

## Grass Flora of North and South Arcot Districts with special reference to fodder grasses.

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The North and South Arcot Districts receive a total annual rainfall of about 30 inches. The heaviest rainfall period is during the north-east monsoon between September and November. During the year (1939) the north-east monsoon was late and only about two inches of rainfall were received towards the end of September. The regular monsoon, however, commenced from about the middle of October. The grass survey was made between the 6th and 23rd of October. The grasses had just started fresh growth and a few were in flower which enabled their identification.

The soils of these districts are generally sandy loam. A large area is under paddy especially in the South Arcot District. There is, therefore, the necessity to maintain a large number of work bullocks and buffaloes. The question of large scale production of good fodder, therefore, is of utmost importance to the ryot in these districts.

The well-known *Kolukkattai* grass (*Cenchrus ciliaris* Linn.) of Kangayam tract (Coimbatore District) is absent in these Districts. Attempts have been made in recent years to introduce this species in the panchayat forest near the Arkonam Railway Station but it has not established well. The *Chengali* (*Iseilema laxum* Hack.) of Ongole tract (Guntur District) is also practically absent except for a few stray plants in one or two places. The hill grass *Nendra pul* (*Setaria nervosum* Stapf.) is the best grass of these districts but occurs only in forest regions. It is present abundantly in the plains, forests and completely absent in the open pasture areas. In the former area this species is found to thrive better under trees and shrubs as is seen in the Arkonam panchayat forest. These observations indicate that this grass needs partial shade and does not thrive in open areas. The grasses of these districts may be divided into three groups:— (1) Pasture grasses (2) Forest grasses and (3) Grass weeds in cultivated areas.

**Pasture grasses.** The most important pasture grass, *Arugam pul* (*Cynodon*) is represented by two species, *Cynodon Dactylon* Pers. and *C. Barleri* Rang and Tad. The former has underground stolons and occurs in moist and stiff soils while the latter spreads superficially and occurs in fairly dry and sandy loams. *Amphilophis pertusa* Stapf. is next in importance and makes a matted surface with its creeping and long red stems rooting at the nodes. *Digitaria longiflora* Pers. and *Monisuris Myurus* L. spread all round by their long creeping branches, the former rooting at all the nodes and the latter at the basal nodes. These cover large patches of sandy loams and promise to be very good sand binders in addition to being good pasture grasses. The grasses of the pastures arranged according to their

predominance are:—*Cynodon Dactylon* Pers., *Cynodon Barbari* Rang. and Tad., *Amphilophis pertusa* Stapf., *Urochloa reptans* Stapf., *Dactyloctenium aegyptium* Beauv., *Paspalidium flavidum* A. Camus., *Perotis indica* O. Ktz., *Tragus biflorus* Schult., *Chloris barbata* Sw., *Aristida depressa* Retz., *Panicum psilopodium* Trin., *Eragrostis plumosa* Link., *Digitaria longiflora* Pers., *Digitaria marginata* Link., var. *fimbriata* Stapf., *Alloteropsis cimicina* Stapf., *Echinochloa colona* Link., *Sporobolus tremulus* Kunth., *Aristida Hystrix* Linn., *Chrysopogon aciculatus* Trin., *Manisuris Myurus* Linn., *Oropetium Thomaesium* Trin., *Urochloa panicoides* Beauv., *Iseiloma laxum* Hack., *Trachys muricata* Steud., *Brachiaria distachya* Stapf., *Eriochloa procera* C. E. Hubb., and *Eragrostis riparia* Nees.

**Forest grasses.** The most important forest grasses are *Nendru pul* (*Sehima nervosum* Stapf.) and *Munjam pul* (*Cymbopogon coloratus* Stapf.). The latter has to be cut and fed to cattle before flowering as cattle do not relish it after flowering on account of its strong odour. It is necessary, therefore, in any scheme of rotational grazing in such forest regions where this species predominates, provision should be made for issuing grazing permits in such periods as to enable the cattle to graze before the grasses come to flower. This system will have the additional advantage of providing rich nutritious grazing as it is a well known fact that grasses are very rich in proteins in young stages and become less and less nutritious as they flower and set seed.

**The forest grasses arranged according to their occurrence.** *Cymbopogon coloratus* Stapf., *Heteropogon contortus*, Beauv., *Sehima nervosum* Stapf., *Amphilophis pertusa* Stapf., *Eragrostis bifaria* Wt. et Steud., *Eragrostis brachyphylla*, Stapf., *Aristida depressa* Retz., *Aristida setacea* Retz., *Digitaria marginata* Link., var. *fimbriata* Stapf., *Melanocenchris monoica* C. E. C. Fischer, *Perotis indica* O. Ktz., *Chrysopogon montanus* Trin., *Eremopogon foveolatus* Stapf., *Cymbopogon caesius* Stapf., and *Cymbopogon Martini* Wats.

