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Preliminary evaluation of exotic grasses and legumes for forage potential in South-West Queensland

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Abstract

318 grass accessions (46 species in 22 genera) and 270 legume accessions (111 species in 32 genera), were tested for potential as pasture plants in 22 replicated and non-replicated trials in south-west Queensland. The trials were conducted on differing soil types, including sandy soils, red earths and heavy clays. Depending on performance, accessions were included in from one to 16 trials. Some trials were replicated, others not. After establishment, trials were grazed in accordance with normal property practice. Germination counts were made following rains and plots were rated for establishment and for yield at varying intervals.

For the grasses, the genera with the highest proportion of well-adapted and productive accessions were, in order, *Urochloa*, *Cenchrus* and *Chloris*, genera already in commercial use. At an accession level, forty-five grass accessions were highly ranked in half of the experiments or more; 23 of these were *Cenchrus ciliaris*, and the next most abundant was *Digitaria eriantha* and *Panicum coloratum*, each with just four representatives. Only five legume accessions were highly ranked, and four of these were *Desmanthus* spp. It is concluded that the highly-ranked accessions could be further evaluated for potential release, in the event that existing cultivars deteriorate through a disease outbreak.

Keywords

tropical legumes, tropical grasses, forage, evaluation, selection

Introduction

Although a wide range of pasture grasses and legumes has been released for the grazing industries of humid and subhumid tropical Australia (see, for example, Hacker 1997), few grasses and even fewer legumes are well adapted to the semi-arid subtropical zone. Earlier studies focussed on red earth soils in the region, and identified *Digitaria* and *Urochloa* as being the most promising grass genera, and *Chamaecrista* as the most promising legume genus (Strickland and Greenfield 1988). The series of trials reported in this paper provide a summary of a further ten years of research aiming to identify adapted grasses and legumes for various soil types in this region.

Materials and Methods

The studies covered 22 experiments, initially focussed on properties near Augathella, south-west Queensland. For convenience, the trials are discussed in four series. For all trials, seed was obtained from the Australian Tropical Forages Genetic Resource Centre, from seedlots grown in south-east Queensland, and all legume seed was inoculated with appropriate *Rhizobia/Bradyrhizobia*.

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Some trials were replicated and others were not, and plot size also varied. Details of replication, plot size and land preparation for each experiment are provided. After establishment, trials were grazed according to normal property practice. In all cases, experiments were visited several times each year for one to several years following sowing and rated for various attributes, including a yield rating on a 0 (low) -5 (high) scale. For most experiments, visits continued until few if any of the sown species were still evident. In this paper we provide ratings on germination and establishment, and comparative yield on two occasions towards the end of trials. Most trials were re-visited in May 1999, and impressions of species which had persisted are given (in some cases, seed might have blown in from nearby paddocks, especially *C. ciliaris*). At this stage, particular care was taken to determine presence or absence of *Indigofera schimperi* and to eliminate any plants present. This species was initially considered to be promising for heavy soils, but based on wide-ranging trials concern arose that it could become an environmental weed, due to low palatability late in the season and potential for thicket formation.

The prime objective is to provide some information on adaptation – those accessions which were capable of establishing, persisting and producing a comparatively high yield after a number of years. Results are presented in Appendix 1, in which a single score (1-4) gives an overall assessment of the performance of each accession in each trial. In Appendix 1 and in the text accession numbers lacking a prefix are CPI (Commonwealth Plant Introduction) numbers. Unless otherwise stated, scores in Appendix 1 are based on the following:

0 – nothing germinated
1 – germinated but establishment rating 4 or less out of 10
2 – germinated and establishment rating more than 4 out of 10
3 – exceptional in 'rating 2'or 'rating 3'
4 – exceptional in 'rating 2' and 'rating 3'
[ ] – scores based on only 1 or 2 seedlings seen on germination assessment.

Table 1. Months of sowing and of the two ratings which were used for yield assessment.

Experiment	Sown	Rating 2	Rating 3
1, 5	12/80	5/82	2/83
2	12/80	4/83	2/84
3	12/80	8/81	2/82
4	12/80	6/81	8/81
6	12/80	6/82	4/83
7	12/80	12/81	6/82
8	12/80	6/81	
9	12/81	6/82	
10	12/81	5/82	
11	12/81	4/82	
12 (tropicals) 12 (temperates)	12/81 5/82	?? 9/83	?? -
13	12/82	2/84	-
14	12/82	-	-
15	12/82	9/83	
16	12/82	11/84	11/88
17	12/83	5/85	11/85
18	11/83	5/85	5/86
19	12/83	2/85	2/86
20	2/86	4/92	6/94
21	12/85	4/91	5/94
22	12/85	1/90	4/91

The two occasions 'Rating 2' and 'Rating 3' differed between experiments. Table 1 indicates months of sowing for each experiment together with months of the two ratings. It should be noted that a high score (3 or 4) in one experiment does not equate to a high score in another experiment, in terms of actual yield. Where all yield ratings were low, a rating of 1 could have merited a score of 3, whereas where ratings were high, a rating of 3 could have been required for a score of 3. Our objective here is to identify a small number of 'elite' accessions in each trial.

Sites and Soils

Most trials (Suffix 'B', 'G', 'H', 'M', and 'S' were sited on three properties c. 35 km SSW of Augathella, southern Queensland. Locations of the experimental sites and soils are outlined below:

Suffix 'B' – Brumich Station: 25°42'S 146°13'E; a typical Mitchell grass plain, the soil a hard, dry, cracking black clay
Suffix 'G' – Glen Eden: 25°46'S 146°18'E; gidyea tree tableland, cleared some years previously, with stoney chocolate soil, and melon holes
Suffix 'H' – Brumich Station homestead paddock – 25°42'S 146°14'E .
Suffix 'M' – Pinnacle Station: 25°54'S 146°17'E; red earth plain, cleared shortly before 1980 from hard mulga shrubland.
Suffix 'N' – Norton Station, 26°22'S 148°41'E; 21 km west of Basset Park, Roma, Maranoa District; soil a yellow-grey clay-loam, with sandy topsoil; pH 8.5 on the surface.
Suffix 'S' – Pinnacle Station: 25°54'S 146°16'E; box flat 'typical of much of Central Queensland', the soil a dusty and loose light yellow-white solodic clay, quick-drying.
Suffix 'U' – Ula-Ula Station, 28°02'S 149°39'E; 219 km southwest of Dalby. Soil a red cracking clay, pH 5.5-6.0.
Suffix 'W' – Woodbine Station, St George. 28°14'S 148°54'E; Soil a yellow to red solodic, with sandy surface and hard-setting pan, pH 6.5-7.5.

Series 1: 1980-81 Replicated Trials – the most promising accessions, based on previous knowledge

Materials and Methods

A series of trials was sown covering the four main soil types of the region. They included 33 of the most promising accessions from earlier trials in Central Queensland (Roma, Charleville, Blackall, Longreach, Duaringa – see Strickland and Greenfield 1988). The trials were sown at Glen Eden (gidyea soil), Pinnacle (mulga and solodic soils), and Brumich (Mitchell grass country). Essential details of the experiments were as follows:

Sowing dates:	16-20 December 1980.
Replicates	4
Fertilizer:	2 replicates with 200 kg/ha Mo super, 2 not fertilized
Plot size:	2m x 1m, with 1-2 m of native pasture between plots.
Number of entries	33
Land preparation:	rotary hoed, by hand; seed hand broadcast and raked in.

Results

(a) Rainfall

Table 2. Rainfall at Augathella over the period of the trials (monthly and annual rainfalls below average indicated in bold, and those below 0.5 average rainfall in bold and italics)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1980	**41**	150	***7***	***10***	34	***1***	43	**15**	***0***	96	***15***	**43**	**455**
1981	87	128	129	67	104	88	43	**0**	***0***	47	154	**55**	902
1982	**47**	***3***	148	***18***	37	***5***	***4***	**0**	***6***	***6***	***0***	***21***	**295**
1983	***28***	46	**35**	123	276	59	***14***	31	***9***	***4***	117	***30***	772
1984	145	**38**	**38**	48	***11***	**18**	117	**17**	***6***	**25**	***21***	109	593
1985	***7***	***24***	***27***	***0***	***8***	46	37	**22**	***9***	**31**	118	109	**438**
1986	***13***	85	***0***	***8***	**31**	**0**	53	40	**17**	**27**	55	**41**	**370**
1987	90	86	**43**	***21***	***7***	54	***10***	44	***3***	68	108	61	595
1988	***31***	***17***	***22***	***17***	**25**	***8***	63	37	27	***7***	54	88	**396**
Mean*	78	71	64	37	32	31	30	20	25	38	46	61	532

* 1890-1998

The first four years for the trials at these sites included three which were above average for Augathella (1981, 1983 and 1984), and one which received little more than half the long-term average rainfall, 1982 (Table 2). However, in all these years there were periods of three months when rainfall did not exceed 52 mm. During the critical growing season (November – April, inclusive), 19 of the 48 months over the 1981-1988 period of the trials received less than half long-term average monthly rainfall. The longest dry period was in the latter half of 1982, when there was a seven month period with only 42 mm of rain.

(b) Experimental

Experiment 1 (Glen Eden) Gidyea

Weather: 50 mm rain 4 weeks after sowing

Results: early establishment was good and 24 of the 33 accessions produced seed, 22 of these subsequently producing seedlings. The grasses were estimated to have at least ten times the yield of the legumes after three years at the end of the trial. High-rating accessions included *Cenchrus ciliaris* Q10077, Q10087 and cv. American, *Chloris gayana* cv. Pioneer and *Urochloa mosambicensis* accessions. The highest yield rating in February 1983 was *C. ciliaris* Q10087. Despite good establishment and seeding of most legume entries (*Stylosanthes scabra* and one *S. hamata*), yield ratings were very low in May 1982 and they had disappeared by February 1983. In 1999 grasses present were *Cenchrus ciliaris*, and *Digitaria* and *Urochloa* spp.; legumes were very rare.

Experiment 2 (Pinnacle) Mulga

Land preparation: a rabbit-proof fence was erected around the trial area

Weather: 50 mm rain 4 weeks after sowing

Results: all plots germinated and established well, flowered and seeded by mid-June. With the exception of Verano, all had high ratings for winter greenness and most recovered well into the following summer. *C. ciliaris* Q10077 and Q10087 ranked highly in April 1983 and February 1984, as also did *D. milanjiana* cv. Strickland and two *U. mosambicensis* entries. Of the 3 entries of *U. mosambicensis*, both 60150 and 60151 scored more highly than cv. Nixon in both ratings. Four accessions of *S. scabra* persisted until February 1984, the best being 55817 and 55872. By 1999, *Urochloa* spp. and *Cenchrus ciliaris* still persisted, also some *Chamaecrista rotundifolia* and *Stylosanthes* spp.

