

Except for the low figure of method (a) in the first period and the high figures for (b) and (c) in the third period, the three methods show very good agreement. These high estimates are largely accounted for by the abnormally-high digestibility co-efficient of the grass concerned. In this experiment the proportion of frames to total area in method (a) was very large, amounting to 10 per cent. to 12 per cent. This is much larger than could ever be used in practice on any scale using the frame technique, but it was justifiable here because interest lay mainly in checking method (c) as a possible practical method and highly-accurate figures with which to compare its estimates were necessary. From the detailed results obtained it is considered that method (a) after the first period gave very accurate estimates. The results from method (c) must be considered very encouraging.

The experiment also yielded considerable information on the problems of efficient application of the marker technique. It was found that the marker used (Cr_2O_3) could be quantitatively recovered over an extended period and that the concentration of marker in grab samples provided a reliable estimate of its concentration in total faeces. The measurement of faeces output under field conditions now centres on minimizing the field sampling difficulties and determining the most efficient form of bulking faeces to reduce chemical work and to give the desired accuracy.

Trials are in progress with 16 sets of identical twin cattle being rotationally grazed on pasture alone throughout the season to determine these points. Though this aspect of the work is still incomplete, the same animals have provided a further field test of method (c) compared with method (a). Results were as follows:—

Fortnightly Periods.			Mean Intake of Dry Matter Per Day.		Dry Matter Digestibility.
			Method (a).	Method (c).	
			lb.	lb.	Per Cent.
29/7–11/8	..	..	16.6	16.4	73.5
12/8–25/8	..	..	17.0	18.2	75.1
26/8–8/9	..	..	22.1	19.3	77.4
9/9–22/9	..	..	19.6	20.6	77.6
23/9–6/10	..	..	25.0	21.8	77.7
7/10–20/10	..	..	25.6	23.7	76.9
21/10–3/11	..	..	25.3	23.4	75.5
4/11–17/11	..	..	27.9	24.1	72.8
18/11–1/12	..	..	19.8	19.3	64.1
2/12–15/12	..	..	22.6	23.2	69.4
16/12–29/12	..	..	26.3	22.7	68.1
30/12–12/1	..	..	23.9	22.7	65.9
13/1–26/1	..	..	24.7	24.0	67.1

Very satisfactory agreement is shown in these data. The frame technique shows a tendency to yield slightly higher intake estimates than the marker technique. This work is still in progress, but in general terms the results indicate that when the digestibility of the pasture is known a simplified marker technique based on grab samples of faeces obtained twice daily at milking-time will give a sufficiently reliable estimate of faeces output to yield an accurate estimate of pasture intake, at least over fortnightly periods for individual cows and over five-day periods for groups of cows. Digestibility of the pasture has still to be determined by the relatively laborious digestibility trial, but it is hoped that the faeces nitrogen estimation method, or some alternative chemical method, may be developed to a stage which will still further reduce the labour of this class of work. If successful, the one series of analyses on a grab sample of faeces will give both faeces output and digestibility and thus yield the required intake estimate.