PROLINNOVA
South Africa
PROmoting Local INNOVAtion
in ecologically-oriented agriculture and natural resource management

ANNUAL SUMMARY REPORT FOR 2011

Prepared by:

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With input from members of the National Steering Committee

Provincial Task Teams and coordinators of sub-programmes

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20 February 2012

TABLE OF CONTENTS

1 INTRODUCTION

Coordination of PROLINNOVA-South Africa (SA) remained with the Institute of Natural Resources during 2011. The Farmer Support Group, which is the outreach arm of the University of KwaZulu-Natal continued to implement the FAIR (Farmer Access to Innovation Resources) sub-programme and also finished reporting on the HAPID (HIV/AIDS and PID) sub-programme. The Provincial Task Teams (PTTs) in Limpopo, Mpumalanga and KwaZulu-Natal continued to implement activities and to coordinate sharing within and between provinces.

Members of the National Steering Committee (NSC) and PTTs as of June 2011 were as follows:

Name	**Organisation**	**Role in PROLINNOVA-SA**
Rauri Alcock	CAP (NGO)	NSC member
Koketso Mphahlela (PELUM representative)	Centre for Rural Community Empowerment (CRCE), University of Limpopo (UL)	NSC member (representing PELUM)
Ernest Letsoalo	CRCE, UL	PTT coordinator – Limpopo
Rendani Nemakanga	IKS and Innovation Division, Limpopo Department of Agriculture	PTT coordinator – Limpopo
Khensani Sambo	Ecolink	PTT coordinator – Mpumalanga
Sipho Maphosa	Mpumalanga Department of Agriculture, Land Administration and Rural Development	PTT coordinator – Mpumalanga
Maxwell Mudhara	Farmer Support Group (FSG), University of KwaZulu-Natal	PTT coordinator – KwaZulu-Natal
Thami Mpanza	Farming Systems Research (FSR) Section, KwaZulu-Natal Department of Agriculture, Environmental Affairs and Rural Development	PTT coordinator – KwaZulu-Natal
Brigid Letty	Institute of Natural Resources	Programme Coordinator

This report provides an overview of activities undertaken during the period January to December 2011 as well as the factors that facilitated or hindered these activities. Since June 2011, Prolinnova members in Limpopo, Mpumalanga and KwaZulu-Natal continued to support and promote participatory joint experimentation processes, though without funding from DGIS this has generally been limited to activities that can be incorporated into other projects or which align closely with people's work programmes / job descriptions. 2011 also saw Joe Ramaru leaving the Limpopo Department of Agriculture to join PicoTeam. We hope that he will remain an active member of PROLINNOVA-SA.

Regarding meetings of the NSC and PTTs, a teleconference took place as scheduled on 24 January 2011, which allowed for planning of 2011 activities. It was also decided to have provincial meetings of the PTTs with the programme coordinator rather than having a formal NSC meeting, given the short time available for action. The meetings took place as follows:

- Meeting with representatives of the KZN PTT – 16 March 2011
- Meeting with Mpumalanga PTT - 31 March 2011
- Meeting with Limpopo PTT - 8 April 2011.

2 MAIN ACTIVITIES AND RESULTS

Activities undertaken by network members during 2011 are described in some detail below.

2.1 DOCUMENTATION OF INNOVATION PROCESSES

A poster was developed by Sipho Maphosa from Mpumalanga Department of Agriculture with support from the Programme Coordination. It described the drum irrigation innovation process from identification of the innovation through to joint experimentation.

A booklet on indigenous chicken management practices is being finalised by the LDA and funding has been secured from the Vlaamse Interuniversitaire Raad (VLIR) for printing it. Delays were experienced because of the need to analyse carefully the issue of intellectual property rights in order to secure farmers' knowledge.

The Centre for Rural Community Empowerment (CRCE) at University of Limpopo (UL) produced a video during 2011 video, documenting the Diphagane vegetable garden and starring the innovators and their innovation (Bio-pesticide). Part of the video was sent for projection during an international summit. The video is also currently used in teaching at undergraduate level by CRCE/UL as a tool to introduce student to rural innovations (Rural Sociology - AGEX 212). CRCE is considering recruiting a student to document all the processes conducted by their unit with communities in order to keep track of what has been achieved and to pave a way for making improvements.

2.2 JOINT EXPERIMENTATION / PID

Joint experimentation has taken place in three provinces during 2011.