**Grass weeds in cultivated crops.** Grasses form the major portion of weeds especially in rainfed crops. These are not systematically removed. When the grasses have grown well they are pulled out and sold as cattle feed. Most of them are annuals and the commonest species is *Maththanga pul* (*Dactyloctenium aegyptium* Beauv.).

**Grass weeds in cultivated fields arranged according to their occurrence.** *Urochloa reptans* Stapf., *Dactyloctenium aegyptium* Beauv., *Cynodon Dactylon* Pers., *Chloris barbata* Sw., *Brachiaria ramosa* Stapf., *Eragrostis pilosa* Beauv., *Setaria pallidifusca* Stapf et Hubb., *Panicum psilopodium* Trin., *Dichanthium annulatum* Stapf., *Panicum repens* Linn., *Eragrostis cliemensis* Link., (*Imperata cylindrica* Beauv., var. *Koenigii* Dur., *Saccharum spontaneum* Linn. found generally on bunds in rice fields), (*Echinochloa stagnina* Beauv., *Echinochloa crus-galli* Beauv., *Eragrostis japonica* Trin., occur in rice fields along with paddy), *Leptochloa chinensis*

Nees., *Sporobolus Wallichii* Munro., *Sporobolus scabrifolius* Bhide., and *Rottboellia exaltata* Linn. f.

**Weeds other than grasses.** Even though the weeds are undesirables some of them are readily grazed by cattle when found in pastures or eaten by them when hand fed. *Gisekia pharnaceoides* Linn. (Tamil: *Manal Keerai*) is a very common weed especially in sandy loams. It is a prostrate herb with fleshy leaves covering large patches of ground. It is collected from standing crops and fed to cattle and is much relished by them.

*The following weeds are readily eaten and relished by cattle :*

1. *Cyperus rotundus* L. (Fam: Cyperaceae) Tam: *Korai*.
2. *Gisekia pharnaceoides* L. (Fam: Aizoaceae) Tam: *Manal-keerai*.
3. *Commelina benghalensis* L. (Fam: Commelinaceae) Tam: *Kaana*.
4. *Digera arvensis* Forsk. (Fam: Amarantaceae) Tel: *Senchalaakku*.
5. *Borreria hispida* K. Sch. (Fam: Rubiaceae) Tel: *Mathana Akku*.
6. *Physalis minima* L. (Fam: Solanaceae) Tel: *Budama Akku*.

The leaves of the forest tree *Twinje* (*Albizia amara* Beauv.) and *Agathi* (*Sesbania grandiflora* Pers), which is grown in banana and betel vine gardens afford supplementary forage for cattle.

A list of the grasses of the North and South Arcot districts with short notes and local names for those not mentioned in the Grass Flora of Chittoor District (*Madras Agricultural Journal*, Vol. XXVII, January 1939) is given.

1. *Imperata cylindrica* Beauv., var. *Koenigii* Dur. & Sch. (*Imperata arundinacea* Cyril.) Eng: Cotton grass Tam: *Tharpai pullu*. Tel. *Dharbha*, *Modewa gaddi*. Kan: *Sanna Dabbai Hullu*. It is a perennial grass 1'—4' in height. It thrives in moist situations. It spreads by the underground stems which are often very long. It is a pernicious weed in garden lands. It is a good sand binder. Grazed by cattle only when young and tender.

2. *Saccharum spontaneum* L. Tam: *Viswamitra Darbhai*, Tel: *Rellu gaddi*. A perennial grass thriving in moist situations. It grows from 3' to 6' in height. It is a good sand binder often planted along water courses to prevent soil erosion. It is a good fodder for buffaloes.

3. *Sehima nervosum* Stapf. Tam: *Nendra pul*.

4. *Amphilophis pertusa* Stapf. Tam: *Chengaru pul*; *Kodi savaran pul*.

5. *Vetiveria zizanioides* Nash, (*Andropogon squarrosus* Hack) Eng: The Khus-khus or Cus-cus grass. Tam: *Vilamicham pul*, Mal: *Ramachcham*. It is a coarse perennial grass with stout rhizomes. It grows from 3' to 4' in height. The aromatic roots are used for making screen mats (*thaties*) and fans. An aromatic and medicinal oil is extracted from the roots. It is grazed by cattle when young.

