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Botanical name changes – nuisance or a quest for precision?

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Abstract

To understand the need for the seemingly regular changes to plant names applied to many tropical forage species, it is necessary to be aware of the rules that govern botanical nomenclature. The binomial naming system, first proposed in 1753, is governed by rules defined in the International Code of Nomenclature for algae, fungi and plants (ICN). These rules have been strengthened as necessary over the years in the interest of providing practitioners with plant names that are unique for each species, and presented in an hierarchical format that shows the evolutionary relationships between plants. This paper includes a table of name changes accepted by the USDA Germplasm Resources Information Network (GRIN) for species used in tropical forage research and development over the last half century. The need to use legitimate plant names is emphasized and suggestions are made on how practitioners might best deal with the changes.

Resumen

Para entender la necesidad de cambios, aparentemente regulares, de nombres científicos de muchas especies forrajeras tropicales, es necesario estar al tanto de las normas que rigen la nomenclatura botánica. El sistema binomial propuesto por primera vez en 1753, se rige por las reglas definidas en el Código Internacional de Nomenclatura para algas, hongos y plantas (ICN, por sus siglas en inglés). Estas reglas han sido fortalecidas a lo largo de los años, según las necesidades y con el interés de proveer a los investigadores con nombres de plantas que son únicos para cada especie y que en un formato jerárquico presentan las relaciones evolutivas entre las plantas. Se presenta un cuadro con los cambios, producidos durante el último medio siglo y aceptados por el USDA Germplasm Resources Information Network (GRIN), de nombres de especies forrajeras tropicales utilizados en trabajos de investigación y desarrollo. Se enfatiza la necesidad de usar nombres de plantas legítimos y se sugieren maneras cómo los investigadores pueden hacer frente a los cambios.

Introduction

Since the hierarchical system of nomenclature was proposed by the Swedish biologist and medical doctor, Carl von Linné (Carolus Linnaeus), in "Species Plantarum" in 1753, and a set of rules to administer it, "Lois de la nomenclature botanique", was advanced by Alphonse de Candolle in 1867, there has been an ongoing attempt to inject identity and order into what hitherto was simply a naturally occurring assemblage of randomly named organisms. This system, as it has evolved to the current day, requires that plants be named according to a series of basic tenets laid out and expanded on in the International Code of Nomenclature for algae, fungi and plants (ICN) by McNeill et al. (2012), formerly named International Code of Botanical Nomenclature (ICBN), and overseen by the International Botanical Congress that usually meets every 6 years. The system is designed to avoid confusion, not create it, as is often claimed by people who routinely use binomial plant names in their work.

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Why not use common names?

Common or vernacular names are those non-scientific names applied locally to a particular plant in a given locality. The main problem with common names is that they are not common; that is, they are not universal. Each country, each state or province within a country and often each district within a state or province, may well have its own common name for a particular plant. For example, the now widespread shrub species known as "guaje" and almost 20 other names in its native Mexico, is also known as "ipil ipil" in the Philippines or "koa haole" in Hawaii, and by different names in virtually every locality where it is currently found. However, regardless of where this plant is growing in the world, it will be identified by botanists as "*Leucaena leucocephala*".

Another problem with common names is that one common name may be applied to more than one species, particularly if there is a superficial resemblance. For example, the name "sensitive plant" is usually used to refer to *Mimosa pudica*, but is also sometimes used to refer to another species in the legume subfamily Mimosoideae, *Neptunia gracilis*, and even to one in subfamily Caesalpinioideae, *Chamaecrista nictitans*. The characteristic that all 3 species have in common is that the leaflets exhibit thigmonasty (touch-induced movement).

Another issue, as demonstrated in the latter example, is that common names tell nothing about the relationship between plants, a factor that can be important in relation to disease susceptibility or, in the case of legumes, selection of an effective rhizobial strain. Finally, many of the species we sow as forages have no common name in any language, leading to the nonsensical situation of creating common names to satisfy the requirements of a vernacular plant description, as was the case for cultivar registration in earlier years in Queensland, Australia.

