

From the above results, it will be seen that there are notable differences in the root systems of the various grasses studied. It is interesting to note that in some cases, the length of roots and the depth to which they penetrate are nearly equal. In others, the length is very great while the depth to which they penetrate is very shallow. It has not yet been possible to correlate the length of the root system with the type of soils, dry or wetland. It would however appear that grasses found in wetland have thin roots penetrating shallow. *Cynodon dactylon* on account of the indefinite length of roots and the indefinite depth to which they penetrate seems to resist not only drought but continue to grow despite the scraping of the ground or shieling method adopted by the grass cutters. On one occasion, the author noticed a root penetrating to a depth of well over 4 feet of sub-soil which was quite hard and dry.

Andropogon contortus is drought resisting to a remarkable degree. It does not seem to depend mainly on the depth to which the roots penetrate. The habit of growth is spreading and prostrate, excepting during the growing season, and it is able to control evaporation better than *Cynodon dactylon*. During the dry period it is often noticed that the cattle prefer the *Andropogon contortus* which is apparently dry to *Cynodon dactylon* which seemed more papery than leafy. It would be interesting to continue and extend the study to other grasses.

Note:— Farm Manager, Mr. A. H. Subramania Sarma, was in charge of this work. This note is adapted from the paper on "the Study of Pastures at Hosur" read by the author at the Indian Science Congress, 1932.

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INTENSIVE MANURING OF PASTURES UNDER LOCAL CONDITIONS

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The object of this experiment was to force the growth of grasses under permanent pasture during the rainy season and thus increase the stocking capacity of the pasture; a pasture consisting of *Andropogon contortus*, *Andropogon pertusus*, *Digitaria sanguinalis* var. *ciliaris* and *extensum* and *Indigoferas* was selected for the experiment. This had received 3 cwts. of lime in 1927 and 20 cartloads of Farm Yard Manure, 3 cwts. of Bonemeal, and 1 cwt. of Super phosphate in 1928. The experiment commenced in September 1929. Four ½ acre plots (A, B, C and D) in one square block, were fenced off for the manuring experiment, and pasture all round the experimental block was used as control. The plots were fenced so that animals could gra *rotati* i. e. first A,

second B, then C and lastly D, back to A and so on. The rains began on 14th September and the rainfall for the month was 7.01 inches. There were about 11 rainy days during the month.

Eighteen Bull calves were chosen for the experiment; 9 as experimentals and 9 as controls. In each lot there were three of *Kangayams*, 3 of *Scindhes* and 3 of *Ongoles*. The grazing was done by tethering the animals.

The experiment started on 21-10-1929. The controls grazed outside the block and the experimentals in plot A. In addition to grazing, the animals received soiled guineagrass *ad lib.* Weights of each animal were taken twice a week.

Plot A was grazed off by the 17th November, when the animals were changed to plot C. In the meantime plot D was sown and 960 lb. hay collected, and it received 56 lb. of sulphate of ammonia on the 25th November, so that the herbage could grow in time for the animals to be put on it.

Later, the animals were changed to plot D. As there was no rain the herbage in plot D did not grow and that plot and plot C became dry.

The experiment was completed on 5th December 1929. The weights of the animals are given below:—

A. Experimentals.

Calf No.	Breed.	Date of birth.	Weight on 21-10-29 lb.	Weight on 21-11-29 lb.	Weight on 5-12-29 lb.	Difference in weight up to	
						21-11-29 lb.	5-12-29 lb.
53	Kangayam	17-11-27	564	574	598	+10	+34
52	do	25-2-28	512	532	574	+20	+62
63	do	16-7-28	462	431	486	-31	+24
11	Scindhe	-11-27	512	497	560	-15	+48
13	do	-12-27	546	554	578	+8	+32
20	do	12-8-28	440	432	454	-8	+8
51	Ongole	27-9-28	490	469	504	-21	+18
50	do	25-8-28	525	502	497	-23	-25
127	do	24-10-28	469	442	500	-27	+31
			4520	4433	4751	-87	232

B. Controls.

Calf No.	Breed.	Date of birth.	Weight on 21-10-29 lb.	Weight on 21-11-29 lb.	Weight on 5-12-29 lb.	Difference in weight up to	
						21-11-29 lb.	5-12-29 lb.
58	Kangayam.	7- 5-28	532	514	541	-18	+9
61	do	2- 7-28	455	430	483	-25	+28
53	do	28- 2-28	532	497	469	-35	-63
9	Scindhe.	- 11-27	588	554	602	-34	+14
10	do	- 11+27	638	630	655	- 8	+17
16	do	1- 4+28	567	539	557	-35	-10
49	Ongole.	15- 8-28	574	543	595	-31	+21
48	do	5- 8+28	520	490	564	-30	+44
44	do	28- 3+28	602	550	609	-52	+ 2
			5008	4740		-268	+62

It will be noticed that all the controls lost weight, while among the experimentals only 3 animals have gained a little on 21st November, but by the end of the experiment when grazing was scarce all but one in the experimentals gained weight, and all but 2 in the controls also gained weight, but not to the same extent. From the experience and experiment conducted here it would appear that (1) Intensive system of manuring and grazing as in temperate regions is not suited especially for *Andropogon contortus* and (2) moisture in the soil is the deciding factor in the growth of grasses.

Note - Farm Managers, Messrs. H. Narahari Rao and A. H. Subramania Sarma were in charge of the experiment. This note is adapted from the paper on "The Study of Pastures and Meadows at Hosur," read by the author at the Indian Science Congress 1932.

Notes and Comments.

1. **The Agricultural College Day and Conference.** We take this opportunity to inform our numerous readers and well-wishers that it has been arranged to convene the twenty-second College Day and Conference during the last week of July commencing on the 23th of that month. In this connection we are glad to announce that Dewan Bahadur Sir T. Vijayaraghavachary Avl., the Vice President of the Imperial Council, Agricultural Research of Delhi, has very kindly consented to preside over the function. On behalf of the Madras Agricultural Students' Union,—under the auspices of which the annual