6. *Chrysopogon aciculatus* Trin. (*Andropogon aciculatus* Retz.). Eng: The Love-grass. Tel: *Purthi gaddi*. A perennial grass having creeping root stock. Stems erect, 1' - 2' in height, slender and leafy chiefly at the base. Grazed by cattle before flowering.
7. *Chrysopogon montanus* Trin. Tam: *Moonjan pul*.
8. *Dichanthium annulatum* Stapf. (*Andropogon annulatus* Forsk.) Tel: *Molava gaddi*. It is a perennial densely tufted grass; stems erect or ascending, 1' - 2½' in height. It thrives in moist situations. It is one of the best fodder grasses and is supposed to increase the milk yield in cattle.
9. *Heteropogon contortus* Beauv. Tam: *Panni pul*.
10. *Iseilema prostratum* Anderss.
11. *Iseilema laxum* Hack. Tam: *Thenga Nari pullu*. Tel: *Erra Chengali gaddi*. A perennial grass growing from 1' to 2' in height ascending from a shortly creeping root stock. Stems, slender, simple or sparingly branched. It stands cutting well. It is considered one of the best fodder grasses and is the mainstay of the famous Ongole Breed of cattle.
12. *Eremopogon foveolatus* Stapf.
13. *Cymbopogon coloratus* Stapf. Tam: *Manjam pul*. It is the commonest grass in all the hilly tracts of these Districts.
14. *Cymbopogon Martini* Wats. Tam: *Kaavaandu pul*.
15. *Cymbopogon caesius* Stapf. (*Andropogon Schoenanthus* L., var. *caesius* Hack.). Tam: *Vella Munjan pul*, *Kamatchi pul*; Tel: *Kasi vaddi*; Kan: *Kasi hullu*. A perennial erect grass growing from 2' to 3' in height. It has a strong odour due to the presence of an essential oil. It is used generally for thatching. It is nibbled by cattle when young.
16. *Rottboellia exaltata* L. Tam: *Shona pul*; Tel: *Konda panuku*. It is an annual, sometimes perennial, growing from 2' to 10' in height. Stem tall, erect, branched above, and often with tilt-roots from the lowest nodes. The plant is beset with rough hairs. It is not eaten by cattle but if grazed accidentally the animal suffers by excreting blood.
17. *Manisuris Myurus* L. (*Rottboellia Myurus* Benth.) Tam: *Waritsira pul*; Tel: *Nalla panuku*. It is a spreading grass rooting at the basal nodes of the branches. It is a good fodder grass.
18. *Digitaria marginata* Link., var. *fimbriata* Stapf. Tam: *Kakkai Kal pul*.
19. *Digitaria longiflora* Pers. It is a spreading grass rooting at all the nodes. It thrives in sandy loams. It is a good sand binder. It is grazed readily by cattle.
20. *Alloteropsis cimicina* Stapf. Tam: *Chena pul*.
21. *Eriochloa procera* C. E. Hubb. (*Eriochloa polystachya* H. B. & K.) Tam: *Tandambaran pul*, *Karungani pul*. It is a perennial grass growing

from 2' to 5' in height. It thrives in moist situations often seen on the bunds of rice fields. It is a good fodder grass.