2.2.1 Mpumalanga

In Mpumalanga, the staff from Mpumalanga Department of Agriculture, Rural Development and land Administration (DARDLA) were involved in three cases of joint innovation. Sipho Maphosa worked with the farmer innovator and other Departmental staff to finalise the drum irrigation system. A successful launch was held at the site on 14 April 2011, to share the experience with other farmers and staff. His colleague, Sifiso Shandu, has been working with farmer innovators to test a mixture of aloe and khakibos that is used as a biopesticide. Sipho has also initiated the investigation into an improved system for housing indigenous chickens. The original innovation, developed by Mrs Sarah Mbuyisa was identified and the DoA has been working with her to develop an integrated management system.

Figure 1: Mrs Mbuyisa (left) and the house that has been built wth support from DARDLA engineering team (right).

2.2.2 Limpopo

Indigenous parasite control: In Limpopo Province, researchers Gerrit Rootman and Freddie Mudzielwana have been involved with a group of farmers and other departmental staff conducting trials (on-farm and on-station) to test the efficacy of an indigenous remedy to control internal parasites in goats. According to the lead researcher, 'participating goat keepers, researchers, extension staff and laboratory staff were at all times regarded as equal partners in a joint learning and sharing process. When Mara Research station was visited to administer the research treatments for the first time, the project coordinator facilitated an introductory workshop to introduce everybody to each other and to outline the different roles and responsibilities'. The new season of research is being

done in tandem at the Mara Research Station as well as with smallholder goat owners in Venda. The research is ongoing and a progress report on the first phase is attached.

Guineafowl trial: Mr Mulaudzi, a farmer innovator, worked with LDA staff to investigate a locally developed disease control and brooding method for guineafowls. He broods the eggs under chicken hens and then uses termites to feed the young guineafowls. He believes that the brooding system reduces the days that the eggs take to hatch and survival of chicks seems to be improved with the method of feeding.

The Diphaghane biopesticide trial

Progress reports have been prepared by the researchers involved and they are encouraged to prepare a final report once the trials are complete. They have also undertaken to keep the recipe for the biopesticide hidden until the trial is complete despite interest from other farmers. This has created a fair amount of discussion and debate as Prolinnova generally promotes the sharing of information (with due acknowledgement given to the knowledge holders), but the current policy environment in South Africa is very focused on protecting intellectual property in order to prevent exploitation of this knowledge. The LDA staff have had to work within the policy framework and they informed farmers of this issue, which raised their concerns and led them to take the decision to hold the information until they have finalised the trials and clarified that the dilution rates at which the mixture is effective. The farmers did undertake during earlier discussions to share their knowledge of how to plan and implement experiments with other interested farmers. Their participation in the CAMOSEVEWA should allow for this to some extent, but the LDA needs to support them in passing on the experience to other projects in a more systematic way.

Beetle Biopesticide: A third trial undertaken in Limpopo is the testing of a biopesticide that is made from roasting and grinding CMR beetles and then mixing them with water and applying to the plants. A trial was laid out at the research station using dry beans and comparing the indigenous remedy against a commercial product and a control. The trial was valuable as it recgnised the value of local knowledge and having been approved by management, this meant that the LDA has also recognized the value of engaging in joint experimentation in partnership with smallholder farmers. Of even greater significance is the fact that the research is based on farmers own practices rather than being based on conventional and/or external approaches for pest control. The farmer innovators have also

started to play a more active role in the design and implementation of trials and the provision of feedback to other farmers and extension staff, as took place at the farmers' day in June 2011.

The second trial is to be planted on the 28-29 Feb 2012. The data from the first experiment showed that the Mercaptothion and the Biopesticide had the same effect on repelling the beetles however they are now doing the second experiment to validate the results. Two posters were developed from last year's experiment and were exhibited to two conferences, one being the (Joint conference at East London[1].

Local feed resources for dairy goats: The process to support the Farmer Led Experimentation in Ga-Mampa, Mafefe with the dairy Goat Keepers was disrupted as the facilitating student got employment with the LDA. CRCE/UL's undertakings to get a replacement student were not successful so CRCE undertook to facilitate the research process itself. With the intervention, seeds were collected and nurseries developed by some of the keepers. Low water levels during the planting season meant that activities were halted in Nov/Dec with an agreement to retry in January/February. This will be pursued once the CRCE staff are less busy with the registration procedures.

The marula project: this is another research initiative of LDA. The first trial was planted on 2-3 Feb 2012 at the project site at Makonde. The project members have been doing a lot of processing of jams, jellies, etc. using marula (*Sclerocarya birrea*) and mobola plum (*Parinari curatellifolia*) fruits. LDA staff will be monitoring the project and data will be collected. The farmers had now acquired their own space (8.5 ha), where they are planting indigenous fruit and vegetables, and funds of R10 000 from Department of Science and Technology (DST).