Experiment 3 (Pinnacle) Solodic

Land preparation:	rabbit-proof fenced – area with sparse trees, and left uncleared
Weather:	50 mm rain 4 weeks after sowing
Results:	germination and early establishment were good for most entries, but by August 1981 21 of the 33 accessions had ratings of 0 or 0.1, increasing to 27 (including all *S. scabra*) in February 1982. 19 accessions, including 7 *Stylosanthes* spp. survived long enough to set seed. The best adapted grasses were *Bothriochloa insculpta* cv. Hatch and *U. mosambicensis* cv. Nixon. The area had been used for four days as a stockyard for feral goats, which ate the area bare in November 1985, but most plots survived to regrow the following summer. This experimental area was subsequently replanted (Experiment 16), and plants present in 1999 (*Urochloa* spp. and *Cenchrus ciliaris*) could have derived from either trial.

Experiment 4 (Brumich) Mitchell grass Downs

Weather:	a dry, hard site, with soil cracks to 1 m or more deep, and with less rain than Glen Eden or Pinnacle. There was a major rainfall event of 130 mm during the first week of April.
Results:	germination was poor and establishment slow, and little growth occurred within eight months of sowing. Few seedlings of any entry germinated before the April rains, which were too late for successful establishment. The only exceptional accessions were all three accessions of *U. mosambicensis*, which germinated early and were still present when the trial was visited in August 1981, after which it was abandoned. There was no evidence of any accession having persisted until 1999.

Series 2 – 1980-81 Nursery trials – unreplicated trials of accessions not previously widely tested

Materials and Methods

Sowing date:	16-20 December 1980; All legume seed was inoculated with appropriate *Rhizobia/Bradyrhizobia.*
Replicates	unreplicated
Fertilizer:	unfertilized
Plot size:	1 x 2 m
Land preparation:	rotary hoed, by hand; seed hand broadcast and raked in.

Experiment 5 (Glen Eden) Gidyea

Number of entries	385, both grasses and legumes
Weather:	50 mm rain 4 weeks after sowing
Results:	the experimental area was continuously grazed. Most accessions of *C. ciliaris* had high yield ratings in May 1982, and many also in February 1983. *C. gayana* and *Digitaria* spp. accessions all performed well in May 1982, but were mediocre in February 1983. *Urochloa* spp. had a similar pattern, and only 60115 and 60139, both *U. mosambicensis*, yielded well also in February 1983.

Many legume accessions in the genera *Chamaecrista, Crotalaria, Macroptilium* and *Rhynchosia, Senna* and *Stylosanthes fruticosa* and *Tephrosia purpurea* germinated in large numbers, and, in some accessions (especially *Senna uniflora, Rhynchosia sublobata.* and *T. purpurea*) had high establishment ratings. However, the only noteworthy legume in May 1982 was *Macroptilium lathyroides* 30229. Two accessions of *Indigofera schimperi* (65477 and 73608) were mediocre in May 1982, but noteworthy in February 1983. The twelve accessions of *S. scabra* failed to germinate, and the seed was later shown to be inviable. In 1999 the only plants present were *Cenchrus ciliaris*. Plants of *Indigofera schimperi* were noted in 1990, but not on subsequent visits.

Experiment 6 (Pinnacle) Mulga

Land preparation: the experimental area was fenced to control grazing

Number of entries 408, both grasses and legumes

Weather: 50 mm rain 4 weeks after sowing

Results: germination was generally good, with 29 entries having >100 seedlings per plot. 24 entries (mostly *Stylosanthes scabra*) were not seen to germinate, probably because seed was inviable (see also Expt 5). Nine of the 41 accessions of *C. ciliaris* tested scored comparatively highly both in June 1982 and in April 1983, and a further nine accessions had high ratings on one or other month, with 71918 exceptional in April 1983. By 1983 the fence had deteriorated and kangaroos and feral goats were causing considerable damage. By May 1982 the only legumes with significant yield ratings were *I. tinctoria* 24207, *S. fruticosa* 33517 and 43788; however only 43788 was present at a significant level in April 1983 and persisted until December 1984, when the trial was terminated. In 1999 the only plants present were *Urochloa* spp., *Cenchrus ciliaris* and possibly *Digitaria milanjiana. Indigofera schimperi* failed to persist.

Experiment 7 (Pinnacle) Solodic

Land preparation: the experimental area was fenced to control grazing

Number of entries 366, grasses and legumes

Weather: 50 mm rain 4 weeks after sowing

Results: there was little damage from grazing. Sixty one accessions (including the 12 accessions of *S. scabra* with seed later shown to be inviable) failed to germinate, and a further 92 failed to establish. By June 1982, only 63 accessions were present. In June 1982 the grasses with the highest yield scores were *Bothriochloa radicans* 65464, *Digitaria eriantha* 60770 and *D. milanjiana* 40644 and 59786. At this stage, the only legumes present were *Cassia leschenaultiana, Senna uniflora*, and species of *Crotalaria, Rhynchosia* and *Tephrosia,* with *Crotalaria incana* 38550 and *Tephrosia bracteolata* 40765 having the highest yield scores. This experimental area was subsequently replanted (Experiment 16), and plants present in 1999 (*Urochloa* spp. and *Cenchrus ciliaris*) could have derived from either trial. *Indigofera schimperi* plants were still present in 1999, when they were treated with the herbicide Graslan. However, the area had been cultivated for sowing Experiment 16, which could have aided regeneration.

Experiment 8 (Brumich) Mitchell grass Downs

Land preparation:	the experimental area was fenced to control grazing
Number of entries	386, grasses and legumes
Weather:	very dry following sowing; 16 months of dry weather
Results:	germination was poor and establishment slow, and there was little growth from any accession eight months after sowing. Being fenced, the experimental area provided a good paddock for a property horse, which put unwanted pressure on the experiment. By August 1981, all entries had disappeared. Noteworthy accessions in June 1981, six months after sowing were rated '3' in Appendix 1. Of particular interest are several accessions of *Vigna*, which ranked comparatively highly in June 1981, although yield scores were generally low. However, they had disappeared by August 1981, although *V. vexillata* 60421 had seeded by 16 June 1981. No accessions persisted until May 1999, including *Indigofera schimperi.*

Series 3 – Trials sown in 1981-82 season

Experiment 9 (Glen Eden) Gidyea

Sowing date:	17 December 1981
Replicates:	unreplicated
Fertilizer	nil
Plot size:	2 x 1 m
Number of entries	28 grasses, mostly *C. ciliaris*
Land preparation:	rough seedbed; area not fenced
Weather:	February was very dry. Drought late in the first season resulted in poor root growth of many accessions and early haying off
Results:	all accessions germinated and 16 of the 28 had establishment scores of 8 or 9 (out of 10). Thirteen (all *C. ciliaris*) survived and produced seed. Cattle and kangaroos caused extensive damage, and insect damage was also reported in August 1982. The trial was discontinued after the first growing season. The only species present in 1999 was *C. ciliaris*.

Experiment 10 (Glen Eden) Gidyea

Sowing date:	15 December 1981
Replicates	unreplicated
Fertilizer:	nil
Plot size:	7 x 1 m
Number of entries	39 grasses, mostly *Cenchrus, Digitaria, Urochloa*
Land preparation:	site roughly disc-harrowed but some melon holes remaining.
Weather:	35 mm fell soon after sowing, but February was very dry and drought conditions prevailed for most of the year following establishment
Results:	the highest ranking accession in May 1982 was *S. incrassata* CQ1460, but accessions in all genera other than *Anthephora* and *Bothriochloa* also ranked highly. Twenty entries seeded, including all high-ranking accessions except *Digitaria polevansii* 36191 and *D. smutsii* 60770. Plots were inadvertently and intermittently grazed by sheep and kangaroos. Accessions rated '3' were best in May 1982; all entries were severely frost-burnt in winter 1982, and did not

recover. C. ciliaris was present in 1999, but seed could have blown in from a nearby paddock.

Experiment 11 (Brumich) Mitchell grass Downs

Sowing date:	15 December 1981
Replicates:	unreplicated
Fertilizer:	nil
Plot size:	rows 80 cm wide and 1-1.5 m long
Number of entries	53 legumes
Land preparation:	cultivated – seed broadcast by hand and lightly raked – plots were hand watered to promote germination
Weather:	useful rain (c. 35 mm) fell on sowing but the year following establishment was generally dry
Results:	the experiment was used as a yard for a horse, which ate most of the legumes, and affected results. In April 1982 exceptional entries were, in rank order, *Vigna unguiculata* 60442, *Desmanthus virgatus* 84962, *Vigna pubescens* 60435, *Rhynchosia minima* 60626, *Stylosanthes hamata* 75167 and *Tephrosia purpurea* 36435. (the last 3 all scoring the same). The only accessions to persist to May 1982 (rated '3' in Appendix 1) were *Desmanthus virgatus* 85172 and 85173. No sown species were present in 1999. *Indigofera schimperi* failed to persist.

Experiment 12 (Pinnacle Station) Mulga

Sowing date:	tropicals sown 18 December 1981, temperates, 7 May 1982
Replicates:	tropical legumes with 2 replicates, temperate legumes unreplicated,
Fertilizer:	nil
Plot size:	single rows 1-1.5 m long
Number of entries	9 tropical and 11 temperate legumes
Land preparation:	no cultivation – hand-raked
Weather:	good follow-up rain of > 50 mm, but February was very dry
Results:	germination was generally good and some entries of all species excepting *Lupinus angustifolius*, *Medicago scutellata*, *Ornithopus compressus*, *Trifolium hirtum* and *T. subterraneum* had high establishment scores. Temperate legumes rated '3' were those which had set seed by 7 September 1983 (*M. scutellata* CQ1353 and *M. truncatula* CQ 1354). These set seed in winter 1982 and again in winter 1983 but disappeared after heavy grazing. The *S. scabra* entries all established well and grew strongly until they were destroyed in June 1982 by a mob of sheep which camped on them. No sown species were present in 1999.

Series 4 – Trials sown in 1982-83 and 1983-84 seasons

Experiment 13 (Glen Eden) Gidyea

Sowing date:	7 December 1982
Replicates	unreplicated
Fertilizer:	nil
Plot size:	7 x 3 m
Number of entries	33, all grasses –*Brachiaria*, *Cenchrus*, *Digitaria*, *Urochloa*
Land preparation:	disk-harrowed
Weather:	light rain fell following sowing, c. 50 mm
Results:	germination and establishment were good and all but five accessions set seed. However, only one accession produced

any seedlings (*C. ciliaris* 61570). All suffered from severe winter frosts. Plants rated as '3' are those which were exceptional in February 1984, with *U. mosambicensis* 60150 having the highest values, both for yield and spread. Only *C. ciliaris* was present in 1999.

