

in parts of Nilgiris assumes serious proportions. Fencing is erected with different materials e. g. wire nettings, ideal wire fencing, rough stone dykes, and katcha fencing of bramble. The cost of fencing will vary from Rs. 2 to Rs. 1—8—0 per running yard and often forms a considerable item of expenditure.

Pests and diseases. Diseases appear to have made their appearance very early in the history of potato cultivation in the Nilgiris. The chief diseases noted were the Ring disease, early Blight and scabs, while *Rhizoctonia* and *Fusarium* are also in evidence. Among the insect pests the chief enemies are the potato moth which affects the crop both in the field and warehouse and cut-worms which damage the young crop in the early stages of plant growth.

Ring disease which is more virulent sometimes appears in an epidemic form. Seed selection and rotation of crop are likely to bring some relief. Among insect pests the potato moth is often serious. Its spread can be checked by putting up light-traps at night as the moths are attracted by light. The present low yields of potato on Nilgiris is attributed partly to the wide-spread existence of virus diseases such as mosaic and leaf roll and studies are in progress to determine the extent of damage and remedial measures necessary.

A Very Promising Drought Resistant Fodder Grass for South India.

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Introduction. The problem of producing good fodder grasses and improving the pastures has been engaging the attention of many in the development of Indian Agriculture & Livestock. Good pastures not only provide an excellent feed, but they reduce the labour and expense involved in Livestock production and maintenance by supplying the essential nutrients for body development. Improved pastures and improved livestock always go hand in hand. In South India there are over a dozen good perennial pasture grasses of which only a few form the staple fodder for the South Indian breeds of cattle. The bulk of our cattle which are in the villages depend on the poor local natural pastures or grazing grounds which consist chiefly of annual grasses which spring up with the rains of the monsoons and die after seeding from October to January. There are no regular pastures as in the western countries where they are systematically grazed. While efforts are being taken to popularise and improve the pastures with the selections of the more important indigenous perennial

grasses, acclimatisation of reputed exotic species is also being carried out at Coimbatore. One of the most promising among those which are tried here is *Panicum antidotale* Retz, a grass allied to Guinea grass the *Panicum maximum*. The indigenous type of *Panicum antidotale* Retz has not been a reputed grass, either as fodder or as drought resistant. In 1938 a small quantity of the seed of this species labelled as "Drought resistant fodder grass" was first obtained from Mr J. N. Whitley, Government Agrozoologist Department of Agriculture, Sydney through the courtesy of Mr. J. A. Wilson, the District Forest Officer, Chittoor. Trials in specimen plots indicated the species to be well suited for the conditions existing in Coimbatore and in 1940 it was multiplied in larger areas. The grass stands drought very well giving green herbage more or less throughout the year and has hence been styled "the Australian Drought Resistant Grass" or simply as "Australian grass". Because of its good performance, the grass is gaining popularity and large quantities of seeds are being annually distributed to ryots, the forest officials and the neighbouring states.

Cultivation. The field is ploughed twice or thrice with a country plough and the seeds are sown broadcast. A seed rate of 10 to 12 lbs. per acre can be used for a good stand of grass. The covering of the seeds may be effectively done by working a junior-hoe. The seeds which are comparatively more viable than many of the other fodder grasses, germinate within the fifth day and the plants attain a foot in height in about 2 months. If the plants are much crowded, thinning is very essential. Overcrowding retards the growth of the grass as the rhizome formation is much impeded. Though the grass may be fit for harvest or for grazing within 3 months, it is advisable to wait for at least 6 to 8 months, the period depending on the season and the extent of hold the plants have taken to the soil.

Plant Habits *Panicum antidotale* forms big clumps with the formation of very hardy rhizomes which to a great extent help the grass to tide over the drought. The root system is profuse with plenty of thick roots which penetrate up to 2 feet in the soil, Vide plate I. It is a quick grower and often reaches a height of 4 to 5 feet, Vide plate II. Under irrigated conditions the plant recorded a height of 8 feet. This Australian grass flowers abundantly and sets fertile seeds throughout its life period. The seeds are easily collected and have the greatest germination percentage among other grasses. If the grass is not harvested periodically but left to grow, the culms tend to become woody and reed-like. It is advisable and at the same time economical to have the grass cut or grazed while fairly tender.

Yield. Three or four cuts per year can be taken and if the monsoons are favourable it will be possible to take more. The following table gives a comparative idea of the yields of some of the important fodder grasses grown dry under Coimbatore conditions.

