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Introduction

e nylon bag technique is a very simple and useful biological tool [1] with its use dating back to the early 19th century [2] when the nylon bag was used in- vivo nutrition experiments. e nylon bag technique has been widely adopted to evaluate the rate and extent of degradation through the microbial rumen degradation processes [3]. e principle behind the technique is that feed samples of identi ed weight are put in the nylon bays with pores allowing entry and exit of the rumen uid to allow degradation of feed [2] in the pre-weighed bags.

e samples are prepared in duplicates and incubated in the rumen of stulae animal for a range of times. Degradation of material in the nylon bag is made possible by the ability of the bag to allow entry and exit of rumen uid. is ability of the nylon bag to allow entry and exit of rumen uid can also be taken advantage of to reduce cost and time of feed analysis through batch analysis of samples bagged in nylon bags.

and ether extract batch analysis. Consistent with this hypothesis, the objective of this study was to determine the optimum number of bags that can be used in bath analysis of CF and EE determinations.

Methodology

A completely randomized block design was used for the study, three blocks and ve treatments. e three blocks were the samples of feed each with the following treatments: treatment 1 (control), treatment 2 (I bag), and treatment 3 (2 bags), treatment 4 (3 bags) and treatment 5 (4 bags). Samples of Katambora, veld hay and maize stover were groun using a laboratory hammer mill with a 1 mm sieve. For the control samples 1g of each sample was weighed replicated three times an ether extract and crude ber were analyzed according to the Analytical of Association Chemist [6]. For the bagged sample, 1g of feed was weighed and put directly in the nylon bag and for each sample, 16 bags were made. e bags for each sample type were randomly allocated to the four treatments with treatment 2 and 3 replicated 3 times while treatment 4 and 5 did not require replication since this had been done through batching of the samples. e nylon bags were tightly closed and EE and CF analysis were done using the procedure as described b Analytical of Association Chemist (AOAC) (1990) at the University of Zimbabwe, Animal Science Department [6]. e results were analyzed using SAS (1998) [7]. Cost of analysis for each sample and componen was done using the laboratory charges as per cost of analysis in the Department of Animal Science.

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3. ese results indicate that for katambora grass, up to four bags can be used in a batch and this is also supported by the savings resulting from use of more bags (Table 3). is can serve a lot of non renewal energy which is very good for the environment. However for the other two, the optimum number of bags 2 because use of up to 4 bags for maize stove and veld hay although cheaper, (Table 3) would signi cantly ($P<0.05$) underestimate ether extract.

Conclusion

ere is a potential to do batch analysis with optimum number varying between forage type and component of analysis. For crude ber analysis, the optimum number of bags for all forage types per batch is two. For ether extract determination, the optimum number of bags for Katambora grass is 4 while that for veld hay and maize stover is two. It is recommended that trials using more than one feed sample be done to determine e ects of the methods on analysis of di erent samples in the same ask.

References

1. Osuji PO, Nsahlai IV and Khalili H (1993) Feed evaluation ILCA (International Livestock Center for Africa), Addis Ababa, Ethiopia.
2. Ørskov ER, DeB Hovell FD and Mould F (1980) The use of the nylon bag technique for the evaluation of feedstuffs. Tropical Animal Production 5.
3. Pramote PS, Traiyakun J, Khotsakdee S, Srisaikham M and Paengkoum S (2012) Evaluating the Degradability of the Guava and Jack Fruit Leaves Using In sacco Technique and Three-step Techniques Pakistan Journal of Nutrition 11: 16-20.
4. Corson DC, Waghorn GC, Ulyatt MJ and Lee J (1999) NIRS: Forage analysis and livestock feeding. Proceedings of the New Zealand Grassland Association 61: 127-132.
5. Adeson AT, Givens DI and Owen E (2000) Measuring chemical composition and nutritive value of forages. Edited by t'Mannetje Land Jones R M:CABI.
6. $VVRFLDWLRQ RI 2I¿FLDO $QDO\WLFDO &KHPLVWV RI $QDO\VLV RI WKH $VVRFLDWLRQ RI 2I¿FLDO $ Washington DC, USA
7. Statistical Analysis System (SAS) 1998 User's Guide Statistics, SAS Institute Inc. Cary, North Cariolina, USA.
8. Fomunyam RT and Meffeja F (1986) Maize stover in maintenance diets for sheep and goats in Cameroon. In: ARNAB (African Research Network for Agricultural Byproducts). Towards Optimal Feeding of Agricultural Byproducts to Livestock in Africa: Proceedings of a workshop held at the University of Alexandria, Egypt, October 1985. ILCA, Addis Ababa, Ethiopia.
9. Nour AM, Abou AAR, Nour AA and Mabrouka A (1986) The optimum levels of roughages in the diets of sheep: In: ARNAB (African Research Network for Agricultural Byproducts). Towards Optimal Feeding of Agricultural Byproducts to Livestock in Africa: Proceedings of a workshop held at the University of Alexandria, Egypt, October 1985. ILCA, Addis Ababa, Ethiopia.

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