Experiment 14 (Glen Eden) Gidyea

Sowing date:	8 December 1982
Replicates	unreplicated
Fertilizer:	nil
Plot size:	3 x 1 m
Number of entries	110 legumes
Land preparation:	3m x 1 m rotary hoed
Weather:	almost no follow-up rain, with summer months below 50% of the long-term average
Results:	germination and establishment were poor, due to the drought. A few accessions of *Desmanthus fruticosus*, *D. subulatus* and *D. virgatus*, *Macroptilium atropurpureum*, *Phaseolus filiformis* and *Stylosanthes hamata* and *S. subsericea* were noted, but only 4 accessions had >5 seedlings appearing. No plants of any accession survived over the 1982 winter. Accessions were rated 0,1,2 only, on germination and establishment. No legumes were present in 1999. *Indigofera schimperi* failed to persist.

Experiment 15 (Pinnacle Station) Mulga

Sowing date:	7 December 1982
Replicates:	2 for the grasses, 1 for the legumes
Fertilizer:	nil
Plot size:	3 m x 1 m
Number of entries	121, grasses and legumes
Land preparation:	disc harrows for weed control and tillage
Results:	only 30 entries persisted to June 1983. The area was inadvertently grazed by feral goats and kangaroos (March 1983?), which would have affected yields and persistence. 15 accessions, including the two *Macroptilium lathyroides* and two *T. purpurea*, flowered and seeded, but no seedlings were detected the following spring. (Noteworthy accessions (rated 3) were those which had comparatively high yield ratings at the last assessment, September 1983). This trial was subsequently overplanted with Experiment 19.

Experiment 16 (Pinnacle Station) Solodic

Sowing date:	9 December 1982
Replicates :	unreplicated
Fertilizer:	nil
Plot size:	6 m x 2.5 m; smaller for small-seeded legumes
Number of entries	150, including 83 legumes (mostly *Desmanthus*, *Stylosanthes*,*Tephrosia*) plus 67 grasses (mostly *Cenchrus*, *Digitaria*, *Panicum*, *Urochloa*)
Land preparation:	cultivated with disc harrows
Weather:	although light rain fell after sowing, establishment was disappointing
Results:	most grasses germinated and established well, and only five were not noted in November 1988, when final records were taken. Ten of the 34 *C. ciliaris* entries were noted as exceptional in November 1984 or 1988, with 59633 and

59645 outstanding in 1988. Other outstanding accessions in 1988 were *D. eriantha* 60767, *P. coloratum* 51120 (which also excelled in 1984) and *P. maximum* 60028 (which was in a favoured position under trees). Although five *Urochloa* accessions excelled in 1984, none was noteworthy in 1988. In contrast, 37 legume accessions totally failed to germinate and a further 37 germinated but failed to establish. No legume entry was seen to persist after June 1983. This trial was sown on the site previously occupied by Experiments 3 and 7. In 1999, *Urochloa* spp., *Cenchrus ciliaris* and *Indigofera schimperi* (from another trial) were present.

Experiment 17 (Brumich) Mitchell grass Downs

Sowing date:	December 1983
Replicates:	unreplicated
Fertilizer:	nil
Plot size:	single rows
Number of entries	88 legumes (*Desmanthus, Macroptilium, Stylosanthes*), 3 grasses
Land preparation:	cultivated with disc harrows
Weather:	light rain fell shortly after sowing
Results:	germination was generally poor, although high numbers were recorded for *Urochloa mosambicensis* 60150, *Vigna trilobata* 13671, *Stylosanthes scabra* Q10042 and *Macroptilium lathyroides* 30229. Only 20 plots established, with 16 of the 20 having high establishment scores in March (8 or 9 out of 10). The only grass present in May 1995 was *U. mosambicensis* 60128. No legume entries survived to May 1985. Five legumes seeded – *Desmanthus virgatus* 73467, *M. lathyroides* 30229 and 75960, *Rhynchosia totta* 60339 and *Vigna trilobata* 13671. No legumes were present in 1999. *Indigofera schimperi* failed to persist.

Experiment 18 (Glen Eden) Gidyea

Sowing date:	14 December 1983
Replicates	unreplicated
Fertilizer:	200 kg/ha Mo super
Plot size:	2 m x 2 m
Number of entries	21 legumes
Land preparation:	disk-harrowed
Results:	5 accessions persisted to May 1986, the most notable being *D. virgatus* 78372 and 89197. *S. scabra* 63467 also persisted through to May 1986. Although some entries of *Indigofera trita* and *Macroptilium gibbosifolium* established quite well, they failed to appear the following spring. A rating of 3 was given to better accessions in May 1985 or May 1986. No legumes were present in 1999.

Experiment 19 (Pinnacle Station) Mulga

Sowing date:	16 December 1983
Replicates:	2
Fertilizer:	nil
Plot size:	7 x 3 m
Management:	the area was intentionally grazed in May and September 1985
Number of entries	24 grasses, mostly *Cenchrus, Digitaria, Urochloa*
Land preparation:	disk-cultivated
Results:	germination and establishment were generally good, with

exceptionally high numbers of germinants in all *C. ciliaris* entries (80-100/plot). The only accession which did not have a high establishment score was *Digitaria pentzii* 41190.
In 1999, all *C. ciliaris* entries had persisted, with 59894, 60732 and 59631 being most impressive, the former the best of the group. Most *Urochloa* spp. and two *Digitaria* entries were surviving in one or both plots, but were not impressive.

Series 5 – Replicated trials with promising accessions, 1985-1986

A series of three similar trials was sown at three sites, Norton, Ula-Ula and Woodbine Stations. The trials comprised 20 grass and 22 legume accessions which had shown some promise in earlier trials. Each trial had four replicates, two fertilized with 100 kg/ha superphosphate, and two unfertilized. Plots were 5m x 1.5 m and were cultivated with a rotary hoe; seed was broadcast by hand and lightly raked in. All legume seed was inoculated with appropriate *Rhizobia/Bradyrhizobia.*

Germination and establishment ratings were taken as in earlier trials, and scored '1' or '2' respectively, in a comparable manner. Norton was revisited in April 1992 and June 1994, Ula Ula in April 1991 and May 1994 and Woodbine in January 1990 and April 1991. Accessions which persisted in at least one replicate until the second of these visits at each site were allocated '3' in Appendix 1; those which also had a mean rating of 2.5 or more out of 5 on either visit at each site were allocated '4'. These trials were not revisited in 1999.

Experiment 20 (Norton)

Sowing date: 4 and 5 February 1986

Land preparation: sown into old cultivation

Weather: some rain at sowing, but no rain fell in March, April and June 1986, and just 41 mm in May. Only 415 mm of rain were recorded in 1986, and 1987 was even drier, with 368 mm recorded (Table 3), a third of this falling in January. 1988 was comparatively wet (Table 3), with good rains (c. 100 mm plus) in January, February and April

Results: germination was poor and most legumes failed completely. No entry showed any winter-greenness or drought-greenness in the first winter. Most *Cenchrus* and *Urochloa* accessions flowered and seeded by March 1987 The only legume evident in February 1988 was *I. schimperi* 52621 (good yield in one replicate only). This accession persisted through to 1994, when *I. schimperi* 69495 and *D.virgatus* 78372 were also present and yielding moderately highly. The outstanding grass in February 1988 was *U. oligotricha*, with comparatively good density and yield in all replicates; it persisted until June 1994, yielding quite well. Highest ranking accessions in June 1994 were, in order, Biloela and *C. ciliaris* 60737, *C. ciliaris* 59631 and *D. eriantha* 59698, and Gayndah.

Table 3. Mean annual rainfall over the years of the trials at Norton, Ula Ula and Woodbine.

	1986	1987	1988	1989	1990	1991	1992	1993	1994
Norton	415	368	732	678	505	381	470	424	550
Ula Ula	145	420	706	440	474	608	315	453	479
Woodbine	409	436	564	413	482	510			

Experiment 21 (Ula Ula)

Sowing date: 3,4 December 1985

Land preparation: cultivated with rotary hoe; seed broadcast by hand and lightly raked in.

Weather: there was a heavy shower during sowing but thereafter no month totaled more than 15 mm until September 1986, and the total for that year was just 145 mm (Table 1). The following four years were comparatively wet, with some good falls during th summer seasons

Results: germination was adequate to good for all entries other than *Digitaria eriantha* 59698 and *Panicum maximum* CQ2777. High ratings of 7-9 out of 10 for establishment were also recorded for all except four entries. The paddock was accidentally heavily grazed five months after sowing. Thirty of the 42 entries seeded within 12 months. The grasses with the highest yield in 1994 were, in order, C. ciliaris 59631, cv. Gayndah, 73393 and cv. Biloela. and the highest ranking legumes, *I. schimperi* 52621 and *D. virgatus* 85178. All accessions of *Indigofera schimperi* excepting 73608 persisted until 1991 (although only two of the five were noted in 1994), and also all *Desmanthus* excepting 55719, also *S. scabra*, 55817, 55858 and 55872. By 1994, most *Desmanthus* accessions were still present, as well as *S. scabra* 55872.

Experiment 22 (Woodbine)

Sowing date: 5 December 1985

Weather: 37 mm fell during the month of sowing and 41 mm in January 1986, but no rain fell in March 1986 and April was also dry (13 mm). Rainfall exceeded 400 mm in all years of the trial (Table 3)

Results: the trial generally germinated and established well, although 13 entries had 5 or fewer seedlings/plot and 28 entries had establishment scores of 6 or less out of 10. 86 of the 168 plots were bare two months after sowing. Five years after sowing (April 1991), outstanding grasses were *C. ciliaris* 59631 and *Urochloa mosambicensis* 60139. At this stage, *D. virgatus* 78372 and 85178 were pre-eminent amongst the legumes. Two *S. scabra* accessions were still evident five years after sowing – 55858 and 55872.

General Discussion

The low annual rainfall of the region where the trials were conducted, averaging <550 mm in the Augathella area, makes pasture establishment hazardous, and was responsible for partial or complete failure of a number of trials. The problems associated with low rainfall are compounded by a high level of variability. Only 295 mm fell at Augathella in 1982, and more than a third of months during the growing season over the trial period received less than half mean monthly rainfall for the month. The longest dry period was in the latter half of 1982, when there was a seven month period with only 42 mm of rain. This would have seriously affected all trials sown previously.

Considerable difficulties were experienced in conducting these trials associated with uncontrolled and unplanned grazing, despite excellent collaboration with the landholders. In most cases this was due to grazing by kangaroos and feral goats, or sometimes through domestic livestock finding a hole in a fence. Inevitably, heavy and, in all probability, selective grazing, particularly in times of severe moisture stress, would have affected results.

A wide range of accessions was tested over a number of seasons and soil types. First considering adaptation on a generic level, results were combined across experiments, including only those accessions which had successfully established (Table 4). Only those genera with >9 successful establishments were included. For the grasses, the genera with the highest proportion of well-adapted and productive accessions were, in order, *Urochloa*, *Cenchrus* and *Chloris*. *Urochloa* was also considered one of the two grass genera with highest potential for red earths in southern Queensland by Strickland and Greenfield (1988); however, at a generic level, *Digitaria* and the legume genus *Chamaecrista*, also highlighted by these authors, were generally less well adapted in the trials reported here, in which the legume *Desmanthus* was highest ranked, whereas *Chamaecrista* never received a rating of '3' or '4'.