Mejia (1984) compiled an extensive list of Spanish, English and Portuguese common names to assist practitioners in making the link with botanical names for a large range of more common grasses and legumes. Cook et al. (2005) provide an alternative online source for this connection.

Basic tenets of the ICN

The ICN is an extremely detailed document that has developed since "Lois de la nomenclature botanique" into a very detailed set of rules, covered in 9 chapters and 62 articles, the latest version being known as the "Melbourne Code" (McNeill et al. 2012). The main themes that affect us are:

1. A botanical name for a particular taxon is attached to a type specimen, usually preserved in an herbarium.
2. Botanical nomenclature is based upon priority of valid publication after 1 May 1753, the publication date of "Species Plantarum". This means that a more recent species name is to be replaced if an older one, validly published, is discovered. Accordingly, each taxon of a particular circumscription, position and rank should have only one correct name.
3. Scientific names are expressed in Latin.
4. The rules and regulations of the ICN are retroactive, unless there is an explicit statement that this does not apply.

For a new or alternative name to be considered for acceptance by the scientific community, it must meet the requirements of valid publication. While there are many articles in the Code referring to this issue, some of the major provisos that must be met are:

1. The name must be effectively published in a document that is generally available to botanists. Effective publication now includes electronic material published online in Portable Document Format (PDF) with an International Standard Serial Number (ISSN) or an International Standard Book Number (ISBN).
2. The name must be published in the correct form, properly Latinized with the correct rank ending (e.g. "aceae" for plant families, "oideae" for subfamilies, and "eae" for tribes), ranks simply reflecting a level in the hierarchy.
3. The name must be accompanied by a description that will distinguish the taxon from similar or closely related taxa. Prior to 2012, it was essential that a name be published with a Latin description or diagnosis, or with a reference to such. However, the description can now be published in either Latin or English, usually along with a vernacular description, if the original is not in English.
4. A nomenclatural type, which is usually a herbarium specimen permanently associated with the name, must be indicated (for genus and below, that is: species, subspecies, botanical variety or form).

Valid publication alone does not guarantee that a name will be accepted. Over time, a proposal is subjected to scrutiny by systematic botanists, who assess the strength of the argument for change or the adequacy of the diagnosis. A validly published name may still be considered illegitimate if it does not follow one or more rules of the ICN. The situation can arise, where one expert or group of experts considers the proposed change

sound, while others might reject the change, leading to confusion among practitioners simply using the names. For example, GRIN accepts *Pennisetum ciliare* (L.) Link as the name for buffel grass, whereas the Catalogue of New World Grasses and Royal Botanic Gardens, Kew, retain the name proposed by Linnaeus, *Cenchrus ciliaris* L. The only way to ensure that we are referring to a particular nomenclatural type is to follow the plant name with the abbreviation of the author's name according to Brummitt and Powell (1992) for the rank of family, genus, species and subspecific taxon (subspecies, variety or form).

Why names change

Systematic botanists around the world conduct exhaustive library and laboratory research to ensure that names of species are in accordance with the rules of the ICN. In doing so, they might determine that a name, as currently used, is inappropriate under the rules of botanical nomenclature and should be changed for the following reasons:

1. Discovery of an earlier, validly published, different name for a particular taxon, which, under the ICN rule of priority, would necessitate the renaming of that taxon. For example, *Macroptilium longepedunculatum* (Mart. ex Benth.) Urb. was initially used for the Australian cultivar, Maldonado. However, this species, whose name derives from the original name, *Phaseolus longepedunculatus* Mart. ex Benth., was found to be the same as the earlier-named *Phaseolus gracilis* Poepp. ex Benth., now accepted as the basionym (the original or first validly described name for a species or other taxon). With the reassignment of a number of species formerly in *Phaseolus* to *Macroptilium*, 'Maldonado' now belongs to *Macroptilium gracile* (Poepp. ex Benth.) Urb. (Note the change in the specific epithet, "*gracilis*" to "*gracile*", to accommodate the change in gender of the generic name.)
2. The name has been found to be contrary to one or more of the ICN rules, and is therefore illegitimate. The name can either be legitimized by valid publication, as is the case with the species that is now *Arachis pintoi* Krapov. & W.C. Greg. rather than *A. pintoi* Krap. et Greg. nom. nud., or altered to a legitimate format as with *Stylosanthes guianensis* var. *vulgaris* M.B. Ferreira & Sousa Costa, which is now *S. guianensis* (Aubl.) Sw. var. *guianensis.*
3. With the benefit of closer scrutiny, or using a molecular taxonomic approach, there may be justification for a change of circumscription, which is the definition of the limits of a taxonomic group. This can entail merging of existing taxa, as was the case with *Digitaria eriantha* Steud., which now includes *D. decumbens* Stent, *D. pentzii* Stent and *D. smutsii* Stent; or the disassembling of an existing taxon, as was the case with the legume genus, *Dolichos*, initially described by Linnaeus, where some members were retained in *Dolichos*, while others were reassigned to *Lablab*, *Macrotyloma* and *Vigna*, among others. This apparent "split" has, in part, been brought about through the elevation of the species, *lablab*, and the subgenus, *Macrotyloma*, to the rank of genus.
4. The name in current common use does not apply to the species to which it is applied. We cite 3 representative examples:
   - The type specimen of *Centrosema pubescens* Benth. more appropriately refers to the species formerly known as *C. schiedeanum* (Schltdl.) R.J. Williams & R.J. Clem., which has a limited natural distribution and is represented by the Australian cultivar, Belalto, while *C. molle* Mart. ex Benth. is now accepted as the most appropriate botanical name for the naturally widespread species known as common centro (Fantz 1996).
   - Similarly, for many years, research and development personnel referred to most *Desmanthus* species with which they were working, as *D. virgatus* or *D. depressus.* Following publication of the *Desmanthus* monograph (Luckow 1993), it has become apparent that much of the germplasm formerly identified as *D. virgatus* was, in fact, *D. pernambucanus* (L.) Thell., while *D. depressus* was *D. virgatus* (L.) Willd. Accordingly, it is necessary to be somewhat circumspect about the identity of *Desmanthus* species in papers published prior to 1993.
   - Some studied species have simply been misidentified. This is a common problem among the more robust *Cynodon* spp., that bear a superficial resemblance to one another (see *C. plectostachyus* in Table 1).

Tables 1 and 2 summarize name changes as accepted by GRIN, together with some commonly encountered through misidentification. It must be emphasized that this list of species represents those encountered by practitioners working with tropical and subtropical forages, and in no way is intended to be an exhaustive list of legume and grass name changes.

Table 1. Name changes in a selection of tropical forage legume species during the past 50 years.

