and Conway (1998) [36][+]
25	Darling Downs	Kogan	27°00′	150°49′	solodic	590	Russell (1969) [41]
26	Darling Downs	Tara	27°28.88′	150°15.17′	Uf6	588	Jones (1998) [26]
27	Darling Downs	Kindon	28°05.78′	150°47.23′	Ug5.2	600	Jones and Rees (1997) [32], Rees *et al.* (1995) [38]
28	Darling Downs	Meandarra	27°24′	149°57′	brigalow clay	550	Strickland (1974) [46], Russell (1969) [41]
29	Darling Downs	Toobeah	28°31.80′	149°40.35′	Ug5.2	560	Jones and Rees (1997) [32], Rees *et al.* (1995) [38]
30	Darling Downs	Goondiwindi	28°00′	150°12′	vertosol	580?	Edye and Miles (1976) [12]
31	Darling Downs	Texas	29°50′	157°09′	alluvium	664	Hacker and Waite (2001) [18]
32	Darling Downs	Wandoan	26°00.48′	149°54.47′	Uf6	662	Jones (1998) [26]
33	Darling Downs	Taroom	25°30′	149°47′	clay loam	681	Russell and Coaldrake (1970) [42], Edye and Miles (1976) [12]
34	(NSW)	Bonshaw	29°08′	150°53′	red earth	677	Hacker and Waite (2001) [18]
35	Wide Bay B	Gympie	26°6′58″	152°41′7″	Dr2.31/Gn3.01	1140	Roe and Williams (1993) [40]
36	Wide Bay B	Cinnabar	26°06.55′	152°07.40′	Dd1.12	870	Bray *et al.* (2000) [4]
37	Wide Bay B	Howard	25°19′	152°29′	gleyed podsolic	1100	Evans (1967) [16]
38	Wide Bay B	Mundubbera	25°41.84′	150°46.70′	Dr 4.13	710	Conway *et al.* (2001) [9][+]