Table 4. Persistent and productive accessions (rated 3 or 4) as a percentage of accessions established, summed across trials (genera with < 10 successfully established sowings omitted).

Genus	Number of sowings successfully established (A)	Number of sowings rated 3 or 4 (B)	A as a % of B
GRASSES			
Anthephora	15	1	7
Bothriochloa	21	4	19
Brachiaria	22	5	23
Cenchrus	317	132	42
Chloris	30	11	37
Digitaria	263	61	23
Eragrostis	15	3	20
Panicum	36	12	33
Setaria	24	6	25
Urochloa	134	62	46
LEGUMES			
Chamaecrista	31	0	0
Crotalaria	14	3	21
Desmanthus	32	12	38
Indigofera	87	5	6
Macroptilium	29	4	14
Rhynchosia	33	2	6
Senna	15	2	13
Stylosanthes	113	5	4
Tephrosia	57	2	4
Vigna	27	5	19

At an accession level, elite entries were identified as those with two or more high-ranking (rated 3 or 4) sowings (Table 5). Forty-five grass accessions were highly ranked in half of the experiments or more; 23 of these were *Cenchrus ciliaris*, and the next most abundant was *Digitaria eriantha* and *Panicum coloratum*, each with just four representatives. Thirty grass accessions ranked more highly than the control cultivars American and Biloela. The predominance of *C. ciliaris* amongst the elite accessions is partly a reflection of the large numbers of accessions evaluated, but also an indication of the high level of adaptation of this species as a whole to this semi-arid environment.

The best legume cultivar included in the trials was *S. scabra* cv. Fitzroy, and nine accessions had superior overall performance to this or any other legume cultivar (including cv. Seca), in most cases by a substantial margin (Table 5). Five legume accessions had more than 50% of sowings classed as '3' or '4', and four of these were *Desmanthus* spp. *D. virgatus* 85178 has been noted as 'early-flowering and heavy-seeding' by Jones and Brandon (1998), attributes which are likely to have contributed to their success in the current trials. *D. leptophyllus* 37143 has similar attributes (B.C. Pengelly, personal communication 2000).

Table 5. Accessions with 2 or more high-ranking sowings: the number of sowings that established, the number of sowings rated 3 or 4 and the overall % of high-ranking sowings, with comparable data from control cultivars.

Genus	Species	Accession or cultivar	Number of established sowings	Sowings rated 4	Sowings rated 3	% of sowings rated 3 or 4
GRASSES						
Cenchrus	*ciliaris*	60729	2	2		100
Cenchrus	*ciliaris*	73374	2		2	100
Cenchrus	*ciliaris*	59631	10	5	3	80
Cenchrus	*ciliaris*	61570	5	1	3	80
Cenchrus	*setiger*	17655	5	2	2	80
Cenchrus	*ciliaris*	59633	4	2	1	75
Cenchrus	*ciliaris*	59894	4	2	1	75
Cenchrus	*ciliaris*	60737	8	5	1	75
Digitaria	*eriantha*	31962	4		3	75
Urochloa	*oligotricha*	43122	4		3	75
Urochloa	*stolonifera*	47171	4		3	75
Cenchrus	*ciliaris*	59645	6	2	2	67
Cenchrus	*ciliaris*	61571	6	2	2	67
Cenchrus	*ciliaris*	73394	3		2	67
Chloris	*gayana*	15510	3		2	67
Digitaria	*eriantha*	16774A	6		4	67
Digitaria	*milanjiana*	36191	3		2	67
Panicum	*coloratum*	51120	3	1	1	67
Urochloa	*oligotricha*	47121	6	1	3	67
Urochloa	*mosambicensis*	60139	6	2	2	67
Urochloa	*mosambicensis*	60150	11	1	6	64
Urochloa	*stolonifera*	47173	8		5	63
Cenchrus	*ciliaris*	60733	5	1	2	60
Cenchrus	*ciliaris*	73383	5	1	2	60
Setaria	*incrassata*	CQ 1460	5	1	2	60
Digitaria	*milanjiana*	34673	5		3	60
Panicum	*coloratum*	59876	5		3	60
Cenchrus	*ciliaris*	60732	7	2	2	57
Cenchrus	*ciliaris*	73393	7	3	1	57
Cenchrus	*ciliaris*	Q 10077	7	2	2	57
Urochloa	*oligotricha*	47122	9		5	56
Cenchrus	*ciliaris*	59644	6	3		50
Bothriochloa	*radicans*	65464	4	1	1	50
Cenchrus	*ciliaris*	60736	4		2	50
Cenchrus	*ciliaris*	71914	6	1	2	50
Cenchrus	*ciliaris*	73388	6	1	2	50
Cenchrus	*ciliaris*	CQ 1411	4	1	1	50
Cenchrus	*ciliaris*	Q 10087	4	2		50
Cenchrus	*ciliaris*	Biloela	6	3		50
Cenchrus	*ciliaris*	Gayndah	6	3		50
Digitaria	*eriantha*	19903	4		2	50
Digitaria	*eriantha*	60767	8	2	2	50
Panicum	*coloratum*	59877	4	1	1	50
Panicum	*coloratum*	Pollock	2		1	50
Urochloa	sp.	60118	4		2	50
Urochloa	*mosambicensis*	Nixon	11	1	4	45
Cenchrus	*ciliaris*	65411	7	1	2	43
Urochloa	*mosambicensis*	60115	7	2	1	43

Cenchrus	*ciliaris*	59629	5	1	1	40
Cenchrus	*ciliaris*	60734	5	1	1	40
Cenchrus	*ciliaris*	71916	5	1	1	40
Digitaria	*eriantha*	59829	5		2	40
Digitaria	*milanjiana*	Strickland	10	2	2	40
Digitaria	*eriantha*	16777	8	1	2	38
Digitaria	*eriantha*	59698	8	1	2	38
Urochloa	*mosambicensis*	Saraji	14	1	4	36
Cenchrus	*ciliaris*	71919	6		2	33
Chloris	*gayana*	Callide	3		1	33
Digitaria	*milanjiana*	40644	6		2	33
Digitaria	*eriantha*	Premier	9	2		22
Chloris	*gayana*	Pioneer	5	1		20
Cenchrus	*ciliaris*	American	7	1		14
Digitaria	*milanjiana*	Jarra	3			0
Panicum	*coloratum*	Bambatsi	2			0
LEGUMES						
Desmanthus	*leptophyllus*	37143	2	1	1	100
Desmanthus	*virgatus*	78372	4		3	75
Indigofera	*schimperi*	52621	3	1	1	67
Desmanthus	*virgatus*	85177	4	1	1	50
Desmanthus	*virgatus*	85178	4		2	50
Stylosanthes	*scabra*	55858	6		2	33
Stylosanthes	*scabra*	55872	7		2	29
Indigofera	*schimperi*	65477	7	1	1	29
Macroptilium	*lathyroides*	30229	7		2	29
Stylosanthes	*scabra*	Fitzroy	5		1	20
Macroptilium	*lathyroides*	Murray	2			0
Stylosanthes	*scabra*	Seca	2			0

Conclusions

Although a wide range of species was included in the trials, with rare exceptions the top-ranking species are already in cultivation. However, within those species, accessions were identified which were apparently more productive than current cultivars. This particularly applies to the grasses, and especially *C. ciliaris*. In the event of serious outbreaks of fungal, bacterial or viral disease affecting current cultivars, this study has provided a number of adapted and productive accessions that could have potential as replacement cultivars.

