Project Number	**R8151**
Project Title	Improving the livelihood of resource-poor goat farmers in Southern Africa through strategic drug and nutritional interventions against gastro-intestinal nematode infections
Project Leader	Adriano VATTA
Institution	Onderstepoort Veterinary Institute
Project Dates	Start – April 2002 End – March 2005

Project Background

A recent extensive DFID-sponsored study indicated that nutritional/micronutrient deficiencies, gastrointestinal parasitism and haemonchosis were amongst the 20 highest ranked conditions impacting on the poor[*]. In South Africa, resource-poor farmers are concerned that their goats "don't multiply" and that worms (locally known as "izikelemu" or "dibokwana") are a major cause of death. Their concerns are supported by results from studies in sub-Saharan Africa, which show that gastro-intestinal nematodes cause poor growth, low reproductive performance and death.

Development and Scientific Objectives

Improved understanding of the relative benefits of nutritional and/or chemotherapeutic intervention against gastro-intestinal parasitism will assist farmers to optimise goat production by using their limited resources to best effect. The project will provide the farmer with advice based on quantified information regarding the relative benefits and cost efficiency of readily available intervention strategies for goat management and helminth control.

Progress against Log-frame Indicators

The effect of supplementation with urea-molasses blocks and strategic anthelmintic treatment and the interaction of these on helminth parasite burden and goat production are being investigated, in the first instance in an on-station trial. The results of this work will then be tested in the field. To do this, the villages for the on-farm work have been identified. The first year of a three-year socio-economic analysis of the villages has been implemented and the results are being compiled into a report. A goatkeepers' package is in an advanced stage of preparation.

Achievements in Current Year

On-station trial

The on-station experiment has been set up and is running smoothly. It consists of 4 groups of 20 goats each, which receive supplementation with urea-molasses blocks in the "wet", "dry" or "wet" and "dry" seasons or not at all (control). The animals are grazed during the day and fed their supplements in their pens at night. The “wet”-season feeding of the groups extended from the beginning of December 2002 until the end of February 2003 (summer); the "dry" season feeding will take place from the beginning of June to the end of August 2003 (winter). Ten goats in each group were given a strategic anthelmintic treatment on 28 January 2003 to comply with the protocol, although the faecal egg counts of the goats in all groups were low (geometric mean < 150 eggs per gram of faeces (epg)). Nevertheless, this

[*] PERRY, B.D., RANDOLPH, T.F., McDERMOT, J.J., SONES, K.R. and THORNTON, P.K. (2002) *Investing in Animal Health Research to Alleviate Poverty*. ILRI (International Livestock Research Institute), Nairobi, Kenya. 148 pp.

led to significant differences in faecal egg counts between treated and non-treated animals on each date of sampling during February 2003 (March statistics not yet available). The low egg counts are probably related to rainfall being lower than normal during August to November (124 mm compared to a 12-year average of 168 mm) and the fact that there is a considerable amount of browse available in the goat camp. Even though rainfall for December 2002 and January and February 2003 was normal, egg counts were low (geometric mean < 250 epg) at the end of February. Significant differences were seen in the egg counts between the 4 supplementation groups on 2 occasions in November and 1 occasion in December 2002. However, clinically these differences were not important (all geometric mean egg counts < 100 epg).

Goatkeepers' extension package

A goatkeepers' extension manual is being finalised which consists of 12 posters on disease conditions that have been indicated to be important to these farmers and will be presented in a laminated A3 format with a ringbinder. A smaller booklet entitled "Worms in your goats, sheep and cattle", to accompany the manual, is being revised. Both the manual and the booklet will be translated from English into Zulu, one of the local languages. This package will be tested in the field by the farmers and their inputs will be considered over a working period of 12 months, before a final revision is produced.

On-farm trial and socio-economic analysis

The project is targeting the communities of Hlafuna, Njobokazi and Nkwazela, KwaZulu-Natal Province, South Africa. The socio-economic work for the project is being done by an independent private company, Strategy and Tactics. Preliminary analysis of official 1996 census data for South Africa reveals that there are 3,447 individuals living in the targeted communities, almost all of African race. The majority of the population is female, reflecting the migrant labour pull on rural populations in South Africa. More than a quarter of the population (27.2%) are less than 10 years old, while almost three fifths (58.4%) are less than 20 years old. Focus groups conducted in the communities during February 2003 showed that a high proportion (71.2%) of those who are unemployed are women. All participants at the focus groups corroborated the fact that most people who have remained behind in the communities are women, poor and are struggling to maintain their goats.

Planned Activities for Next Year

The on-station trial is to be completed. The relevance and clarity of the goatkeepers' manual will be tested, by presenting the information to the goatkeepers' interest group during the first 9 months of 2003. The co-operation of a small number of farmers (probably 4) from this group will be sought to take part in the on-farm trial *per se*. The testing of the most appropriate nutritional and chemotherapeutic intervention is then planned to start. Focussing on the participating farmers, the second-phase of the socio-economic analysis is aimed at assessing the impact on livelihoods of improvements in the health and production of the goats.

Targets for the following year

During year 3, the on-farm trial will be completed. A revised goatkeepers' extension package will be produced which will incorporate the findings of the trial and incorporate modifications that are identified during the testing phase (year 2). Changes in outlook and improvements in livelihoods as a result of our interventions will be assessed by repeating the focus groups in the villages towards the end of the project.

Output / Impact

Resource-poor farmers of the goatkeepers' interest group are expected to be the direct beneficiaries. The work in KwaZulu-Natal is being facilitated by the Farming Systems Research Section, Directorate: Technology Development and Training, KwaZulu-Natal Department of Agriculture and Environmental Affairs. This Section works closely with the

extension services in the Province and the state veterinarian for the area. As such, other resource-poor farmers in the South-Western region of this province are potential beneficiaries. The Society for the Prevention of Cruelty to Animals, an important service provider in similar resource-poor communities of this province, is one potential indirect beneficiary. The Farmer Support Group of the University of Natal, NGOs such as the Valley Trust, Heifer Project International and Farm Africa are also possible indirect beneficiaries, but must still be contacted. The other Provincial Departments of Agriculture, particularly those of Gauteng and North-West Province, are possible beneficiaries.

Dissemination / Uptake

As stated above, the fieldwork is being conducted in conjunction with the Farming Systems Research Section, Directorate: Technology Development and Training, KwaZulu-Natal Department of Agriculture and Environmental Affairs. They are expected to be an important promoter of research results. While the project has not been reported in the media as yet, strong consideration will be given to publishing the results of the present research as well as information from the goatkeepers' package in Nufarmer and African Entrepreneur, a local newspaper aimed at the resource-poor farmer.

Publications

See Part I – Annex B