Name previously	New name[1]
Acacia angustissima (Mill.) Kuntze	*Acaciella angustissima* (Mill.) Britton & Rose
Acacia boliviana Rusby	*Acaciella angustissima* (Mill.) Britton & Rose
Arachis pintoi Krap. et Greg. nom. nud.*[2]	*Arachis pintoi* Krapov. & W.C. Greg.
Arachis prostrata Benth. auct. Aust.*	*Arachis glabrata* Benth.
Cassia rotundifolia Pers.	*Chamaecrista rotundifolia* (Pers.) Greene
Centrosema pubescens auct., non Benth.	*Centrosema molle* Mart. ex Benth.
Centrosema schiedeanum (Schltdl.) R.J. Williams & R.J. Clem.	*Centrosema pubescens* Benth.
Chamaecytisus palmensis (Christ) F.A. Bisby & K.W. Nicholls	*Chamaecytisus prolifer* (L. f.) Link subsp. *prolifer* var. *palmensis* (Christ) A. Hansen & Sunding
Cratylia floribunda Benth.	*C. argentea* (Desv.) Kuntze
Desmanthus depressus Humb. & Bonpl. ex Willd.	*Desmanthus virgatus* (L.) Willd.
Desmanthus virgatus auct., non (L.) Willd.	*Desmanthus pernambucanus* (L.) Thell.
Desmodium canum (J.F. Gmel.) Schinz & Thell.	*Desmodium incanum* (G. Mey.) DC.
Desmodium gyroides (Roxb. ex Link) DC.	*Codariocalyx gyroides* (Roxb. ex Link) Hassk.
Desmodium ovalifolium (Prain) Wall. ex Merr.	*Desmodium heterocarpon* (L.) DC. subsp. *ovalifolium* (Prain) H. Ohashi
"Desmodium rensonii"[3, 4]	*Desmodium cinereum* (Kunth) DC.
Dolichos axillaris E. Mey.	*Macrotyloma axillare* (E. Mey.) Verdc.
Dolichos biflorus auct.	*Macrotyloma uniflorum* (Lam.) Verdc.
Dolichos daltonii Webb	*Macrotyloma daltonii* (Webb) Verdc.
Dolichos lablab L.	*Lablab purpureus* (L.) Sweet subsp. *purpureus*
Flemingia congesta Roxb. ex W.T. Aiton	*Flemingia macrophylla* (Willd.) Merr.
Glycine javanica auct.	*Neonotonia wightii* (Wight & Arn.) J.A. Lackey
Leucaena diversifolia subsp. *stenocarpa* (Urb.) Zárate	*Leucaena trichandra* (Zucc.) Urb.
Leucaena glauca auct.	*Leucaena leucocephala* (Lam.) de Wit
Listia heterophylla E. Mey.	*Lotononis listii* Polhill
Lotononis bainesii Baker	*Listia bainesii* (Baker) B.-E. van Wyk & Boatwr.
Lotus pedunculatus auct. mult.	*Lotus uliginosus* Schkuhr
Macroptilium heterophyllum (Willd.) Maréchal & Baudet	*Macroptilium gibbosifolium* (Ortega) A. Delgado
Macroptilium longepedunculatum (Mart. ex Benth.) Urb.	*Macroptilium gracile* (Poepp. ex Benth.) Urb.
Mucuna cochinchinensis (Lour.) A. Chev.	*Mucuna pruriens* (L.) DC. var. *utilis* (Wall. ex Wight) Baker ex Burck
Phaseolus adenanthus G. Mey.	*Leptospron adenanthum* (G. Mey.) A. Delgado
Phaseolus atropurpureus DC.	*Macroptilium atropurpureum* (DC.) Urb.
Phaseolus bracteatus Nees & Mart.	*Macroptilium bracteatum* (Nees & Mart.) Maréchal & Baudet
Phaseolus lathyroides L.	*Macroptilium lathyroides* (L.) Urb.
Pueraria javanica (Benth.) Benth.	*Pueraria phaseoloides* (Roxb.) Benth.
Pueraria lobata (Willd.) Ohwi	*Pueraria montana* (Lour.) Merr. var. *lobata* (Willd.) Maesen & S.M. Almeida ex Sanjappa & Predeep
Pueraria thunbergiana (Siebold & Zucc.) Benth.	*Pueraria montana* (Lour.) Merr. var. *lobata* (Willd.) Maesen & S.M. Almeida ex Sanjappa & Predeep
Stizolobium deeringianum Bort.	*Mucuna pruriens* (L.) DC. var. *utilis* (Wall. ex Wight) Baker ex Burck
Stylosanthes gracilis auct., non Kunth*	*Stylosanthes guianensis* (Aubl.) Sw.
S. guianensis var. *gracilis* (Kunth) Vogel	*Stylosanthes gracilis* Kunth
S. guianensis var. *vulgaris* M.B. Ferreira & Sousa Costa	*Stylosanthes guianensis* (Aubl.) Sw. var. *guianensis*
Stylosanthes guyanensis (Aubl.) Sw.*	*Stylosanthes guianensis* (Aubl.) Sw.
Stylosanthes hippocampoides Mohlenbr.	*Stylosanthes guianensis* var. *intermedia* (Vogel) Hassl.
Stylosanthes sundaica Taub.	*Stylosanthes humilis* Kunth
"Stylosanthes sp. aff. *scabra"*	*Stylosanthes seabrana* B.L. Maass & 't Mannetje
Stylosanthes mucronata Willd.	*Stylosanthes fruticosa* (Retz.) Alston
Vigna adenantha (G. Mey.) Maréchal et al.	*Leptospron adenanthum* (G. Mey.) A. Delgado
Vicia dasycarpa Ten.	*Vicia villosa* Roth subsp. *varia* (Host) Corb.
Vigna marina auct.	*Vigna luteola* (Jacq.) Benth.
Vigna sinensis (L.) Savi ex Hassk.	*Vigna unguiculata* (L.) Walp. subsp. *unguiculata*
Zornia diphylla auct. mult.	*Zornia glabra* Desv., *Zornia latifolia* Sm. and others