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Appendix 1. Performance of 270 legume and 318 grass accessions in 22 trials in southern western Queensland (see page 2 for basis for ratings and page 3 for site details). Accessions where no germinants were recorded have been omitted.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Acacia	*angustissima*	90841	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.
Acacia	*angustissima*	90858	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.
Acroceras	*macrum*	62122	.	.	.	.	.	.	2	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aeschynomene	*elegans*	P6814	.	.	.	.	.	1	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aeschynomene	*falcata*	11500	.	.	.	.	.	2	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aeschynomene	*villosa*	37235	.	.	.	.	.	1	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Aeschynomene	*villosa*	P7376	.	.	.	.	.	2	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alysicarpus	*glumaceus*	89223	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	.	.	.
Alysicarpus	*ovalifolius*	89222	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	.	.	.
Alysicarpus	*rugosus*	30034	.	.	.	.	.	2	[1]	.	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alysicarpus	*vaginalis*	26973	.	.	.	.	.	.	1	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alysicarpus	*vaginalis*	CQ1676	.	.	.	.	.	1	2	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Andropogon	*gayanus*	43155	.	.	.	.	.	2	[1]	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Andropogon	*gayanus*	43156	.	.	.	.	.	3	0	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Andropogon	*gayanus*	43157	.	.	.	.	.	2	2	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Andropogon	*gayanus*	51081	.	.	.	.	.	2	2	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Andropogon	*gayanus*	53165	.	.	.	.	.	2	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Anthephora	*pubescens*	43713	.	2	2	2	1	.	.	.	.	.	2	.	.	.	.	[1]	.	.	.	.	.	.	.
Anthephora	*pubescens*	43714	.	2	1	2	1	.	.	.	.	.	2	.	.	.	.	[2]	.	.	.	[2]	.	.	.
Anthephora	*pubescens*	47102	.	.	.	.	.	0	[2]	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Anthephora	*pubescens*	51471	.	.	.	.	.	0	2	0		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Anthephora	*pubescens*	71060	.	.	.	.	.	2	2	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Anthephora	*pubescens*	71061	.	.	.	.	.	3	2	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bewsia	*biflora*	59842	.	.	.	.	.	2	.	[2]	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bothriochloa	*barbinodis*	38183B	.	.	.	.	.	[2]	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bothriochloa	*barbinodis*	38186	.	.	.	.	.	[1]	1	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bothriochloa	*barbinodis*	38188	.	.	.	.	.	[2]	1	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bothriochloa	*insculpta*	59584	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bothriochloa	*insculpta*	65463	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bothriochloa	*insculpta*	CQ1639	Hatch	2	2	4	1	.	.	.	.	.	1	.	.	.	.	2	2	.	.	2	.	.	.
Bothriochloa	*pertusa*	59585	.	.	.	.	.	.	2	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bothriochloa	*pertusa*	59587	.	.	.	.	.	.	2	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bothriochloa	*radicans*	65464	.	.	.	.	.	2	3	4	[1]	.	1	.	.	.	.	1	2	.	.	.	.	.	.
Brachiaria	*decumbens*	CQ1293	.	.	.	.	.	[2]	[2]	[1]	[1]	.	.	.	.	2	.	.	.	.	.	.	.	.	.
Brachiaria	*decumbens*	L31-74	.	.	.	.	.	2	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Brachiaria	*decumbens*	CQ1107	Basilisk	.	.	.	.	3	2	3	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Brachiaria	*humidicola*	59615	.	.	.	.	.	2	[2]	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Brachiaria	*nigropedata*	41093	.	.	.	.	.	.	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Brachiaria	*nigropedata*	59616	.	.	.	.	.	.	1	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Brachiaria	*nigropedata*	73566	.	.	.	.	.	.	3	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Brachiaria	*serrifolia*	59620	.	.	.	.	.	2	4	1	1	.	.	.	.	2	.	.	.	.	.	.	.	.	.
Brachiaria	*xantholeuca*	73372	.	.	.	.	.	2	2	2	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cajanus	*cajan*	89231	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	.	.	.	.	.	.	.	.	.
Cassia	*leschenaultiana*	29396	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	0	.	.	.	.	.	.
Cenchrus	*ciliaris*	29025	.	.	.	.	.	1	0	0	[1]	.	2	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	29033	.	.	.	.	.	[3]	[2]	0	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	29035	.	.	.	.	.	[3]	[2]	[2]	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	29036	.	.	.	.	.	[2]	0	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	37181	.	.	.	.	.	4	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48189	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48190	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48191	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48192	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48193	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48194	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48195	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48196	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48197	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48198	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48199	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48200	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48201	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48202	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48203	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48204	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48205	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48206	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48207	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48208	.	.	.	.	.	.	.	.	.	[3]	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48209	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	48210	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	59628	.	.	.	.	.	4	2	1	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	59629	.	.	.	.	.	4	3	2	1	.	.	.	.	2	.	1	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	59630	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	59631	.	.	.	.	.	4	3	2	1	.	3	.	.	.	.	2	3	.	.	4	4	4	4
Cenchrus	*ciliaris*	59632	.	.	.	.	.	2	4	0	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	59633			.	.	.	4	4	1	1	.	2	.	.	.	.	1	3	.	.	.	.	.	.
Cenchrus	*ciliaris*	59634	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	59635	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Cenchrus	*ciliaris*	59636	.	.	.	.	.	2	2	3	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	59644	.	.	.	.	.	4	4	2	[2]	.	.	.	.	.	.	.	2	.	.	4	.	.	.
Cenchrus	*ciliaris*	59645	.	.	.	.	.	3	4	2	1	.	.	.	.	.	.	2	3	.	.	4	.	.	.
Cenchrus	*ciliaris*	59646	.	.	.	.	.	4	2	2	1	.	.	.	.	.	.	.	2	.	.		.	.	.
Cenchrus	*ciliaris*	59894	.	.	.	.	.	4	4	2	1	.	.	.	.	.	.	.	.	.	.	3	.	.	.
Cenchrus	*ciliaris*	60629	.	.	.	.	.	4	2	1	1	.	2	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	60728	.	.	.	.	.	4	2	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	60729	.	.	.	.	.	4	4	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	60730	.	.	.	.	.	4	2	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	60731	.	.	.	.	.	0	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	60732	.	.	.	.	.	4	4	2	1	.	2	.	.	.	.	2	3	.	.	3	.	.	.
Cenchrus	*ciliaris*	60733	.	.	.	.	.	4	2	2	1	.	3	.	.	.	.	.	3	.	.	.	.	.	.
Cenchrus	*ciliaris*	60734	.	.	.	.	.	4	2	2	2	.	.	.	.	.	.	.	3	.	.	.	.	.	.
Cenchrus	*ciliaris*	60736	.	.	.	.	.	4	3	2	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	60737	.	.	.	.	.	4	4	2	1	.	.	.	.	.	.	.	3	.	.	4	4	4	2
Cenchrus	*ciliaris*	61144	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	61570	.	.	.	.	.	4	3	1	[1]	.	.	.	.	3	.	2	3	.	.	.	.	.	.
Cenchrus	*ciliaris*	61571	.	.	.	.	.	4	3	4	1	.	.	.	.	3	.	2	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	65411	.	.	.	.	.	4	3	3	[2]	.	.	.	.	2	.	2	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	71912	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	71913	.	.	.	.	.	3	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	71914	.	.	.	.	.	3	4	2	1	.	1	.	.	.	.	[2]	2	.	.	3	.	.	.
Cenchrus	*ciliaris*	71915A	.	.	.	.	.	4	2	2	[1]	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	71915B	.	.	.	.	.	3	2	2	[1]	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	71916	.	.	.	.	.	4	3	2	2	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	71918	.	.	.	.	.	2	3	2	1	.	2	.	.	.	.	2	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	71919	.	.	.	.	.	3	2	1	3	.	2	.	.	.	.	2	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	73373	.	.	.	.	.	2	3	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73374	.	.	.	.	.	3*	.	.	.	.	1	.	.	.	.	.	3	.	.	.	.	.	.
Cenchrus	*ciliaris*	73375	.	.	.	.	.	3*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73376	.	.	.	.	.	3*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73377	.	.	.	.	.	3*	.	.	.	.	[1]	.	.	.	.	.	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	73378	.	.	.	.	.	3*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73379	.	.	.	.	.	3*	.	.	.	.	.	.	.	2	.	2	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	73380	.	.	.	.	.	3*	.	.	.	.	.	.	.	2	.	2	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	73381	.	.	.	.	.	3*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73382	.	.	.	.	.	3*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73383	.	.	.	.	.	4	2	3	2	.	.	.	.	.	.	.	3	.	.	.	.	.	.
Cenchrus	*ciliaris*	73384	.	.	.	.	.	3*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73385	.	.	.	.	.	3*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73386	.	.	.	.	.	3*	.	.	.	.	.	.	.	2	.	2	2	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Cenchrus	*ciliaris*	73387	.	.	.	.	.	3*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73388	.	.	.	.	.	4	2	3	0	.	3	.	.	.	.	2	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	73389	.	.	.	.	.	3*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73390	.	.	.	.	.	3*	.	.	.	.	2	.	.	.	.	2	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	73391	.	.	.	.	.	3*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	73392	.	.	.	.	.	3*	.	.	.	.	.	.	.	2	.	2	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	73393	.	.	.	.	.	3*	.	.	0	.	2	.	.	.	.	2	2	.	.	.	4	4	4
Cenchrus	*ciliaris*	73394	.	.	.	.	.	3*	.	.	.	.	2	.	.	.	.	3	.	.	.	.	.	.	.
Cenchrus	*ciliaris*	CQ1411	.	.	.	.	.	4	2	3	1	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Cenchrus	*ciliaris*	Q10077	.	4	4	2	1		.	.	.	.	.	.	.	3	.	2	2	.	.	3	.	.	.
Cenchrus	*ciliaris*	Q10087	.	4	4	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.
Cenchrus	*ciliaris*	Q4841	American	4	2	2	0	.	.	.	.	.	.	.	.	2	.	2	2	.	.	2	.	.	.
Cenchrus	*ciliaris*	6934	Biloela	.	.	.	.	.	.	.	.	.	.	.	.	2	.	2	2	.	.	.	4	4	4
Cenchrus	*ciliaris*	1848	Gayndah	.	.	.	.	.	.	.	.	.	.	.	.	3	.	2	[1]	.	.	.	4	4	4
Cenchrus	*prieurii*	36713	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*prieurii*	36714	.	.	.	.	.	2	2	[2]	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	17655	.	.	.	.	.	3	.	.	.	.	.	.	.	2	.	.	.	.	.	.	3	4	4
Cenchrus	*setiger*	36884	.	.	.	.	.	2	1	2	1	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Cenchrus	*setiger*	36885	.	.	.	.	.	2	1	2	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	36886	.	.	.	.	.	4	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	36887	.	.	.	.	.	4	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	36888	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	36889	.	.	.	.	.	2	2	2	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	57278	.	.	.	.	.	2	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	57279	.	.	.	.	.	2	2	2	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	57280	.	.	.	.	.	2	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	57281	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	57282	.	.	.	.	.	3	1	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	57283	.	.	.	.	.	2	2	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cenchrus	*setiger*	57284	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*absus*	60176	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*absus*	71063	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*biensis*	60178	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*fasciculata*	13407	.	.	.	.	.	2	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*mimosoides*	28688	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*mimosoides*	60177	.	.	.	.	.	1	1	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*nictitans*	30863	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	1						
