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Fodder Grasses of Madras

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Introduction. The present position of fodder for cattle in Madras is far from satisfactory. In most places the cattle are dependent on the straw of cereal crops. The total estimated fodder production is only about 24·53 million tons for the Presidency whereas the total requirement of fodder works out to nearly 58·91 million tons.

In most parts of the Presidency, ryots maintain too large a number of cattle, either, for the production of farmyard manure or merely because they do not wish to slaughter them. These animals, unlike the work bullocks and milch cattle are not stall-fed but may be driven out to graze in waste lands. In the case of cattle-breeding or cattle-rearing centres, pastures are maintained or fodder crops are raised to feed the animals. In the Circars, *Crotolaria juncea* (sunnhemp), in Nellore *Phaseolus trilobus* (pillipesara) and in Ramnad and Tinnevelly *Sorghum dochna* var. *Irungu* (Irungu cholam) are cultivated as fodder crops. In other areas, cattle are allowed to graze on waste lands, current follows and in forests. No systematic grazing principles are adopted and as such the fodder out-put is very poor.

There are in our Presidency, 14,277,581 acres 'not available for cultivation' and 11,433,633 acres "other unculturable areas excluding current follows". The natural grass flora in these 25 and odd million acres is dominated by poor types. Since the deficiency in fodder requirement cannot be made up from cereal straws and fodder crops from cultivated areas, these 25 million acres require to be studied for their fodder-producing capacity. There are 388 species of grasses listed in the Madras flora including the cereals which are under cultivation. Out of the natural grass flora, only 82 species are recorded as of fodder value. Some are relished by cattle and others are grazed only when they are young. They may also differ in their nutritive value. From 100 species that were under observation, 18 species were selected and put under yield trials at Coimbatore. Some points regarding these grasses are furnished in this note.

Indigenous types. (1) *Chionachne semiteres:* Fisher—At Coimbatore under rainfed conditions it yields 15,000 lbs. per acre in one or two cuttings per year. Relished by cattle only when young. When old it is coarse and cattle do not relish them at that stage.

(2) *C. Koenigii* Thw. (K. Suku dabha.) At Coimbatore under rainfed conditions this species yields about 15,000 lb. in one or two cuttings. This also is relished by cattle and is cultivated on a small scale by ryots in Tanuku in Godavari District.

(3) *Ischaemum pilosum.* Hack. (T. Kundara gaddi, Urranki.) This grass thrives well in the black cotton soils of Hagari, Bellary, Narasaraopet and Guntur.

(4) *Schima nervosum.* Stapf. (H.) Chota sadai ghans (Tamil): Kura itti, (Telugu): Nendra gaddi, (Kanarese): Sinna shadai hullu, Nalai hullu). Under rainfed conditions at Coimbatore this grass yields about 10,000 lb. per acre in 2 cuttings. Rhizome formation is weak in this and in summer months the clumps dry up but with the receipt of showers they readily regenerate. The grass shows a habit of growing into thick short clumps and prefers shady areas. This species is very good as fodder. It is present in all districts except the West Coast and it is particularly noted in Chittoor, Coimbatore, Guntur, Kistna and Nellore.

(5) *Amphilophis pertusa,* Stapf. (Telugu): Janu gaddi; (Tamil). Chinnakarai pul; (Kanarese): Karaikanda hullu. At Coimbatore under rainfed conditions it yields about 8,000 lb. per acre in one cutting per year. It comes up well in semi-dry conditions and spreads to form a mattress. It is a good pasture grass readily grazed by cattle.

(6) *Chrysopogon montanus,* Trin.: (Kanarese): Chello san kanni; (Telugu): Gurra batto kelu. It is a species which thrives well in dry situations, especially in gravelly and laterite soils of hilly and forest areas. It is a good fodder grass before flowering, but forage out-put is very low.

(7) *Dichanthium caricosum.* A. Camus. (Kanarese): Urukkun hullu. It thrives well in moist places only. It is good as a fodder grass. It is fairly, commonly distributed along with *Iseilema laxum.* Hack in the Guntur District.

(8) *D. annulatum,* Stapf. Under rainfed conditions at Coimbatore, this grass has yielded about 6,000 lb. per acre in one cutting per annum and prefers moist conditions as the former species.

