A NOTE ON CHEMICAL COMPOSITION OF SOME UTTARAKHAND GRASSES

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(*Received* 5 *August*, 1976 *revised* 30 *March*, 1977)

Chemical composition of 30 local grasses of Uttarakhand were determined. The maximum crude protein, mineral contents and lower value of crude fibre content was recorded from *Dactylis glomerata, Arundo donax, Apluda mutica and Poa pratensis* in comparison to other grasses.

Managing the feed and fodder requirements of the transport animals stationed in high altitude mountainous region is one of the major problems of the army. Bailed hay is transported from a long distance to feed the animals whereas plenty of local grasses are available during monsoon season in these areas which can be fed to animals as greens and also stored dry for winter season. There is a general feeling that local grasses may be less nutritive. Keeping this aspect in view, Agricultural Research Unit, Almora has attempted to evaluate the chemical composition of some of the local grasses of Uttarakhand. A survey was undertaken in the field areas along the Indo-Nepal and Indo-Tibbet borders i.e. Almora (1,676 m), Joshimath (Auli-2,743 m), Uttarkashi (Harsil-2,743 m), Pithoragarh (1,676 m). One hundred local grasses were collected out of which only 30 grasses in semi-dry stage, identified and chemical composition i.e. moisture, dry matter, ash, crude protein, crude fibre, calcium, potassium, phosphorus and magnesium contents were determined. Chemical composition of the different grasses on dry matter basis are given in Table 1.

TABLE 1

CHEMICAL COMPOSITION OF SOME UTTARAKHAND GRASSES

(*On dry weight basis*)

Name of the Grasses	Place of Collection	Moisture %	Dry matter %	Ash %	Crude protein %	Crude Fibre %	*Ca* %	*P* %	*K* %	*Mg* %
1	2	3	4	5	6	7	8	9	10	11
Agrostis sp.	Joshimath (Auli)	26·35	73·65	9·85	6·28	30·68	0·34	0·09	0·27	0·11
Apluda mutica	Pithoragarh	23·60	76·40	17·56	10·25	27·12	0·62	0·26	0·66	0·28
Aristida Cynantha	Almora	37·35	62·65	10·28	5·26	32·62	0·35	0·12	0·29	0·13
Arundo donax	Pithoragarh	21·38	78·62	21·65	10·72	24·25	0·71	0·27	0·68	0·32
Bothriochloa sp.	Uttarkashi (Harsil)	36·70	63·30	10·95	9·04	25·37	0·68	0·27	0·72	0·34
Bothriochloa intermedia	Pithoragarh	27·20	72·80	14·29	4·28	35·58	0·59	0·22	0·60	0·25
Bromus sp.	Joshimath (Auli)	23·38	76·62	13·86	8·65	27·38	0·42	0·18	0·43	0·21
Chrysopogon fulvus	Almora	23·72	76·28	15·25	8·52	28·62	0·47	0·21	0·50	0·22
Cymbopogon martinii	Pithoragarh	31·32	68·68	12·26	6·65	30·65	0·40	0·14	0·35	0·16
Cyperus sp.	Almora	25·20	74·80	9·00	5·86	18·62	0·33	0·17	0·37	0·23
Digitaria sp.	Almora	27·44	72·56	12·82	7·65	30·62	0·40	0·17	0·46	0·19
Dactylis glomerata	Joshimath (Auli)	19·32	80·68	21·86	10·85	23·68	0·86	0·32	0·71	0·35
Echinochloa colonum	Almora	26·44	73·56	12·42	8·26	29·68	0·41	0·17	0·43	0·17
Elusine sp.	Pithoragarh	31·48	68·52	18·65	5·62	30·48	0·61	0·26	0·60	0·29
Erianthus sp.	Almora	24·72	75·28	10·26	7·62	30·65	0·35	0·12	0·29	0·13
Eragrostis sp.	Pithoragarh	29·42	70·58	12·65	6·20	30·62	0·36	0·14	0·43	0·17
Festuca sp.	Joshimath (Auli)	45·80	54·20	21·24	7·88	30·68	0·47	0·20	0·46	0·21
Heteropogon contortus	Uttarkashi (Harsil)	30·60	69·40	18·52	8·25	32·65	0·27	0·21	0·55	0·25

contd.

