IV. RESULTS AND DISCUSSION

A. Digestibility Trial

Six calves weighing 243 to 276 kg with an average age of 16 months were used to determine the digestibility of the three rations of the study . The three oxperimental rations were,(1) Napier (elephant) grass alone, (2) Napier (elephant) grass plus concentrate mixture and (3) rice straw plus concentrate mixture. Two amimals were assigned to each experimental ration. The digestibility trial was carried out along with the feeding trial which had been started 16 weeks earlier by the object of examing the digestibility of the same three rations. The calves on digestibility trial were chosen from the three experimental groups on the feeding trial and received the assigned respective rations.

1. Proximate composition of experimental rations:

The proximate composition of samples of the experimental rations taken during the collection period of the digestibility trial is shown in Table 1. It shows that percentages of crude protein (CP), ether extract (EE) and nitrogen free extract (NFE) percentages were higher but crude fibre (CF) percentage was lower in ration 2 (when the concentrate was added to Napier grass) when compared with ration I (Napier grass alone). This is attributed to the heigher CP, EE & NFE percentages

Table 1. Proximate composition of experimental rations (samples taken from feeds given during the collection period of the digestibility trial).

Ration	DM%	Composition (% of DM)			
		Crude protein	Ether Extract	Crude Fibre	Nitrogen Free Extract
Napier (elephant) grass	17.81	12.85	3.81	25.88	45.73
Concentrate Mixture	93.12	17.62	4.22	15.44	57.14
Ric straw	91.20	3.18	1.38	34.55	42.26
Napier grass plus concentrate (59:41%on DM basis) by calculating	26.64	14.81	3.97	21.59	50.42
Concentrate plus rice straw (59:41%on DM basis) by calculating	92.32	11.62	3.03	23.36	50.97

of the concentrate as compared to Napier (elephant) grass and the lower percentage of CP in the concentrate than Napier (elephant) grass.

On the other hand when rice straw was added to the concentrate in ration 3, CP and EE percentages were the lowest among the 3 experimental rations. This is due to the low percentages of CP and EE in the rice straw, NFE

percentage however was the highest among the three experimental rations, due to the high NFE percentage in the concentrate. Crude fibre percentage of ration 3 had intermediate value between respective values of ration 1 and ration 2 .

2. Digestion Coefficients:

Data of the digestibility trial are illustrated in the Appendixices A1, A2 and A3 . Average digestion coefficients of different nutriants are shown in Table 2.

Dry matter digestibility: Average digestion coefficients of DM were 71.59, 63.80, and 68.63% for Napier grass alone, Napier (elephant) grass with concentrate and rice straw with concentrate, respectively.

Analysis of variance as shown in Table 3 indicated that under the conditions of this experiment, the differences were significant between thes 3 treatments.

Table 2. Average digestion coefficients of Napier (elephant) grass alone, Napier grass with concentrate (59:41% on DM basis) and concentrate with rice straw (59:41% on DM basis) in a digestibility trial.

Group	Ration	Calf No.	Digestion coefficients				
			Dry Matter (DM)	Crude Protein (CP)	Ether Extract (EE)	Gude Fibre (CF)	Nitrogen Free Extract (NFE)
1 st	Napier grass	(1)	72.07	73.28	76.37	77.30	74.59
		(2)	71.11	74.03	74.68	76.99	73.67
		Av.	71.59b	73.66a	75.53c	77.15b	74.13a
2 nd	Napier grass plus concentrate	(3)	64.90	73.03	68.33	64.21	72.02
		(4)	62.69	72.43	67.78	61.35	71.10
		Av.	63.80a	72.73a	68.06b	62.78a	71.56a
3 rd	Concentrate plus rice straw	(5)	70.28	76.86	58.03	63.46	73.47
		(6)	66.98	73.75	55.44	54.78	72.33
		Av.	68.63b	75.31a	56.74a	59.12a	72.90a

a,b, c: Means of the measure not followed by the same letter are significantly different at 0.05 level (Duncan's multiple range test, 1955).

Table 3. Analysis of variance for the digestibility coefficients and feeding values (SE, TDN and DCP.) of the different rations.

S.O.V.	d.f	Mean squares							
		Digestion Coefficients					Feeding values		
		DM	CP	EE	CF	NFE	SE	TDN	DCP
Tatal	5	--	--	--	--	--	--	--	--
Ration	2	30.96*	3.40	179.01**	181.55*	3.30	42.195*	19.185*	2.065**
Error	3	1.04	1.76	1.64	13.94	0.50	1.877	1.933	0.027

* Significant at 5% level

** Significant at 1% level

These results were similar to those reported by Soliman (1976) and Etman (1980), who found that the digestion coefficient for DM of Napier(elephant) grass alone ranged between 67.52 to 73.58.In other experiments by Singh et al. (1965) and Panda et al. (1967), the digestion coefficients of DM in Napier grass were 48 and 53%.

On the other hand, the digestion coefficient of DM of Napier grass with concentrate in the present study (63.80%) is close to the value of 66.1% estimated by Etman (1980), while it is comparatively higher than the digestion coefficient of DM for Napier grass supplemented with groundnut cake as estimated by panda et al.(1967) (53.24%).

Bendary (1978), found the average digestion coefficient of DM of concentrate feed cubes with wheat straw to be 62.04% a value comparable to that obtained in this study (68.63%, Table 2).