Chamaecrista	*pilosa*	57503	.	.	.	.	.	2	2	2	1	.	.	.	2	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*rotundifolia*	34719	.	.	.	.	.	2	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*rotundifolia*	78916	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*rotundifolia*	CQ1467	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Chamaecrista	*rotundifolia*	Q10057	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Chamaecrista	*rotundifolia*	34721	Wynn	.	.	.	.	1	.	2	2	.	.	.	1	.	.	.	.	.	.	.	0	2	1
Chamaecrista	*serpens*	34722	.	.	.	.	.	2	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chloris	sp.	73070	.	.	.	.	.	3	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chloris	*gayana*	13375	.	.	.	.	.	4	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chloris	*gayana*	15510	.	.	.	.	.	3	1	2	0	.	.	.	.	3	.	.	.	.	.	.	.	.	.
Chloris	*gayana*	16256	.	.	.	.	.	3	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chloris	*gayana*	16710	.	.	.	.	.	4	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chloris	*gayana*	16711	.	.	.	.	.	3	2	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chloris	*gayana*	24251	.	.	.	.	.	3	2	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chloris	*gayana*	Q3307	Callide	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2	3
Chloris	*gayana*	L26-69	Pioneer	4	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2	1
Chloris	*gayana*	16144	Samford	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2	3
Chloris	*roxburghiana*	28840	.	.	.	.	.	0	0	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chloris	*roxburghiana*	P652	.	.	.	.	.	0	0	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chrysopogon	sp.	52213	.	.	.	.	.	0	2	0	0	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Clitoria	*ternatea*	CQ389	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.
Crotalaria	*christantiflora*	60186	.	.	.	.	.	1	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Crotalaria	*goreensis*	CQ1103	.	.	.	.	.	1	1	0	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Crotalaria	*incana*	38550	.	.	.	.	.	2	2	4	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Crotalaria	*incana*	CQ1101	.	.	.	.	.	1	2	2	[3]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Crotalaria	*laburnifolia*	P4434	.	.	.	.	.	1	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Crotalaria	*rhodesiae*	52955	.	.	.	.	.	1	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Crotalaria	*rhodesiae*	60848	.	.	.	.	.	1	2	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Crotalaria	*senegalensis*	CQ1371	.	.	.	.	.	1	1	[2]	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Crotalaria	sp.	89270	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.
Cyamopsis	*senegalensis*	60225	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cynodon	*dactylon*	CQ1286	.	.	.	.	.	2	0	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dactyloctenium	sp.	43573	.	.	.	.	.	.	2	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dactyloctenium	sp.	45168	.	.	.	.	.	0	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dactyloctenium	sp.	59676	.	.	.	.	.	.	2	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dactyloctenium	sp.	59677	.	.	.	.	.	.	1	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dactyloctenium	sp.	69522	.	.	.	.	.	1	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dactyloctenium	*giganteum*	51098	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Desmanthus	*bicornutus*	90857	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	0	2	.	.	.	.
Desmanthus	*covillei*	84972	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	0	0	0	.	.	.	.	.
Desmanthus	*covillei*	90832	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	.	0	.	.	.	.	.
Desmanthus	*covillei*	90848	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	0	[1]	.	.	2	2	1
Desmanthus	*covillei*	90849	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.
Desmanthus	*fruticosus*	84961	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	.	0	.	.	.	.	.
Desmanthus	*fruticosus*	84962	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Desmanthus	*fruticosus*	84973	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	.	.	.	.	.	.	.
Desmanthus	*fruticosus*	90320	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	[1]	.	.	.	.	.
Desmanthus	*leptophyllus*	37143	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	0	4	1
Desmanthus	*leptophyllus*	38403	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	0	0	.	.	.	.	.
Desmanthus	*leptophyllus*	55719	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[2]	.	0	2	2	.	0	2	[1]
Desmanthus	*leptophyllus*	91146	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	0	.	.	.	.	.	.
Desmanthus	*leptophyllus*	92828	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	0	.	.	.	.	.
Desmanthus	*pernambucanus*	40071	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	0	0	.	.	.	.	.
Desmanthus	*pernambucanus*	83565	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	.	0	.	.	.	.	.
Desmanthus	*virgatus*	73467	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	[2]	.	.	.	.	.
Desmanthus	*virgatus*	78372	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	[1]	3	.	2	3	3
Desmanthus	*virgatus*	83563	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	0	0	.	.	.	.	.
Desmanthus	*virgatus*	85172	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.
Desmanthus	*virgatus*	85173	.	.	.	.	.	.	.	.	.	.	.	[3]	.	.	0	.	0	[1]	.	.	.	.	.
Desmanthus	*virgatus*	85177	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	0	0	2	.	2	4	3
Desmanthus	*virgatus*	85178	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	[1]	[1]	0	2	.	2	3	3
Desmanthus	*virgatus*	85179	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	0	.	.	.	.	.
Desmanthus	*virgatus*	85181	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	.	.	.	.	.	.	.	.	.
Desmanthus	*virgatus*	85182	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	[2]	.	.	.	.	.
Desmanthus	*virgatus*	89197	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	3	.	.	.	.
Desmanthus	*virgatus*	90827	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	.	.	.	.	.	.	.
Desmanthus	*virgatus*	91181	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	0	[1]	.	.	.	.	.
Dichilus	*lebeckioides*	73595	.	.	.	.	.	2	2	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	14367	.	.	.	.	.	3	1	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	14368	.	.	.	.	.	[2]	2	[2]	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	16771	.	.	.	.	.	2	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	16774A	.	.	.	.	.	3	3	3	[1]	.	.	.	.	2	.	2	3	.	.	.	.	.	.
Digitaria	*eriantha*	16775	.	.	.	.	.	3	2	1	[2]	.	2	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	16776	.	.	.	.	.	3	2	0	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	16777	.	.	.	.	.	3	3	2	2	.	2	.	.	.	.	2	2	.	.	4	.	.	.
Digitaria	*eriantha*	19899	.	.	.	.	.	3	2	0	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	19900	.	.	.	.	.	3	1	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	19902	.	.	.	.	.	1	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	19903	.	.	.	.	.	[3]	3	2	0	.	.	.	.	.	.	.	.	.	.	[2]	.	.	.
Digitaria	*eriantha*	23854	.	.	.	.	.	3	2	2	1	.	.	.	.	2	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	26832	.	.	.	.	.	2	2	2	[1]	.	.	.	.	2	.	3	.	.	.	.	.	.	.
Digitaria	*eriantha*	26836	.	.	.	.	.	0	3	2	0	.	.	.	.	.	.	1	.	.	.	[2]	.	.	.
Digitaria	*eriantha*	31962	.	.	.	.	.	[3]	3	2	0	.	.	.	.	.	.	.	.	3	.	.	.	.	.
Digitaria	*eriantha*	36190	.	.	.	.	.	3	2	2	[1]	.	2	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	40669	.	.	.	.	.	2	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	40672	.	.	.	.	.	1	0	1	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Digitaria	*eriantha*	40677	.	.	.	.	.	[2]	1	[2]	0	.	.	.	.	1	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	40679	.	.	.	.	.	[2]	2	2	[1]	.	1	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	41172	.	.	.	.		[3]	1	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	41190	.	2	1	2	0	.	.	.	.	1	.	.	.	.	.	2	.	.	.	1	.	.	.
Digitaria	*eriantha*	41195	.	.	.	.	.	3	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	41196	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	43908	.	.	.	.	.	3	1	2	[1]	.	2	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	51100	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	51101	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	51102	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	59698	.	.	.	.	.	[3]	2	1	[1]	.	.	.	.	2	.	3	2	.	.	.	4	[2]	2
Digitaria	*eriantha*	59758	.	.	.	.	.	2	3	2	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	59790	.	.	.	.	.	[3]	2	0	0	.	2	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	59794	.	.	.	.	.	2	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	59797	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	59802	.	.	.	.	.	2	2	2	[1]	.	.	.	.	2	.	2	2	.	.	.	.	.	.
Digitaria	*eriantha*	59829	.	.	.	.	.	2	3	1	3	.	2	.	.	.	.	2	.	.	.	.	.	.	.
Digitaria	*eriantha*	59831	.	.	.	.	.	2	2	2	0	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Digitaria	*eriantha*	60767	.	.	.	.	.	2	2	2	1	.	.	.	.	3	.	1	3	.	.	.	4	4	[2]
Digitaria	*eriantha*	60769	.	.	.	.		1	1	2	[2]	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Digitaria	*eriantha*	60770	.	.	.	.	.	2	2	4	2	.	3	.	.	.	.	2	2	.	.	.	.	.	.
Digitaria	*eriantha*	60771	.	.	.	.	.	1	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*eriantha*	38869	Premier	2	2	2	0	.	.	.	.	.	.	.	.	2	.	2	2	.	.	.	4	4	2
Digitaria	*milanjiana*	34673	.	.	.	.	.	2	3	2	2	.	.	.	.	.	.	3	.	.	.	.	.	.	.
Digitaria	*milanjiana*	36191	.	.	.	.	.	3	2	[2]	[1]	.	3	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	37683	.	.	.	.	.	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	40644	.	.	.	.	.	3	2	3	[1]	.	.	.	.	[2]	.	2	2	.	.	.	.	.	.
Digitaria	*milanjiana*	40667	.	.	.	.	.	2	4	2	1	.	.	.	.	.	.	1	.	.	.	2	.	.	.
Digitaria	*milanjiana*	40668	.	.	.	.	.	2	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	40703	.	.	.	.	.	3	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	41179	.	.	.	.	.	[2]	1	0	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	41183	.	.	.	.	.	3	2	1	[1]	.	.	.	.	2	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	41187	.	.	.	.	.	3	2	1	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	41188	.	.	.	.	.	3	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	41192	.	2	2	2	0	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59711	.	.	.	.		1	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59715	.	.	.	.		1	2	2	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59749	.	2	2	2	0					.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59753	.	.	.	.		1	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59755	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59759	.	.	.	.	.	[2]	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Digitaria	*milanjiana*	59760	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59761	.	2	2	2	1	.	.	.	.	2	.	.	.	.	.	2	2	.	.	.	.	.	.
Digitaria	*milanjiana*	59774	.	.	.	.	.	2	2	2	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59777	.	.	.	.	.	1	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59779	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59781	.	.	.	.	.	2	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59784	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59785	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59786	.	.	.	.	.	2	3	4	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59787	.	.	.	.	.	2	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59789	.	.	.	.	.	2	4	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59796	.	.	.	.	.	1	2	3	[1]	.	2	.	.	2	.	0	2	.	.	.	.	.	.
Digitaria	*milanjiana*	59817	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59828	.	.	.	.	.	1	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59830	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	59745	Jarra	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Digitaria	*milanjiana*	40700	Strickland	2	4	2	1	.	.	.	.	.	.	.	.	2	.	2	2	.	.	4	3	2	3