(9) *Heteropogon contortus,* Beauv. (Hind.): Kher; (Telugu): Eddigaddi; (Tamil): Oosi pullu; (Kanarese): Sunkari hullu. It is good

as a fodder grass and makes good hay. It forms an important species cultivated in Hosur Cattle Farm for hay making. The hygroscopic spear-like awns which twist about each other are the drawbacks for this very useful fodder grass. It comes up well in dry situations.

(10) *Iseilema prostratum* And (Telugu): Yerra kala kasuvu. It is a rare type coming up well at low elevations but not in dry situations. It is good as a fodder grass.

(11) *I. laxum.* Hack. (Telugu): Erra chengali gaddi; (Tamil): Tenga nari pullu. At Coimbatore under rainfed conditions this yields about 5,000 lb. per acre in one cutting per year. This is an important fodder grass in the Circars where the Nellore breed of cattle are bred.

(12) *Iseilema anthephoroides.* Hack. This is inferior to the previous one. Under Coimbatore conditions it does not perennate through rhizomes but through self-sown seeds.

(13) *Apluda aristata.* L. H. Gururna; (Tamil): Manda pillu; Mungil pillu; (Kanarese): Akku hullu. This is not very good as fodder, especially after flowering, though it thrives in dry localities and grows up to five feet in height.

(14) *Eremopogon foveolatus.* Stapf. Under rainfed conditions in Coimbatore it yields about 12,000 lb. per acre in 2 cuttings per year. It comes up well in dry situations but requires a fairly good soil.

(15) *Andropogon pumilus.* Roxb. This grows in large clumps in semi-dry situations, especially in black cotton soils. It is a good fodder grass but does not seem to be cultivated anywhere.

(16) *Digitaria marginata.* Link. (Hind.): Takvi, Takva; (Tamil): Arisi pillu; (Kanarese): Hennu akkibu hullu. This grass comes up well in semi-dry situations. Cattle graze this grass readily. Seed rate 10—15 lb. per acre. In Americas it is reported to yield 2 ton of hay per acre.

(17) *D. Uallichiana,* Stapf. This also is a good fodder grass coming up well in cool elevations like Kodaikanal, Pulneys and the Nilgiris.

(18) *Eriochloa procera.* Hubbard. (Tamil): Mathanga pillu. This grass comes up often on the bunds of rice fields. Culms tufted and varying in height. It comes up well in wet situations only. It is an annual grass and is a good fodder.

(19) *Brachiaria eruciformis.* Grisch. (Telugu): Dommkkalu gaddi; Edira kasuvu. It comes up well in black cotton soils and is readily grazed by animals.

(20) *Paspalum scrobiculatum,* L. (Telugu): Arika; (Tamil): Varagu; (Kanarese): Arikal. The straw of the cultivated type makes a good fodder. The wild type is a slender grass and comes up in moist situations in all the districts. It is safer to feed the cattle without the grains, as otherwise, the hydrocyanic acid in them are reported to kill even elephants.

(21) *Paspalidium flavidum,* Camus. (H.) Sanka; (Telugu): Uda gaddi, (Tamil): Arisi pillu. This is a prostrate grass coming up well in moist places.

(22) *Urochloa panicoides,* Beauv. (Telugu): Salla undu; (Kanarese): Kadu billi samai hullu. This grass is a robust annual, much liked by cattle but it does not grow well in dry situations.

(23) *Urochloa reptans,* Stapf. (Tamil): Shani pillu. This is similar to the above, coming up well only in moist situations.

(24) *Echinochloa colona.* Link. (H.) Sawank. (Telugu): Otha Gaddi; (Tamil): Karum pul. This is also an annual grass coming up in moist situations.

(25) *Panicum repens.* Linn. (Telugu): Ladda gaddi; (Tamil): Inji pillu; (Kanarese): Soni hullu. The ginger grass. This is somewhat cosmopolitan in its habit, coming up well in sandy or water-stagnant areas. It is believed to stimulate milk yields.

(26) *Setaria verticillata.* Beauv. (Telugu): Chik lenta; (Kanarese): Sanna anta purlai hullu. This grass does not come up well in dry situations. It is liked by cattle before it flowers.

(27) *Setaria pallidifusca,* Stapf. & Hubb. (Hindi): Bandra; (Telugu): Nakka toka gaddi; (Tamil): Narival pillu. This is an annual grass, readily grazed by cattle before it flowers. It does not come up well in dry places.

