

Title	Evaluating Prevalence and Control Methods of Gastrointestinal Parasites of Sheep and Goats in Agro-Ecological Zones of Lesotho
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Purpose	To determine the prevalence and diversity of gastrointestinal parasites of sheep and goats in the four agro-ecological zones of Lesotho.
Project Summary	Sheep and goats constitute an important component of livestock farming in Lesotho and contribute significantly to the GDP through meat production and exports of wool and mohair. However, infections by gastrointestinal (GI) parasites limit these economic benefits to levels that are both marginal and far below their true potential. Livestock production in Lesotho relies predominantly on communal grazing which presents serious challenges for the management and control of animal diseases. Among these challenges is the fact that communal grazing favours the development and spreading of GI parasites as most GI parasites are spread through the free-living stages that

	<p>are passed out with the faeces of infected animals and later consumed by uninfected animals during grazing. This project aims at evaluating the prevalence, species composition and population dynamics of GI parasites of sheep and goats in all agro-ecological zones of Lesotho. Prevalence of GI parasites will be determined by the McMaster technique while the isolation and identification of cultured nematodes will be determined by the Baermann technique. Furthermore, the types of livestock production systems and challenges will be thoroughly studied with an aid of the feed assessment tool (FEAST) developed by the International Livestock Research Institute (ILRI). The utility of FEAST is vitally important as it is a farmer-centred methodology that evaluates site-specific livestock production challenges and identifies potential solutions through interaction. Both sets of information, i.e., GI parasite population ecology and identified livestock production constraints and possible solutions will be combined to develop strategies that will enhance production of sheep and goats in Lesotho. Some of the expected outcomes of this project include the establishment of a network of research scientists, farmers, extension agents and other stakeholders and informed and targeted GI parasite management systems. Two students will attain training leading to the M.Sc. and 4 students will also do undergraduate research projects under the auspices of this RUFORUM funded project. The NUL will work in collaboration with the Departments of Livestock Services and Agricultural Research both in the Ministry of Agriculture and Food Security as well as the Lesotho National Wool and Mohair Association to ensure successful implementation of the project.</p> <p>Keywords: Gastrointestinal parasites, sheep, goats, agro-ecological zones of Lesotho, National University of Lesotho</p>
Country and Specific location(s)	Lesotho: Butha Buthe, 'Moteng, Oxbow, Ha Maama, Nyakosoba, Thaba Putsoa, Moyeni, Mount Moorosi, Lebelonyane
Participating Institutions	<ul style="list-style-type: none"> • Department of Livestock Services, Ministry of Agriculture and Food Security • Department of Agricultural Research, Ministry of Agriculture and Food Security
Start Date	1 st July, 2015
End Date	30 th July, 2017
Budget	USD 59,338



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Mpho Wycliffe Phoofolo is an associate professor in the Department of Biology at the National University of Lesotho (NUL). He has wide research interests in the areas of applied zoology and ecology. He is also keen in mentoring young scientists. He is the current head of department. Professor Phoofolo obtained a B.Sc. in Biology and Chemistry from the NUL and both his M.Sc. and PhD in Entomology from Iowa State University in the United States of America. His academic career started in 1987 as a teaching assistant in the Department of Biology at NUL. He rejoined NUL in 1997 as a lecturer after completing his post-graduate studies and was promoted to the rank of senior lecturer in 2003. From July 2003 to May 2009 he worked at Oklahoma State University as a post-doctoral research fellow in a collaborative project between the Department of Entomology and Plant Pathology and USDA-ARS. Professor Phoofolo is a Principal Investigator (PI) and collaborator in various research projects dealing with crop and animal production. These include the bean pest management research project funded by The Pan-Africa Bean Research Alliance and the recently RUFORUM funded project on “Evaluating prevalence and control methods of gastrointestinal parasites of sheep and goats in agro-ecological zones of Lesotho” that involves training two M.Sc. students. Professor Phoofolo also serves on a number of committees both within the University system and at national level.

Selected Publications

Phoofolo, M.W., Mabaleha, S., Mekbib, S.B. (2013). Laboratory assessment of insecticidal properties of *Tagetes minuta* crude extracts against cabbage aphid, *Brevicoryne brassicae*, on cabbage. *Journal of Entomology and Nematology*, 5(6): 70-76.

Elliott, N.C., Kieckhefer, R.W., Phoofolo, M.W. (2013). Prey foraging movements by *Hippodamia convergens* in wheat are influenced by hunger and aphids. *Southwestern Entomologist*, 38(2):163-172.



- Elliott, N.C., Kieckhefer, R.W., Phoofolo, M.W. (2012). Foraging by *Hippodamia convergens* for the aphid *Sitobion avenae* on wheat plants growing in greenhouse plots. *Southwestern Entomologist*, 37(4):467-474.
- Elliott, N.C., Kieckhefer, R.W., Phoofolo, M.W. (2011). Functional response of *Hippodamia convergens* to *Sitobion avenae* on wheat plants in the laboratory. *Southwestern Entomologist* 36: 423-431.
- Mullins, C. B., Giles, K.L., Ye, C.M., Phoofolo, M.W. (2011). Using PCR to detect intraguild predation of *Lysiphlebus testaceipes* by coccinellids. *Southwestern Entomologist* 36: 295-304.
- Backoulou, G.F., Elliott, N.C., Giles, K., Phoofolo, M., Catana, V., Mirik, M., Michels, J. (2011). Spatially discriminating Russian wheat aphid induced plant stress from other wheat stressing factors. *Computers and Electronics in Agriculture*, 78:123-129.

Selected Funded Projects

- 2014 – 2016: Prevalence of gastrointestinal parasites of sheep in three agro-ecological zones of Maseru district (funded by NUL Research and Conferences Grant). Principal Investigator.
- 2013 – 2017: Bean INSECT pest management research project in Lesotho (part of The Pan-African Bean Research Alliance funded by CIAT). Contributor.
- 2015 – 2017: Evaluating prevalence and control methods of gastrointestinal parasites of sheep and goats in agro-ecological zones of Lesotho. Funded by RUFORUM. Call ID RU/CGS/GRG/21/07/14. Principal Investigator.