[1]Most of the "New names" listed are as accepted by GRIN.
[2]Some of the species in the "Names previously" column are included by virtue of the fact that they have been used in publications not referenced by GRIN. These are indicated by an asterisk (*).
[3]Referring to the plant used in Southeast Asian hedgerow systems.
[4]Names in inverted commas (" ") are names applied outside of formal publications.

Note: For the meaning of Latin abbreviations, see Symbols and Abbreviations in GRIN Taxonomy (http://www.ars-grin.gov/cgi-bin/npgs/html/paper.pl?language=en&chapter=symb).

Table 2. Name changes in a selection of tropical forage grass species during the past 50 years.

Name previously	New name[1]
Axonopus affinis Chase	*Axonopus fissifolius* (Raddi) Kuhlm.
Bothriochloa glabra (Roxb.) A. Camus	*Bothriochloa bladhii* subsp. *glabra* (Roxb.) B.K. Simon
Brachiaria brizantha (Hochst. ex A. Rich.) Stapf	*Urochloa brizantha* (Hochst. ex A. Rich.) R.D. Webster
Brachiaria decumbens Stapf	*Urochloa decumbens* (Stapf) R.D. Webster
Brachiaria dictyoneura (Fig. & De Not.) Stapf[2]	*Urochloa dictyoneura* (Fig. & De Not.) Veldkamp
Brachiaria humidicola (Rendle) Schweick.	*Urochloa humidicola* (Rendle) Morrone & Zuloaga
Brachiaria mutica (Forssk.) Stapf	*Urochloa mutica* (Forssk.) T.Q. Nguyen
Brachiaria ruziziensis R. Germ. & C.M. Evrard	*Urochloa ruziziensis* (R. Germ. & C.M. Evrard) Crins
Cenchrus ciliaris L.	*Pennisetum ciliare* (L.) Link
Cenchrus pennisetiformis Hochst. & Steud.	*Pennisetum pennisetiforme* (Hochst. & Steud.) Wipff
Cenchrus setigerus Vahl	*Pennisetum setigerum* (Vahl) Wipff
Cynodon plectostachyus auct., non (K. Schum.) Pilg.*[3]	*Cynodon aethiopicus* Clayton & J.R. Harlan
Cynodon plectostachyus auct., non (K. Schum.) Pilg.*	*Cynodon nlemfuensis* Vanderyst
Digitaria decumbens Stent	*Digitaria eriantha* Steud.
Digitaria pentzii Stent	*Digitaria eriantha* Steud.
Digitaria scalarum (Schweinf.) Chiov.	*Digitaria abyssinica* (Hochst. ex A. Rich.) Stapf
Digitaria setivalva Stent	*Digitaria eriantha* Steud.
Digitaria smutsii Stent	*Digitaria eriantha* Steud.
Digitaria swazilandensis auct., non Stent	*Digitaria didactyla* Willd.
Digitaria swynnertonii auct., non Rendle	*Digitaria milanjiana* (Rendle) Stapf
"Digitaria umfolozi"[4], *Digitaria x umfolozi* D.W. Hall	*Digitaria eriantha* Steud. cv. Survenola
Ischaemum aristatum auct.	*Ischaemum ciliare* Retz.
Panicum infestum Andersson	*Megathyrsus infestus* (Andersson) B.K. Simon & S.W.L. Jacobs
Panicum laxum Sw.	*Steinchisma laxum* (Sw.) Zuloaga