(28) *Cenchrus ciliaris,* L. (Tamil): Kolukattai pillu. This is a rhizomatous perennial grass. The aerial shoots may dry up during severe summer-months. It comes up well in dry situations, but can make a luxuriant growth only during the monsoon period. It is the chief fodder grass in the Kangayam tract. Seed rate 10–15 lb. per acre. Under rainfed conditions at Coimbatore this grass yields about 21,000 lb. per acre in two cuttings. Under more favourable conditions it yields up to 40,000 lb. in 3–4 cuttings. It is worth trying this grass in roadsides, waste places and pastures.

(29) *C. Setigerus.* Vahl. This is more drought-resistant than the former, but the out-put of fodder is less.

(30) *Leptochloa obtusiflora*. Hochst. Does not thrive under dry conditions. At Coimbatore it thrives under moist situations only. Contains 0·011 to 0·0082 % of hydrocyanic acid, but this dose, is not considered harmful to cattle.

(31) *Eragrostis* sp. There are about 9 species which are reported to be grazed by animals. Most of them are slender and hence of little forage value. They come up from dry to moist situations.

(32) *Enteropogon monostachyos*. Schum. (Tamil): Kanni pillu. The culms are densely tufted. Under rainfed conditions at Coimbatore it yields about 13,000 lb. in two cuttings per year.

(33) *Cynodon Dactylon*, Pers. H. Dub. (Telugu): Garika gaddi, (Tamil): Arugam pillu; Hariali grass. It is an excellent fodder for cattle and horses and highly nutritious. It comes up well in all soils and especially well in black soils. It spreads and perennates through underground stems. Once established it is difficult to eradicate it.

(34) *Chloris* sp. Out of the 8 indigenous species, 4 are of fodder value. They thrive well in semi-dry situations and tolerates alkalinity. *Chloris Bournei*, Rang et Tad., thrives best in black cotton soils. Seed rate 10 lb. per acre. At Coimbatore this species is recorded to have yielded 56,400 lb. per acre in 3–4 cuttings a year. All the four species are relished by cattle before flowering.

Exotic types. (35) *Panicum maximum*, Jacq. Guinea grass. This is a tropical African grass widely cultivated. It is generally raised as an irrigated crop in cattle and Dairy Farms. 3,000 to 3,500 slips are planted per acre. On a modest estimate it yields 50 to 75,000 pounds of green fodder per acre in 6 to 8 cuttings per year. Under rainfed conditions at Coimbatore, it yields about 21,000 lb. in two cuttings per year.

(36) *Panicum antidotale*, Retz. (Tamil): Nassiam pillu. The type received from Australia is a good drought-resistant grass, whereas the indigenous one is a more mesophytic type. Under rainfed conditions at Coimbatore, it yields about 15,000 lb. per acre in 2 cuttings per year. The plants when young are valuable but when allowed to stand long, the culms become too woody.

(37) *Pennisetum purpureum*. Schum. (Napier grass). It is raised as an irrigated fodder crop. It is cultivated in military farms and at Hosur Cattle Farm. 2,500 slips are planted per acre. It may yield over 80 tons of fodder in 5 cuttings per year. The dry strain of this species thrives well in areas with moderate rainfall as in Bangalore.

(38) *Sorghum sudanense.* Stapf. (Sudan grass). It comes up well in semi-arid regions. It is cultivated in the U. S. A. Seed rate 15—20 lb. per acre. It yields up to 2½ tons of hay in 2 cuttings per year. It is a good fodder grass.

(39) *Cynodon plectostachyum.* Pilger. (Giant Star Grass). This is an African grass recently introduced into this country. It spreads rapidly. A single plant was noted to put forth spreading shoots each more than 20 ft. within 75 days. It spreads rapidly and as such is useful as a soil binder. Under rainfed conditions at Coimbatore it yields 30 to 60 thousand pounds per acre in 3 to 4 cuttings per year.

(40) *Pennisetum clandestinum.* Hochst. (The Kikiyu grass). This has been introduced in the hill stations of Nilgiris, Kodaikanals and Anamalais and has now got well established in these areas. Cattle relish it very much and the grass is becoming an important fodder grass on the hills replacing the existing types.

(41) *Chloris Gayana,* Kunth. (Rhodes grass). This also is raised as an irrigated crop, but not so popular as the first mentioned two of the exotic types. Seed rate 10—12 lb. per acre. It yields about 5 tons of hay per acre.