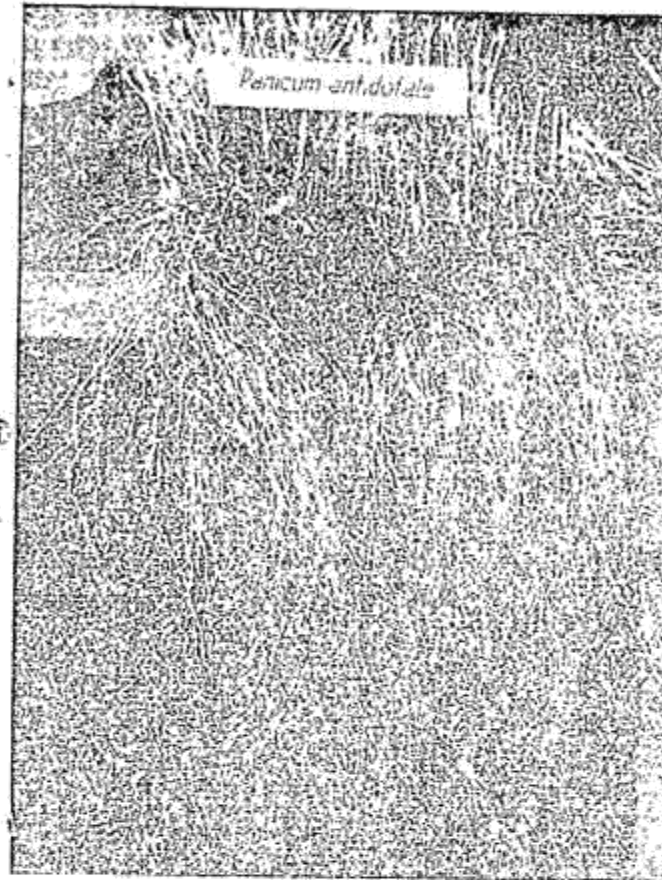


PLATE I. A clump of the grass showing the rhizomes and the profuse root system.

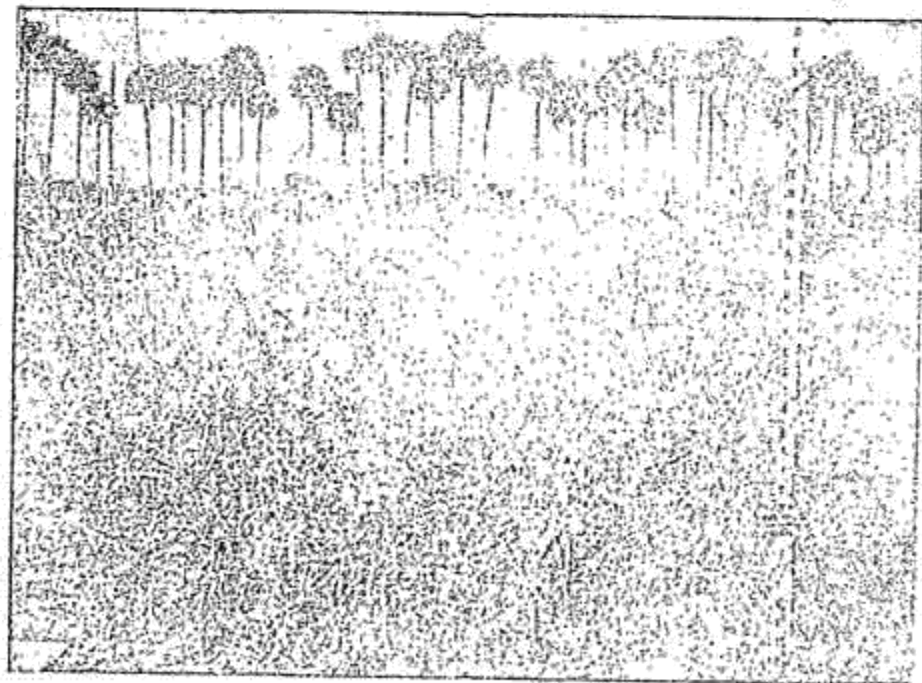


PLATE II. A 5 feet stand of *Panicum antidotale*— the growth in 45 days since an harvest on 10 12—1945.

Name of Species.	Annual average yield per acre.	Number of cuts per year	Remarks.
	lbs.		
1. <i>Cenchrus Ciliaris</i> Linn (Kolukattai Pillu)	30 to 50,000	3-4	Good yielder. dries up in summer.
2. <i>Panicum antidotale</i> Retz (Austrian Drought Resistant Grass)	15 to 30,000	3-4	Remains green in summer.
3. <i>Dicanthium annulatum</i> Stapf (Molava Gaddi)	10 to 20,000	3	Dries up in summer.
4. <i>Setaria nervosum</i> Stapf (Nendra Gaddi)	10 to 20,000	3	do
5. <i>Isolema laxum</i> Hack (Chengali Gaddi)	10 to 15,000	3	do

Though the yield is less than that of the local Kolukattai grass, it is comparatively higher than that of the other staple grasses of South India. Besides, *Panicum antidotale* does not dry up in summer, but gives green fodder at a time when all other grasses dry away.

Palatability. The grass was fed to cattle at its different stages of growth. The animals relished the grass at all stages except when mature as then the culms became slightly woody.

SELECTED ARTICLE

Sectional Filling of Trenches in Farmyard Manure Preparation.

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Big sized circular pits, of diameter 5 to 10 ft. and depth 4 to 6 ft. depending on the number of cattle maintained by the farmer and the quantity of dung and litter collected per day, are in general use by most farmers in this country for purpose of farmyard manure preparation. Into such pits are thrown, in a haphazard way, the daily collections of dung and litter, that remain over and above the portion used as fuel. A pit would generally take about 5 to 6 months to fill up and the remaining 6 to 7 months refuse is generally thrown on the same site, so as to form a heap 4 to 5 ft. high above ground-level. The system is very elastic and involves the minimum amount of labour and supervision on the part of the farmer.

Some time before the monsoon sets in, the farmer removes his manure from the pit and spreads it on his land. Since the period from December to May is generally dry and the latter portion quite hot in most parts of India, the farmer finds on opening his heap that nearly half the stock of his refuse—especially the overground portion—is quite dry and has not decomposed into manure. He, therefore, keeps aside the above upper half and digs out the lower half, which has well decomposed, and uses the same as manure during that season. The 'undecomposed half' portion of the refuse is then put back into the same pit to form the bottom layer, which would decompose and become ready for the next season's (generally, next year's) use. Shortly after the above refuse is put back into the pit, the monsoon sets in and the whole pit gets filled up with water.