Diplachne	*fusca*	59843	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Enteropogon	*macrostachyus*	59848	.	.	.	.	.	[2]	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enteropogon	*macrostachyus*	59850	.	.	.	.	.	1	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enteropogon	*macrostachyus*	69525	.	.	.	.	.	1	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enteropogon	*macrostachyus*	73397	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Eragrostis	*curvula*	30374	.	.	.	.	.	1	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*curvula*	51105	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*curvula*	51107	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*curvula*	51108	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*curvula*	51109	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*curvula*	51110	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*curvula*	51111	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	1	2	.	.	.	.	.	.
Eragrostis	*lehmanniana*	16785	.	.	.	.	.	1	2	0	0	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Eragrostis	*lehmanniana*	51112	.	.	.	.	.	1	2	[2]	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*lehmanniana*	51113	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*planiculmis*	51114	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*robusta*	51115	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*superba*	59853	.	.	.	.	.	2	3	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	*superba*	69526	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Eragrostis	sp.	51119	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Galactia	sp.	74868	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Glycine	*canescens*	CQ1685	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	0	.	.	.	.	.	.
Indigofera	*antunesiana*	18298	.	.	.	.	.	1	2	2	1	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Indigofera	*colutea*	CQ1377	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Indigofera	*hirsuta*	40172	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*hirsuta*	43773	.	.	.	.	.	2	0	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*hirsuta*	82710	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*hochstetteri*	29981	.	.	.	.	.	2	2	2		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*linnaei*	CQ3012	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*schimperi*	16055	.	.	.	.	.	1	1	3	2	.	.	[1]	.	.	0	.	.	2	.	.	0	2	[1]
Indigofera	*schimperi*	52621	.	.	.	.	.					.	.	.	.	.	.	.	.	2	.	.	3	4	1
Indigofera	*schimperi*	65477	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	.	.	2	.	.	2	4	2
Indigofera	*schimperi*	69495	.	.	.	.	.	1	[1]	1	0	.	.	0	.	.	.	.	.	2	.	.	3	2	2
Indigofera	*schimperi*	73608	.	.	.	.	.	3	2	2	1	.	.	[2]	.	.	.	.	.	2	.	.	0	2	2
Indigofera	*spicata*	18421	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*spicata*	37686	.	.	.	.	.	2	2	2	2	.	.	0	.	.	.	2	.	.	.	.	.	.	.
Indigofera	*spicata*	43774	.	.	.	.	.	1	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*suffruticosa*	29746	.	.	.	.	.	1	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*teysmanni*	30154	.	.	.	.	.	1	1	[2]	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*tinctoria*	24207	.	.	.	.	.	1	3	2	2	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Indigofera	*tinctoria*	29506	.	.	.	.	.	2	2	2	2	.	.	0	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*tinctoria*	29749	.	.	.	.	.	1	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*tinctoria*	32973	.	.	.	.	.	2	2	2	2	.	.	0	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*tinctoria*	71068	.	.	.	.	.	1	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*trifoliata*	30064	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*trita*	15435	.	.	.	.	.	1	2	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*trita*	32950	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.
Indigofera	*trita*	33164	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.
Indigofera	*trita*	34657	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.
Indigofera	*trita*	40546	.	.	.	.	.					.	.	.	.	.	.	.	.	.	[1]	.	.	.	.
Indigofera	*vicioides*	69494	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*vicioides*	69497	.	.	.	.	.	2	2	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Indigofera	*volkensii*	32866	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	.	.
Lablab	*purpureus*	24973	.	.	.	.	.	1	1	1	[3]	.	.	0	.	.	.	.	.	.	.	.	.	.	.
Lintonia	*nutans*	41120	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Listia	*heterophylla*	43776	.	.	.	.	.	0	1	0	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Listia	*heterophylla*	61842	.	.	.	.	.	1	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lotononis	*angolensis*	26293	.	.	.	.	.	1	2	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lotononis	*angolensis*	46677	.	.	.	.	.	1	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lotononis	*bainesii*	47573	.	.	.	.	.	2	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lotononis	*bainesii*	62207	.	.	.	.	.	1	1	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lotononis	*bainesii*	CQ1153	Miles	.	.	.	.	2	2	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lotononis	*bainesii*	CQ907	Miles	.	.	.	.	1	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Lupinus	*angustifolius*	CQ1352	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Macroptilium	*atropurpureum*	90334	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	.	[2]	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Macroptilium	*atropurpureum*	90335	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	2	.	.	.	.	.
Macroptilium	*atropurpureum*	90338	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	.	.	.	.	.	.
Macroptilium	*atropurpureum*	90821	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.
Macroptilium	*atropurpureum*	90822	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	.	.	.	.	.	.	.
Macroptilium	*atropurpureum*	90850	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.
Macroptilium	*atropurpureum*	CQ364	Siratro	.	.	.	.	1	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Macroptilium	*geophilium*	78439	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Macroptilium	*geophilium*	78440	.	.	.	.	.	1	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Macroptilium	*gibbosifolium*	90447	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.
Macroptilium	*gibbosifolium*	90480	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.
Macroptilium	*gibbosifolium*	90483	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.
Macroptilium	*gibbosifolium*	90741	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.
Macroptilium	*lathyroides*	30229	.	.	.	.	.	3	2	2	2	.	.	.	.	.	.	3	2	2	.	.	.	.	.
Macroptilium	*lathyroides*	75960	.	.	.	.	.	2	2	1	2	.	.	.	.	.	.	3	2	2	.	.	.	.	.
Macroptilium	*lathyroides*		Murray	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2
Macroptilium	*psammodes*	78452	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.
Macrotyloma	*africanum*	24972	.	.	.	.	.	1	1	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Macrotyloma	*africanum*	60207	.	.	.	.	.	1	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Macrotyloma	*daltonii*	60302	.	.	.	.	.	1	2	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Macrotyloma	*daltonii*	60303	.	.	.	.	.	1	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Macrotyloma	*uniflorum*	14629	.	.	.	.	.	[1]	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Macrotyloma	*uniflorum*	73072	.	.	.	.	.	2	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Medicago	*littoralis*	L20-75	Harbinger	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.
Medicago	*scutellata*	L63-72		.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Medicago	*scutellata*	CQ1353	'Snail'	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.
Medicago	*tornata*	L29-76	Tornafield	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.
Medicago	*truncatula*	CQ1342	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.
Medicago	*truncatula*	CQ1354	Jemalong	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.
Muelleranthus	*trifoliolatus*	P12594	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.
Neonotonia	*wightii*	51129	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Neonotonia	*wightii*	51130	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Neonotonia	*wightii*	51131	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Neonotonia	*wightii*	60234	.	.	.	.	.	1	1	1	2	.	.	0	.	.	.	.	.	.	.	.	.	.	.
Neonotonia	*wightii*	60235	.	.	.	.	.	1	1	1	2	.	.	0	.	.	.	.	.	.	.	.	.	.	.
Otoptera	*burchellii*	60313	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*coloratum*	18022	.	.	.	.	.	1	2	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*coloratum*	29881	.	.	.	.	.	[2]	2	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*coloratum*	49639	.	.	.	.	.	3	2	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*coloratum*	49641	.	.	.	.	.	1	2	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*coloratum*	51120	.	.	.	.	.	.	3	.	.	.	2	.	.	.	.	0	4	.	.	.	.	.	.
Panicum	*coloratum*	59876	.	.	.	.	.	3	2	.	1	.	3	.	.	.	.	2	3	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Panicum	*coloratum*	59877	.	.	.	.	.	4	2	.	0	.	.	.	.	.	.	2	3	.	.	.	.	.	.
Panicum	*coloratum*	59878	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	3	2	.	.	.	.	.	.
Panicum	*coloratum*		Bambatsi	.	.	.	.	2	2	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*coloratum*		Pollock	.	.	.	.	3	2	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*deustum*	73410	.	.	.	.	.	1	2	.	0	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Panicum	*maximum*	51121	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*maximum*	51122	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*maximum*	51123	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*maximum*	51124	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Panicum	*maximum*	60028	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.
Panicum	*maximum*	CQ2777	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	[2]	3
Paspalum	*orbiculare*	60064	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pennisetum	*glaucum*		Katherine Pearl		.	.	.	1	2	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phaseolus	*filiformis*	84970	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	0	0	.	.	.	.	.
Phaseolus	*filiformis*	90347	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	2	0	.	.	.	.	.	.
Phaseolus	*filiformis*	90358	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	0	2	.	.	.	.	.	.
Phaseolus	*wrightii*	90381	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	2	[1]	.	.	.	.	.	.
Puccinellia	sp.	P7659	.	.	.	.	.	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhynchosia	*longeracemosa*	34173	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	.	.	.
Rhynchosia	*minima*	33827	.	.	.	.	.	1	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhynchosia	*minima*	33999	.	.	.	.	.	1	1	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhynchosia	*minima*	34875	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhynchosia	*minima*	60626	.	.	.	.	.	2	1	2	2	.	.	2	.	.	.	.	.	.	.	.	.	.	.
Rhynchosia	*minima*	89220	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	.	.	.	.	.	.	.	.	.
Rhynchosia	*sublobata*	52728	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhynchosia	*sublobata*	69502	.	.	.	.	.	[2]	2	[2]	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhynchosia	*totta*	60332	.	.	.	.	.	1	2	3	1	.	.	.	.	.	.	.	.	.	.	.	0	2	2
Rhynchosia	*totta*	60339	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	0	1	.	.	.	.	.
Rhynchosia	*totta*	60341	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhynchosia	*totta*	60342	.	.	.	.	.	2	2	[2]	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rhynchosia	*totta*	67324	.	.	.	.	.	2	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Schmidtia	*pappophoroides*	43716	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	[1]	.	.	.	.	.	.	.
Schmidtia	*pappophoroides*	57032	.	.	.	.	.	.	[2]	0	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Senna	*obtusifolia*	30192	.	.	.	.	.	1	1	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Senna	*pallida*	38536	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Senna	*pendula*	CQ1497	.	.	.	.	.	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Senna	*quinquangulata*	60179	.	.	.	.	.	1	2	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Senna	*sturtii*	79501	.	.	.	.	.	[2]	[2]	0	0	.	.	.	.	.	.	0	0	.	.	.	.	.	.
Senna	*uniflora*	38538	.	.	.	.	.	2	2	2	3	.	.	.	.	.	.	.	2	.	.	.	.	.	.
