

## Studies on the Nutritive Value of different Fodder Grasses

Studies on grasses were begun as early as 1929 and since then surveys of grass flora of different districts and trials of many exotic and indigenous grasses formed an important item of work in the Botany Section of the Agricultural College and Research Institute, Coimbatore. A number of new fodder crops and grasses have been introduced by the Botany Section under the Fodder Research Scheme and the nutritive value of these grasses are not available. The present study aims at the investigation of comparative values of the newly introduced fodder grasses. The following twelve grasses viz., *Panicum purpureum*, *Pennisetum orientale*, *P. polystachyan*, *Gloris gayana*, *Setaria pallidifusca*, *S. holstii*, *S. woodii*, *Apluda varia*, *Eragrostis superba*, *Panicum coloratum*, Pusa giant Napier (Alamathi) and Pusa giant Napier (I. A. R. I.) were studied for their nutritive value. These grasses which were grown in the red soils under similar agronomic conditions were collected at the mid-vegetation stage from the plots of Fodder Research Scheme, Coimbatore, during the year 1965 and were analysed for moisture, dry matter, ash, crude protein, ether extractives, crude fibre, phosphoric acid, potash, lime and magnesia contents by employing standard procedure of analysis.

The analysis of the above twelve grasses (Table 1) has shown that ash content of the grasses ranged from 7.18 to 23.64%. The grass *S. woodii* recorded the highest ash content (23.64%) followed by *P. purpureum* (17.62%) and *Eragrostis superba* (7.18%). The crude protein content of the grasses ranged from 6.15 to 13.19%. *P. purpureum* has given the highest value of 13.91% follo-

wed by *P. polystachyan* (11.13%) and the lowest value of crude protein in the sample Pusa giant Napier grass (Alamathi). The results of analysis indicated that the highest value of ether extractive was observed in *P. orientale* (3.81%) followed by *P. purpureum* (37.2%). The crude fibre content of the twelve grasses ranged from 24.48% to 35.11%. The lowest value of crude fibre was recorded in the following grasses viz., *P. purpureum* (24.48%), *P. coloratum* (26.88%), Pusa giant Napier (I. A. R. I.) (25.83%) and Pusa giant Napier (Alamathi) (27.12%). In all other grasses the crude fibre content exceeded more than 30%.

The highest lime content was noticed in *S. woodii* (2.36%) followed by *S. pallidifusca* (2.06%) and the lowest in *P. orientale* (1.04%). In phosphoric acid content *P. purpureum* has recorded the highest value compared to other grasses. High potash content was observed in the grasses *P. orientale* (0.99%), *P. purpureum* (0.97%) and *S. woodii* (0.92%). The magnesia content was very low in most of the grasses.

As the chemical composition of fodder crops and grasses varies according to variety, soil and climatic conditions, stage of maturity, time of harvest, manuring etc. a further study is necessary to determine the effect of such factors on the chemical composition of fodder grasses.

### ACKNOWLEDGEMENT

The authors are grateful to the Botany Section for providing the plant materials for this study.

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TABLE 1. Analysis of fodder grasses for their nutrition value. (on dry basis)

	Moisture %	Dry matter %	Ash %	Crude Protein %	Ether extractives %	Crude fibre %	N free extra-ct % (by difference)	P <sub>2</sub> O <sub>5</sub> %	K <sub>2</sub> O %	CaO %	MgO %
1. <i>Panicum purpureum</i>	10.68	89.32	17.62	13.91	3.72	24.48	41.27	0.68	0.97	1.31	0.61
2. <i>Pennisetum orientale</i>	10.24	89.76	12.02	7.99	3.81	31.70	44.48	0.46	0.99	1.04	0.66
3. <i>Pennisetum polystachyan</i>	8.79	91.21	9.89	11.13	2.99	31.67	44.32	0.46	0.80	1.29	0.42
4. <i>Gloris gayana</i>	10.76	89.24	11.94	7.55	2.57	30.87	47.09	0.47	0.49	1.43	0.39
5. <i>Setaria pallidifusca</i>	8.70	91.30	9.35	7.39	2.56	32.15	48.55	0.30	0.70	2.06	0.20
6. <i>Setaria holstii</i>	8.53	91.47	14.35	8.52	2.40	32.70	42.03	0.39	0.71	1.19	0.11
7. <i>Setaria woodii</i>	9.35	90.65	23.64	8.16	2.43	31.66	34.17	0.39	0.92	2.36	0.31
8. <i>Apluda varia</i>	11.96	88.04	11.02	6.53	2.98	34.42	45.05	0.47	0.38	1.17	0.20
9. <i>Eragrostis superba</i>	8.84	91.16	7.18	7.78	2.58	35.11	47.35	0.41	0.38	1.27	0.09
10. <i>Panicum coloratum</i>	9.86	90.14	8.69	8.74	2.44	26.88	53.25	0.60	0.50	1.45	0.06
11. Pusa giant Napier (Alamadhi)	8.92	91.08	12.14	6.15	2.58	27.12	52.01	0.42	0.47	1.31	0.05
12. Pusa giant Napier (I. A. R. I.)	9.41	90.59	10.24	11.11	2.89	25.83	49.93	0.31	0.86	1.29	0.06