22. *Brachiaria distachya* Stapf.
23. *Brachiaria ramosa* Stapf. Tam : Pala pul, Kamban pul.
24. *Paspalidium flavidum* A. Camus. Tam : Arisi pul.
25. *Urochloa panicoides* Beauv.
26. *Urochloa reptans* Stapf. Tam : Gunugu pul, Seela pul.
27. *Echinochloa colona* Link. Tam : Saani pul; Tel : Oodara Kasuvu.
28. *Echinochloa crus-galli* Beauv. (*Panicum Crus-galli* L.) Tam : Oothu pul; Tel : Pedd-i-wundu; Kan : Kadu dabhai hullu. It is a tall grass growing from 3' to 4' in height. It thrives in moist places. It is a common weed in rice fields. The grain is eaten by the poor. It is a good fodder.
29. *Echinochloa stagnino* Beauv. Tel : Bontha Oodu; Kan : Kadu dabhai hullu. The habit and the uses are similar to *Echinochloa crus-galli* Beauv.
30. *Panicum psilopodium* Trin. Tam : Chinna samai pul; Kadal Kanai, Kalam pul. It is an annual growing from 1' to 2' in height. This is the wild form of the cultivated Samai, the little millet (*Panicum miliare* Lamk). It is readily eaten by cattle.
31. *Panicum repens* L. Tam : Tandangattai pul.
32. *Setaria pallidifusca* Stapf. et Hubb. Tam : Kulla nari pul.
33. *Cenchrus ciliaris* L (*Pennisetum cenchroides* Rich.) Tam : Kolukkattai pul. It is a perennial grass growing from 1' to 2½' in height. It is decumbent and much branched from the base. It thrives in dry localities. It stands cutting well. It is the mainstay of the Kangayam (Coimbatore District) breed of cattle. It has been introduced in one or two places in this district but is not thriving well.
34. *Aristida depressa* Retz. Tam : Thodappan pul.
35. *Aristida setacea* Retz. Tam : Thodappi kuchchi.
36. *Aristida Hystrix* L. Kan : Bili, Vunugadu hullu.  
It is a perennial grass growing from ½' to 2' in height, from a creeping root stock. Stem diffuse and ascending. It is not eaten by cattle because of the very long awns.
37. *Trachys muricata* Steud.
38. *Tragus biflorus* Schult. Tam : Ottum Kai pul.
39. *Perotis indica* O. Ktz.
40. *Sporobolus Wallichii* Munro ex Hook. f.
41. *Sporobolus tremulus* Kunth. Tam : Upparugu, Uppurutnam pullu.  
It is a stoloniferous perennial pasture grass. Stems slender growing from 4" to 9" in height. It thrives in alkaline soils and makes excellent lawns. It is grazed readily by cattle.
42. *Sporobolus scabrifolius* Bhide Tam : Kosu pul. It is an annual, growing from 1' to 2' in height. It thrives in black cotton soils. It is grazed by cattle.

43. *Leptochloa chinensis* Nees. Tam: *Acri pul*; Kan: *Kadu sanna kari sajjai hullu*. It is an annual, growing in moist situations. Stem erect or geniculately ascending, 2' - 4' in height. It is a good fodder for cattle.

44. *Eragrostis riparia* Nees.

45. *Eragrostis plumosa* Link. Tam: *Poo pul*.

46. *Eragrostis japonica* Trin. (*Eragrostis interrupta* Beauv. var. *tenuissima* Stapf.). It is an annual thriving in wet places. Stems erect or ascending growing from 1½' to 3' in height. It is a weed in rice fields. It is grazed by cattle.

47. *Eragrostis cilianensis* Link. Tel: *Boosi Kasuvu*.

48. *Eragrostis pilosa* Beauv. Tam: *Kuthira val pul*.

49. *Eragrostis bifaria* Wt. et Steudl. Tam: *Ooththu pul*

50. *Eragrostis brachyphylla* Stapf.

51. *Oropetium Thomaemum* Trin.

52. *Melanocenchris monica* C. E. C. Fischer. (*Gracilea nutans* Koen.) It is a perennial grass growing from ½' to 1¼' in height. Leaves mostly aggregated towards the base. It thrives in dry localities. It is grazed by cattle.

53. *Cynodon Dactylon* Pers.

54. *Cynodon Barberi* Rang. & Tad. Tam: *Jellada pul*.

55. *Chloris barbata* Sw. Tam: *Kodai pul*,

56. *Dactyloctenium aegyptium* Beauv. Tam: *Maththangai pul*.

Short notes and local names wherever available of the weeds other than grasses which are grazed by cattle are given below:—

1. *Cyperus rotundus* L. Tam: *Korai*; Kan: *Bhadra Hullu*.

It is a perennial sedge rapidly spreading by its underground stolons. It grows from ¾' to 1½' in height. It is a pernicious weed of cultivated fields.

2. *Gisekia pharnaceoides* L. Tam: *Manal Keerai*; Tel: *Isika duntikoora*. A diffuse prostrate herb with fleshy glaucous leaves thriving in sandy soils. It is a medicinal plant and also employed as pot-herb in time of famine. It is much relished by cattle.

3. *Commelina benghalensis* L. Tam: *Kaana*. Stem 2'—3' long, dichotomously branching from the base upwards. From the lower nodes leafless underground branches proceed bearing white flowers which produce perfect seeds.

4. *Digera arvensis* Forsk. Tel: *Senchalaakku*.

An annual herb 1'—2' in height having spreading branches.

5. *Borreria hispida* K. Sch. Tam: *Naththa Choori*; Tel: *Mathana Aakku*. A procumbent herb having quadrangular stems. It is common on the coast sands.

6. *Physalis minima* L. Tel: *Budama Aakku*. It is a herbaceous annual. Stem erect ½'—1' in height.

#### Bibliography.

Jacob K. Cherian.—*Madras Agricultural Journal*, 27: 9—18.

Fischer C. E. C.—*The Flora of the Presidency of Madras*, Vol. X.