Setaria	*appendiculata*	47115	.	.	.	.	.	.	[3]	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*incrassata*	CQ1460	.	.	.	.	.	3	4	1	0	.	3	.	.	.	.	2	.	.	.	2	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Setaria	*neglecta*	26490	.	.	.	.	.	[2]	1	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*nigrirostris*	P6049	.	.	.	.	.	[1]	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*sphacelata*	69529A	.	.	.	.	.	3	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*sphacelata*	51125	.	.	.	.	.	[2]	1	[2]	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*sphacelata*	60092	.	.	.	.	.	2	2	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*sphacelata*	60093	.	.	.	.	.	2	1	[2]	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*sphacelata*	60094	.	.	.	.	.	2	1	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*sphacelata*	60095	.	.	.	.	.	2	1	[1]	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*sphacelata*	60096	.	.	.	.	.	2	1	[2]	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*sphacelata*	69529	.	.	.	.	.	3	[2]	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Setaria	*sphacelata*	73579	.	.	.	.	.	2	2	0	0	.	2	.	.	.	.	.	.	.	.	.	.	.	.
Stylosanthes	*calcicola*	73525	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	[1]	0	.	.	.	.	.
Stylosanthes	*fruticosa*	41219A	.	2	2	2	1	0	0	.	.	.	.	.	.	.	.	[2]	[1]	.	.	.	.	.	.
Stylosanthes	*fruticosa*	25368	.	.	.	.	.	2	2	1	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Stylosanthes	*fruticosa*	33517	.	.	.	.	.	2	2	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Stylosanthes	*fruticosa*	40615	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	0	.	.	.	.	.	.
Stylosanthes	*fruticosa*	41116	.	.	.	.	.	2	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Stylosanthes	*fruticosa*	41117	.	.	.	.	.	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Stylosanthes	*fruticosa*	43349	.	.	.	.	.	1	2	[1]	2	.	.	.	.	.	.	[2]	.	.	.	.	.	.	.
Stylosanthes	*fruticosa*	43788	.	.	.	.	.	2	3	1	1	.	.	0	.	.	.	2	.	.	.	.	.	.	.
Stylosanthes	*fruticosa*	45174	.	.	.	.	.	1	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Stylosanthes	*fruticosa*	45175	.	.	.	.	.	1	2	2	1	.	.	.	.	.	.	2	0	.	.	.	.	.	.
Stylosanthes	*guianensis*	41209C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	.	[1]	.	.	.	.	.
Stylosanthes	*guianensis*	41211	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	[1]	0	.	.	.	.	.
Stylosanthes	*guianensis*	40255	Graham	1	1	2	1	0	0	0		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Stylosanthes	*hamata*	33205	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.
Stylosanthes	*hamata*	55825	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.
Stylosanthes	*hamata*	55826	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Stylosanthes	*hamata*	55827	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2	.	.	.	.	.	.	.
Stylosanthes	*hamata*	55828	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0	.	.	.	.	.	.	.
Stylosanthes	*hamata*	55830	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Stylosanthes	*hamata*	55831	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.
Stylosanthes	*hamata*	70366	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	[1]	0	.	.	.	.	.
Stylosanthes	*hamata*	73484	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	.	0	.	.	.	.	.
Stylosanthes	*hamata*	75162	.	.	.	.	.	.	.	.	.	.	.	0	.	.	0	.	1	1	.	.	.	.	.
Stylosanthes	*hamata*	75163	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	0	.	0	[2]	.	.	.	.	.
Stylosanthes	*hamata*	75164	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	0	.	1	2	.	.	.	.	.
Stylosanthes	*hamata*	75165	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	0	1	.	.	.	.	.
Stylosanthes	*hamata*	75166	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	0	.	[1]	1	.	.	.	.	.
Stylosanthes	*hamata*	75167	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	0	.	1	0	.	.	.	.	.
Stylosanthes	*hamata*	75168	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	0	.	1	1	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Stylosanthes	*hamata*	75171	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	0	1	.	.	.	.	.
Stylosanthes	*hamata*	75173	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	[1]	[2]	.	.	.	.	.
Stylosanthes	*hamata*	75174	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	[1]	2	.	.	.	.	.
Stylosanthes	*hamata*	75175	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	[1]	2	.	.	.	.	.
Stylosanthes	*hamata*	38842	Verano	2	2	2	1	0	0	0	.	.	.	[1]	.	.	0	[2]	1	0	.	.	.	.	.
Stylosanthes	*scabra*	40292	.	.	.	.	.	.	.	.	.	.	.	[2]	2	.	.	.	.	.	.	.	.	.	.
Stylosanthes	*scabra*	55805	.	1	2	2	1	0	0	0	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Stylosanthes	*scabra*	55817	.	2	2	2	1	0	0	0	.	.	.	.	.	.	.	1	1	.	.	.	0	2	[1]
Stylosanthes	*scabra*	55818	.	2	2	2	1	0	0	0	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.
Stylosanthes	*scabra*	55833	.	2	2	2	1	0	0	0	.	.	.	.	.	.	.	.	1	.	.	.	0	2	2
Stylosanthes	*scabra*	55856	.	2	2	2	1	0	.	0	.	.	.	.	.	.	.	2	[1]	.	.	.	.	.	.
Stylosanthes	*scabra*	55857	.	2	2	2	1	0	0	0	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.
Stylosanthes	*scabra*	55858	.	2	3	2	1	0	0	0	.	.	.	.	.	.	.	2	.	.	.	.	0	2	3
Stylosanthes	*scabra*	55867	.	.	.	.	.	.	.		.	.	.	.	.	.	0	.	1	0	.	.	.	.	.
Stylosanthes	*scabra*	55868	.	2	2	2	1	0	0	0	.	.	.	.	.	.	.	.	[2]	.	.	.	.	.	.
Stylosanthes	*scabra*	55870	.	2	2	2	1	0	0	0	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.
Stylosanthes	*scabra*	55872	.	2	2	2	2	0	0	0	.	.	.	0	.	.	.	2	1	.	.	.	0	3	3
Stylosanthes	*scabra*	55875	.	1	2	2	2	0	0	0	.	.	.	.	.	.	.	2	.	.	.	.	0	2	2
Stylosanthes	*scabra*	63466	.	.	.	.	.	.	.	.	.	.	.	2	2	.	0	1	0	0	.	.	.	.	.
Stylosanthes	*scabra*	63467	.	.	.	.	.	.	.	.	.	.	.	2	2	.	0	.	[1]	2	2	.	.	.	.
Stylosanthes	*scabra*	Q10042	.	.	.	.	.	.	.	.	.	.	.	[2]	2	.	0	.	1	1	.	.	0	2	2
Stylosanthes	*scabra*	40205	Fitzroy	2	2	2	1	0	0	0	.	.	.	.	.	.	.	3	1	.	.	.	0	2	0
Stylosanthes	*scabra*	40292	Seca	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	2	2
Stylosanthes	*scabra.aff*	55816	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	0	1	0	.	.	.	.	.
Stylosanthes	*subsericea*	38604	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	[1]	.	.	.	.	.
Stylosanthes	*subsericea*	38605	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	1	0	.	.	.	.	.
Stylosanthes	*subsericea*	41214	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	0	0	.	.	.	.	.
Stylosanthes	*subsericea*	41217	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	1	0	.	.	.	.	.
Stylosanthes	*sympodialis*	65958	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	2	0	.	.	.	.	.
Stylosanthes	*sympodialis*	65959	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	[1]	[1]	.	.	.	.	.
Stylosanthes	*sympodialis*	67704	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	.	[1]	.	.	.	.	.
Stylosanthes	*sympodialis*	67705	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	1	0	.	.	.	.	.
Stylosanthes	*viscosa*	34904	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	1	0	.	.	.	.	.
Stylosanthes	*viscosa*	38611	.	.	.	.	.	.	.	.	.	.	.	.	.	.	[1]	.	0	[1]	.	.	.	.	.
Stylosanthes	*viscosa.aff*	33941	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	1	0	.	.	.	.	.
Tephrosia	*bracteolata*	40765	.	.	.	.	.	2	2	3	2	.	.	.	.	.	.	[2]	2	.	.	.	.	.	.
Tephrosia	*cuneata*	35021	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tephrosia	*hookeriana*	30879	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tephrosia	*linearis*	89269	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	.	.	.	.	.	.	.	.	.
Tephrosia	*polystachya*	60367	.	.	.	.	.	2	2	2	[2]	.	.	.	.	.	.	0	1	.	.	.	.	.	.
Tephrosia	*purpurea*	69505A	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	[1]	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Tephrosia	*purpurea*	36435	.	.	.	.	.	2	2	2	2	.	.	[2]	.	.	.	[2]	2	.	.	.	.	.	.
Tephrosia	*purpurea*	36720	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	[1]	.	.	.	.	.	.
Tephrosia	*purpurea*	60368	.	.	.	.	.	2	2	2	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tephrosia	*purpurea*	69505	.	.	.	.	.	2	2	4	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tephrosia	*purpurea*	71070	.	.	.	.	.	2	2	2	2	.	.	.	.	.	0	2	.	.	.	.	.	.	.
Tephrosia	*purpurea*	71071	.	.	.	.	.	2	2	2	1	.	.	0	.	.	.	[1]	.	.	.	.	.	.	.
Tephrosia	*radicans*	18427	.	.	.	.	.	1	2	[1]	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tephrosia	*subtriflora*	40766	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tephrosia	*subtriflora*	71929	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tephrosia	*uniflora*	89262	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	.	.	.	.	.	.	.	.	.
Teramnus	*labialis*	60371	.	.	.	.	.	1	2	2	2	.	.	0	.	.	.	.	.	.	.	.	.	.	.
Trifolium	*hirtum(siritum)*	CQ1344	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Trifolium	*subterraneum*	CQ1351	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
Trigonella	*suavissima*	CQ1672	.	.	.	.	.	2	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	sp.	60118	.	.	.	.	.	3	2	2	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*mosambicensis*	60115	.	.	.	.	.	4	4	2	2	.	.	.	.	3	.	1	2	.	.	2	.	.	.
Urochloa	*mosambicensis*	60117	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*mosambicensis*	60134	.	.	.	.	.	3	2	2	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*mosambicensis*	60135	.	.	.	.	.	3	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*mosambicensis*	60136	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*mosambicensis*	60139	.	.	.	.	.	[4]	1	1	2	.	.	.	.	.	.	.	.	.	.	3	3	2	4
Urochloa	*mosambicensis*	60149	.	.	.	.	.	3	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*mosambicensis*	60150	.	3	4	2	2	.	.	.	.	.	.	.	.	3	.	[2]	3	3	.	.	3	2	3
Urochloa	*mosambicensis*	60151	.	2	4	2	2	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.
Urochloa	*mosambicensis*	60153	.	.	.	.	.	3	2	2	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*mosambicensis*	6559	Nixon	3	2	2	2	.	.	.	.	.	2	.	.	.	.	2	3	.	.	2	3	4	3
Urochloa	*mosambicensis*	60128	Saraji	2	2	2	0	3	2	2	2	.	.	.	.	2	.	2	2	3	.	2	3	3	4
Urochloa	*oligotricha*	43122	.	.	.	.	.	3	3	2	1	.	0	.	.	.	.	[1]	3	.	.	.	.	.	.
Urochloa	*oligotricha*	45604	.	.	.	.	.	0	[1]	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*oligotricha*	45608	.	.	.	.	.	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*oligotricha*	47121	.	.	.	.	.	3	4	2	1	.	.	.	.	.	.	2	3	.	.	3	.	.	.
Urochloa	*oligotricha*	47122	.	2	2	2	1	.	.	.	.	.	3	.	.	.	.	2	3	.	.	.	3	3	3
Urochloa	*oligotricha*	47124	.	.	.	.	.	.	3	1	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*oligotricha*	47128	.	.	.	.	.	2	1	0	[1]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*oligotricha*	47129	.	.	.	.	.	3	2	0	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*oligotricha*	60122	.	.	.	.	.	2	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*oligotricha*	60123	.	.	.	.	.	2	1	0	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*oligotricha*	60126	.	.	.	.	.	3	2	2	2	.	2	.	.	.	.	2	2	.	.	.	.	.	.
Urochloa	*oligotricha*	60127	.	.	.	.	.	3	2	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*stolonifera*	47171	.	.	.	.	.	3	3	1	[1]	.	.	.	.	2	.	3	.	.	.	.	.	.	.
Urochloa	*stolonifera*	47172	.	.	.	.	.	3	1	[2]	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Genus	Species	Accn	Cultivar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Urochloa	*stolonifera*	47173	.	.	.	.	.	3	1	2	1	.	3	.	.	.	.	2	2	.	.	.	3	3	3
Urochloa	*stolonifera*	47177	.	.	.	.	.	3	2	1	[2]	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Urochloa	*stolonifera*	47178	.	.	.	.	.	[3]	3	2	[1]	.	.	.	.	2	.	0	0	.	.	.	.	.	.
Vigna	*frutescens*	60424	.	.	.	.	.	1	2	1	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vigna	*oblongifolia*	28763	.	.	.	.	.	1	1	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vigna	*oblongifolia*	60430	.	.	.	.	.	2	1	1	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vigna	*pubescens*	60435	.	.	.	.	.	.	.	.	.	.	.	[2]	.	.	.	.	.	.	.	.	.	.	.
Vigna	*trilobata*	13671	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	2	.	.	.	.
Vigna	*unguiculata*	60442	.	.	.	.	.	1	2	1	2	.	.	[2]	.	.	.	.	.	.	.	.	.	.	.
Vigna	*unguiculata*	60447	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vigna	*unguiculata*	60449	.	.	.	.	.	1	2	1	1	.	.	0	.	.	.	.	.	.	.	.	.	.	.
Vigna	*unguiculata*	60451	.	.	.	.	.	1	2	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vigna	*unguiculata*	69511	.	.	.	.	.	1	2	2	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vigna	*unguiculata*	72532	.	.	.	.	.	1	2	2	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vigna	*unguiculata*	77011	.	.	.	.	.	1	1	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vigna	*vexillata*	60421	.	.	.	.	.	1	2	2	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vigna	*vexillata*	69512	.	.	.	.	.	1	1	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.