1	2	3	4	5	6	7	8	9	10	11
Heteropogon melanocarpon	Joshimath (Auli)	35·70	64·30	20·20	8·31	28·25	0·54	0·23	0·51	0·19
Oplismenus sp.	Almora	31·14	68·86	14·92	8·25	30·62	0·43	0·21	0·48	0·22
Pennisetum flaccidum	Almora	29·44	70·56	18·52	7·53	30·68	0·58	0·26	0·60	0·28
Pennisetum orientale	Almora	22·38	77·62	17·62	8·56	27·52	0·55	0·25	0·56	0·27
Panicum psilopodium	Almora	24·38	75·62	18·68	8·68	27·25	0·63	0·27	0·61	0·30
Poa annua	Uttarkashi (Harsil)	39·00	61·00	17·43	8·31	27·52	0·56	0·26	0·56	0·29
Poa pratensis	Joshimath (Auli)	24·38	75·62	20·38	10·62	25·28	0·69	0·29	0·65	0·31
Rottboellia exaltata	Pithoragarh	32·20	67·80	10·00	5·42	30·56	0·35	0·13	0·35	0·17
Sehima notatum	Pithoragarh	25·58	74·42	15·36	5·28	28·60	0·50	0·21	0·51	0·23
Setaria glauca	Almora	27·32	72·68	13·52	6·25	30·78	0·40	0·16	0·42	0·17
Sporobolus sp.	Joshimath (Auli)	21·48	78·52	12·36	8·56	27·48	0·40	0·16	0·42	0·17
Themeda anathera	Pithoragarh	32·60	67·40	9·25	4·86	30·56	0·35	0·17	0·37	0·16

It is evident from the Table 1 that moisture content of the grasses ranged from 19·32% to 45·80%. The dry matter content varied from 54·20% to 80·68%. The ash content ranged from 9·00 to 21·86%. *Dactylis glomerata* recorded the highest ash content 21·86%, followed by *Arundo donax* 21·65%. The crude protein content of the grasses ranged from 4·28% to 10·85%. *Dactylis glomerata* has given the highest value crude protein (10·85%) followed by *Arundo donax* (10·72%). The lowest crude protein content was recorded in *Bothriochloa intermedia* (4·28%).

A further examination of the experimental results recorded in Table 1, reveal that the crude protein content of the grasses decrease with the increase in fibre content. French[1] obtained similar results.

The crude fibre content of the grasses ranged from 18·62% to 35·58%. The lowest value of crude fibre was observed from *Cyperus sp.* 18·62%. Among the 30 grasses, *Dactylis glomerata* recorded the highest calcium content (0·86%), followed by *Arundo donax* (0·71%). The lowest value of calcium content has been found in *Cyperus sp.* (0·33%). The maximum phosphorus content (0·32%) has been recorded in *Dactylis glomerata* followed by *Poa pratensis* (0·29%). Phosphorus content was generally found low in most of the grasses. Sen[2] has also recorded the similar observations. Highest potassium content was recorded in *Bothriochloa sp.* (0·72%) followed by *Dactylis glomerata* (0·71%). Magnesium content was low in most of the grasses.

The above investigations may reveal that local grasses can be a substitute for fodder for transport animals which are deployed in high hills. This may reduce cost of transportation and other management problems associated with it.

ACKNOWLEDGEMENT

The authors are grateful to Shri M.C. Joshi, PScO, Officer-in-Charge and Dr. B. Singh, SSO-1, Agricultural Research Unit, Almora for their helpful suggestions in the preparation of this article.

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