Panicum maximum auct., non Jacq.	*Panicum trichocladum* Hack. ex K. Schum.
Panicum maximum Jacq.	*Megathyrsus maximus* (Jacq.) B.K. Simon & S.W.L. Jacobs
Panicum maximum var. *trichoglume* Robyns	*Megathyrsus maximus* (Jacq.) B.K. Simon & S.W.L. Jacobs
Pennisetum americanum (L.) Leeke	*Pennisetum glaucum* (L.) R. Br.
Pennisetum typhoides (Burm. f.) Stapf & C.E. Hubb.	*Pennisetum glaucum* (L.) R. Br.
Rhynchelytrum repens (Willd.) C.E. Hubb.	*Melinis repens* (Willd.) Zizka
Setaria anceps Stapf	*Setaria sphacelata* (Schumach.) Stapf & C.E. Hubb. var. *anceps* (Stapf) Veldkamp
Setaria porphyrantha Stapf	*Setaria incrassata* (Hochst.) Hack.
Setaria sphacelata var. *sericea* (Stapf) Clayton	*Setaria sphacelata* (Schumach.) Stapf & C.E. Hubb. var. *anceps* (Stapf) Veldkamp
Setaria splendida Stapf	*Setaria sphacelata* (Schumach.) Stapf & C.E. Hubb. var. *splendida* (Stapf) Clayton
Sorghum × *drummondii* (Steud.) Nees ex Millsp. & Chase	*Sorghum bicolor* (L.) Moench nothosubsp. *drummondii* (Steud.) de Wet ex Davidse
Sorghum roxburghii Stapf	*Sorghum bicolor* (L.) Moench
Sorghum saccharatum (L.) Moench	*Sorghum bicolor* (L.) Moench
Sorghum sudanense (Piper) Stapf	*Sorghum bicolor* (L.) Moench nothosubsp. *drummondii* (Steud.) de Wet ex Davidse
Sorghum verticilliflorum (Steud.) Stapf	*Sorghum bicolor* (L.) Moench subsp. *verticilliflorum* (Steud.) de Wet ex Wiersema & J. Dahlb.
Sorghum vulgare Pers.	*Sorghum bicolor* (L.) Moench
Urochloa bolbodes (Hochst. ex Steud.) Stapf	*Urochloa oligotricha* (Fig. & De Not.) Henrard
Urochloa maxima (Jacq.) R.D. Webster	*Megathyrsus maximus* (Jacq.) B.K. Simon & S.W.L. Jacobs
Urochloa pullulans Stapf	*Urochloa mosambicensis* (Hack.) Dandy
Urochloa stolonifera (Gooss.) Chippind.	*Urochloa mosambicensis* (Hack.) Dandy
Vetiveria zizanioides (L.) Nash	*Chrysopogon zizanioides* (L.) Roberty

[1]Most of the "New names" listed are as accepted by GRIN.
[2]*B. dictyoneura* cv. Llanero has been reclassified as *B. humidicola*, now *U. humidicola.*
[3]Some of the species in the "Names previously" column are included by virtue of the fact that they have been used in publications not referenced by GRIN. These are indicated by an asterisk (*).
[4]Names in inverted commas (" ") are names applied outside of formal publications.

Note: For the meaning of Latin abbreviations, see Symbols and Abbreviations in GRIN Taxonomy (http://www.ars-grin.gov/cgi-bin/npgs/html/paper.pl?language=en&chapter=symb).

What about higher plant ranks?