Crude protein digestibility: The average digestion coefficient of CP were 73.66,72.73 and75.31% for Napier grass alone, Napier grass with concentrate and rice straw with concentrate, respectively (Table 2).

Analysis of variance (Table 2) indicated that the addition of concentrate did not significantly affect the digestibility of CP of the mixture when compared with the digestibility of CP of Napier grass alone. On the other

hand, the use of rice straw with concentrate did not significantly affect the digestibility of CP when compared with the digestibility of CP of Napier grass alone or with concentrate .

The digestion coefficient of CP of Napier grass alone in the present study was higher than that reported by Johri et al. (1967) (58%), panda et al. (1967), (53%) and Bose et al. (1970) (60.56%). Soliman (1976) and Bendary (1978) reported digestion coefficients of CP ranging from 63.60 to 76.15 and 60.21 to 78.53%, respectively.

The digestion coefficient of CP of Napier grass with concentrate was 72.73% , which is higher than that reported by panda et al. (1967) (65.64%) and by Etman (1980) (60.60%) and 72.47% in the 1 st and 2 nd cut, respectively .

Bendary (1978) showed that CP digestibility of concentrate feed cubes with wheat straw was 68.03% which is lower than that reported in the present study for concentrate with rice straw.

Ether extract digestibility: The digestibility coefficients of EE were estimated, the average was 75.53% for Napier grass alone, 68.06% Napier grass with concentrate and 56.74% for rice straw with concentrate as shown in Table(2).

Analysis of variance (Table 3) showed that the differences among digestibility coefficients of EE of Napier grass alone, Napier grass with concentrate and rice straw with concentrate were highly significant under the condition of this experiment.

The observations in this study seem to be in harmony with those reported by Melotti et al. (1970) who reported a digestion coefficient of EE of Napier grass alone of 72.90% and with those of Bendary (1978) who indicated a range of 70.60 to 76.22%. Singh et al. (1965), Johri et al. (1967), Panda et al. (1967) and Soliman (1976), however showed that EE digestibility of Napier grass alone were 53,52,60.55 , 53.25 %,respectively. Also the digestion coefficient of EE for Napier grass with concentrate as estimated by Panda et al. (1967) and Etman (1980) was lower than that reported in the present study.

Crude fibre digestibility: The average digestion coefficients of CF were 77.15 and 62.78% for Napier grass alone and Napier grass with concentrate, respectively, while the value for rice straw with concentrate was 59.12 % (Table 2). From these results, it was noted that the average digestion coefficient of CF for Napier grass with concentrate was significantly lower than for Napier grass alone.It is beleived that the

addition of concentfate to Napier grass at the rate assigned in the present study had depressed the CF digestibility of Napier grass.

Analysis of variance (Table 3) showed that the differences between the average digestion coefficients of CF for the three experimental rations were significant.

The average digestion coefficient of CF for Napier grass was in harmony with that reported by Etman (1980) who reported values of 76.05 and 78.25% for the 1 st and 2 nd cuts, respectively. Also, Soliman (1976) reported CF digestibility in the range of 73.27% to 80.69% for the 1st, 2 nd, 3 rd and 4 th cuts. But, Singh et al. (1965), Raj and mudgal (1968) and Bose et al. (1970) reported average digestion coefficients of CF in Napier grass of 45, 68.68 and 75.15% respectively. The average digestion coefficient of CF for Napier grass with concentrate of 62.78% reported in this study (Table 2) was higher than that reported by Panda et al. (1967), 54.66%.

Bendary (1978), found that the average digestion coefficient of CF for concentrate feed cubes with wheat straw was 55.54%, a value comparatively lower than the corresponding value for concentrate with rice straw, in the present study.

Nitrogen free extract digestibility: The average digestion coefficient of NFE in Napier grass alone was 74.13%, while that in the grass with concentrate was 71.56% and in concentrate with rice straw was 72.90% , as shown in Table 2.

Analysis of variance (Table 3) showed that there were no significant differences among digestion coefficients of NFE for the three experimental rations.

From these results, it was noted that the addition of concentrate seemed to depress the NFE digestibility of Napier grass though not as drastically as its effect on CF digestibility This average digestion coefficient of NFE in Napier grass was in harmony with those reported by Etman (1980) who reported values of 74.33 and 75.69% for the 1st and 2 nd cuts, respectively. Also, Soliman (1976) reported values which ranged between 72.04 and 78.45% for the 1st, 2 nd,3rd and 4th cut.

The digestibility of NFE in Napier grass (Table 2) was higher than that reported by Johri et al. (1967) and Bose et al. (1970) who reported values of 50 and 61.67% respectively. Panda et al. (1967) reported lower NFE digestibility coefficient for Napier grass with concentrate (51.44%) than that presented in Table 2 (71.56%).

The average digestible coefficient of NFE for concentrate with rice straw was higher than that reported by Bendary (1978), for concentrate feed cubes with wheat straw, (67.85%).

3. Feeding values of Napier grass, mixture of concentrate with Napier grass and concentrate with rice straw.

Feeding values of Napier grass alone, Napier grass with concentrate, and concentrate with rice straw, fed to calves presented in Table(4).

When determined on a DM basis the average values for Napier grass were 60.50% SE , 69.80% TDN and 9.47 % DCP. For the mixture of Napier grass with concentrate feeding values were 59.17%. SE, 66.49% TDN and 10.76% DCP. Feeding values of 51.96% SE, 63.60% TDN and 8.76 % DCP were recorded for concentrate with rice straw .