Site number, location, soil type, rainfall and reference numbers for this site in remaining tables							
39	Wide Bay B	Mundubbera	25°41′	152°58′	podsolic	710	Strickland and Haydock (1978) [49], Strickland *et al.* (1999) [50]
40	Wide Bay B	Mundubbera	25°41′	152°58′	clay	710	Strickland and Haydock (1978) [49], Strickland *et al.* (1999) [50]
41	Wide Bay B	Mundubbera	25°41.58′	150°47.41′	Gn3.13	710	Clem *et al.* (2000) [8][+]
42	Wide Bay B	Mundubbera	25°41.52′	150°47.35′	Gn3.13	710	Clem *et al.* (2000) [8][+]
43	Wide Bay B	Mundubbera	25°41.50′	150°47.31′	Gn3.13	710	Clem *et al.* (2000) [8][+]
44	Wide Bay B	Mundubbera	25°41′	150°47′	euchrozem	710	Jones and Brandon (1998) [28]
45	Wide Bay B	Munduberra	25°41.48′	150°53.15′	podsolic	710	Bishop and Hilder (2005) [1][+]
46	Wide Bay B	Mundubbera	25°41′	150°52′	brown vertosol	710	Edye *et al.* (1998) [15][+]
47	Wide Bay B	Mundubbera	25°41′	150°47′	podsolic	710	McDonald *et al.* (1998) [33]
48	Wide Bay B	Gayndah	25°39′	151°47′	Ug5.32	733	Bray *et al.* (1988) [3][+]
49	Wide Bay B	Cadarga	26°07′	150°58′	brigalow clay	700	Pengelly and Conway (1998) [36][+]
50	Wide Bay B	Nanango	26°42.71′	152°01.41′	black earth	750	Jones and Rees (1972) [31]
51	Wide Bay B	Kumbia	26°41′	151°39′	krasnozem	780	Edye (1967) [11]
52	South West	St George	28°02′	149°39′	red clay	518	Strickland *et al.* (2000) [51] Site U
53	South West	St George	28°14′	149°54′	solodic	518	Strickland *et al.* (2000) [51] Site W
54	South West	Surat	27°07′	148°53′	red earth	581	Hacker and Waite (2001) [18]
55	South West	Roma	26°35′	148°47′	loamy red earth	521	Strickland and Greenfield (1988) [48]
56	South West	Roma	26°22′	148°41′	clay loam	600	Strickland *et al.* (2000) [51] Site N
57	South West	Charleville	26°24′	146°15′	loamy red earth	455	Strickland and Greenfield (1988) [48]
58	South West	Augathella	25°42′	146°13′	black clay	530	Strickland *et al.* (2000) [51] Site B
59	South West	Augathella	25°42′	146°14′	black clay	530	Strickland *et al.* (2000) [51] Site H
60	South West	Augathella	25°46′	146°18′	chocolate clay	530	Strickland *et al.* (2000) [51] Site G
61	South West	Augathella	25°54′	146°17′	red earth	530	Strickland *et al.* (2000) [51] Site M
62	South West	Augathella	25°54′	146°16′	solodic clay	530	Strickland *et al.* (2000) [51] Site S
63	Central West	Blackall	24°46′	145°28′	loamy red earth	485	Strickland and Greenfield (1988) [48]
64	Central West	Longreach	23°27′	144°15′	loamy red earth	394	Strickland and Greenfield (1988) [48]
65	Fitzroy	Duaringa	23°43′	149°40′	heavy red earth	658	Strickland and Greenfield (1988) [48]
66	Fitzroy	Duaringa	23°43′	149°40′	loamy red earth	658	Strickland and Greenfield (1988) [48]
67	Fitzroy	Westwood	23°39′	150°7′	prairie	680	Hall (1970) [20]
68	Fitzroy	Theodore	24°50′	149°46′	brigalow clay	670	Hacker and Waite (2001) [18]
Unpublished trials							
U1	Brisbane	Samford	27°21.50′	152°53.64′	yellow podsolic	1100	R. Roe, R.M. Jones (unpublished)
U2	Moreton	Beaudesert	27°55.50′	153°00.27′	prairie	940	M.C. Rees, R.M. Jones (unpublished)
Cutting trials							
C1	Brisbane	Samford	27°21′	152°47′	solodized solonetz	1100	Shaw *et al.* (1965) [43]
C2	Brisbane	Samford	27°21′	152°47′	gleyed podsolic	1100	Strickland (1973a) [44], (1973b) [45], Hacker (1972) [17]
C3	Brisbane	Redland Bay	27°53′	153°	yellow podsolic	1600	Hill *et al.* (1989) [22]
C4	Moreton	Gatton	27°34′	152°20′	prairie	780	Hacker *et al.* (1995) [19], Hacker (1972) [17]
C5	Moreton	Beerwah	26°50′	153°02′	humic gley	1600	Jones (1984) [25]
C6	Moreton	Beerwah	26°50′	153°02′	nodular podsolic	1600	Jones (1984) [25]
C7	Fitzroy	Westwood	23°39′	150°7′	prairie	680	Edye *et al.* (1976a) [13][+], (1976b) [14][+]
C8	Mackay	Dysart	22°24′	148°18′	topsoil & spoil	655	Harwood *et al.* (1999) [21]

[1] [+] indicates that results from other sites, not operated by CSIRO, are recorded in this publication

legumes, temperate grasses, tropical legumes or tropical grasses; and what quality attributes were measured (N, P, K, IVD, leafiness, etc.).

Some brief general comments are made about the ratings of some species and potential weediness for the 4 groups of accessions (*e.g*. tropical legumes). Comments are also made about the successful outcomes of species evaluation. Twelve other CSIRO publications that were concerned with characterisation of the variability within species but not with agronomic evaluation are listed. The full reference list is presented at the end of the text.

(Received for publication May 30, 2008; accepted January 1, 2009)