Name changes are not restricted to the ranks of genus and below. Even the first rank below Kingdom (i.e. Division/Phylum) has changed from the traditional Angiospermae to Magnoliophyta to be in keeping with the ICN requirement that a higher rank name should have, as its stem, the name of a genus within that higher rank. Similarly, grasses now reside in class Liliopsida and not the traditional Monocotyledonae, and legumes within class Magnoliopsida and not the Dicotyledonae. This same requirement has led to a change in family names, with the added proviso that the generic stem be followed by the suffix, "aceae". The grass family is now widely accepted as Poaceae, although under Article 18.5 of the Code, Gramineae may still be used on the basis of "long usage".

However, the issue of legume family groupings has not been as simple. There has been controversy for some time whether legumes reside in a single family or 3 separate families. For many years, all legumes were placed in the family, Leguminosae, which does not have a generic stem, nor does it satisfy the "aceae" ending. This was solved by placing them all in family Fabaceae, thus satisfying Article 18.1 of the Code. In relatively recent times, legumes were divided into 3 families, Fabaceae (alternatively Papilionaceae), Mimosaceae and Caesalpiniaceae, thus creating confusion between the all-encompassing family, Fabaceae, and the more restricted pea-flowered family. There now appears to be sound evidence for a single legume family that Kew botanists, Lewis and Schrire (2003), propose should be named Leguminosae, with 3 subfamilies, Papilionoideae, Mimosoideae and Caesalpinioideae, all in accordance with Article 18 of the Code, even though there is no genus, *Papilio*, within the pea-flowered subfamily.

Selecting the correct name

A number of reliable websites can be used as sources of currently accepted plant names:

GRIN Taxonomy for Plants
www.ars-grin.gov/cgi-bin/npgs/html/queries.pl
The Plant List
www.theplantlist.org
World Checklist of Selected Plant Families
http://apps.kew.org/wcsp/home.do
Catalogue of New World Grasses
www.tropicos.org/NameSearch.aspx?projectid=10
Integrated Taxonomic Information System
www.itis.gov
International Legume Database & Information Service
www.ildis.org
The International Plant Names Index
www.ipni.org

While every effort has been made to establish an infallible system for naming plants, it must be recognized that experts may interpret the literature differently, leading to some inconsistency in accepted names of some species. For example, if we interrogate two of the above databases for the species once commonly referred to as *Desmodium canum*, GRIN accepts *Desmodium incanum* (G. Mey.) DC., whereas The Plant List accepts *Desmodium incanum* DC. Each can provide justification for the determination. In the interest of consistency, it is best to source all names used in a publication from a single reputable authority. As an example, Cook et al. (2005) chose GRIN as their taxonomic authority for the SoFT database.

Conclusion

It is important in reporting research results to be sure the plant names used are as accurate and up-to-date as possible, so the reader is confident of the identity of the species. In the interest of precision, it may be best not only to use legitimate plant names, if applicable, down to the botanical variety level, but also to include the author with the binomial name, when name changes have occurred and there might be a risk of confusion. This need only be done the first time such a species is mentioned in an article.

While results of any interrogation may vary in relation to a currently accepted name, the above sites will indicate the name and author accepted by that particular source. That name will facilitate access to alternatives accepted by other authorities. However, within any one document, it will be important to be consistent with names used.

For research publications, we suggest that, in the case of a new name, the commonly used old name also be cited the first time the plant is mentioned in a given article. Examples:
Urochloa (syn. *Brachiaria*) *decumbens* [or *Urochloa* (formerly: *Brachiaria*) *decumbens*], *Centrosema molle* (syn. *C. pubescens*) [or *Centrosema molle* (formerly: *C. pubescens*)]. If authors are too uncomfortable with the new name and prefer to continue using the earlier one in a given article, an option could be, e.g. *Panicum maximum* (now: *Megathyrsus maximus*), the first time the plant is mentioned.

The aim of any paper is to inform the reader in the least ambiguous way possible on the subject at hand, and

part of this is precise identification of the plants used. In response to the questions implied in the title of this paper, correctly researched and argued name changes that we occasionally encounter may be a slight nuisance, but are essential in our quest for precision.

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