2.2.3 KwaZulu-Natal

The FAIR project has continued in KwaZulu-Natal through 2011, with FSG and the Hlahlindlela Trust also making the offer of funds to CAMOSEVEWA for supporting joint experimentation. To date, no applications for such support have been received from the innovators platform. Joint experimentation was also undertaken through HAPID. Two new cases of joint experimentation were initiated through

[1] 2011 Joint Conference (8th Society for Free Radical Research-Africa (SFRR); 4th Walter Sisulu University International Research Conference; 30th African Health Sciences Congress; 4th International Conference of the Promotion of Traditional Medicines) 16 - 20 AUGUST 2011

FAIR, one looking at soil fertility and the other looking at livestock feed (it involved the same group of farmers, comprising 10 men and 6 women).

2.3 CROSS-VISITS

Two cross-visits were undertaken in 2011. Firstly, a field day was held to allow exposure to the HAPID-related initiative that is being supported by Mdukatshani Rural Development Programme in Msinga, KwaZulu-Natal. A social innovation was encountered where young women were using child support grants from government to purchase livestock for their children as a way of securing their future. A farmers' day was held in association with the handout of additional goats to families involved to facilitate discussions about how such processes can be supported and strengthened. The farmers' day at Ncunjane took place on 4 April.

The other cross-visit was to the CMR beetle biopesticide trial in Limpopo on 9 June 2011 by Brigid Letty, Michael Malinga from FSG and a farmer innovator from Potshini. This was a useful networking opportunity that allowed for sharing between farmers about alternative methods of pest control.

2.4 CAPACITY BUILDING OF FARMERS

In a step towards strengthening the innovator platform known as CAMOSEVEHA, a bank account was opened so that funds could be made directly available to them to allow the farmers to meet regularly in order to share experiences and promote local innovation processes. For example, farmers come together to provide feedback on the experiments they are conducting and the results they have obtained and have rotated the venues for the meetings to allow for exchange visits. They also provide feedback to other members of the PTT when it meets, which is an important mechanism for giving recognition to the knowledge they hold as well as their creativity. They are in the process of registering as a cooperative, which is the preferred legal entity in South Africa. The process of supporting the establishment of the platform attracted the interest of other departments within UL.

In addition to CAMOSEVEWA, CRCE continues to provide support to the Eastern and Southern African Farmers Forum. The farmer innovators participated in a meeting of the provincial task team on 8 April, where progress and future plans were discussed. The Sivusimpilo Farmers Forum, supported through the FAIR project, has continued to play a role in the Okhahlamba District of KZN.

2.5 ATTENDANCE OF CONFERENCES AND WORKSHOPS

Brigid Letty attended the Globelics[2] Conference in Argentina in November 2011. She presented a paper titled: Assessing the impact of grassroots innovation in agriculture (Brigid Letty, Zanele Shezi & Maxwell Mudhara), which explored two cases of 'grassroots innovation that had been supported through Prolinnova and FAIR. The paper was focused on understanding what indicators could be used to track the incidence and impact of participatory innovation processes. Such evidence is needed in order to be able to influence policy makers about the need for a greater allocation of resources to support grassroots innovation processes. The work in this paper was undertaken as part of a UNU-MERIT Project on Research and Training Support to Build African Capacity in Science, Technology, and Innovation Indicators, funded by Canada's International Development Research Centre (IDRC) Grant 104753. The project also funded her participation in the conference. The paper was focused on understanding what indicators could be used to track the incidence and impact of participatory innovation processes. Such evidence is needed in order to be able to influence policy makers about the need for a greater allocation of resources to support grassroots innovation processes.

2.6 MAINSTREAMING EFFORTS

Contact was made with Ms Ramabenyane, the Chief Director: Farmer Support at Mpumalanga Department of Agriculture on 2 March 2011 in order to set up a meeting, but she had recently been transferred to another province and suggested that the discussion take place with her replacement, Mr Silinda. The PTT decided to give thought to the best point of entry for renewing discussions. This was again discussed at a meeting on 4 July 2011, where Sifiso Shandu undertook to coordinate discussions of the PTT in this regard. Brigid Letty will initiate the discussions by drafting a letter and the PTT will then arrange a face-to-face meeting.

The programme coordinator met with representatives of the 'Ministerial Review Committee of the Science, Technology and Innovation Landscape', which advises the Minister of Science and Technology. She was invited to share her experiences of supporting and enhancing grassroots innovation at a meeting in Durban on 27 May 2011. No feedback has yet been received from the committee, but Brigid was also able to put the committee in touch with Thiambi Netshiluvhi, who is a

[2] The Global Network for the Economics of Learning, Innovation, and Competence Building Systems

member of the National Advisory Committee on Innovation (NACI), who was also previously a vice-chairperson of the PROLINNOVA-SA NSC.

PROLINNOVA was also invited to attend a workshop arranged by NACI. Since the programme coordinator was out of the country at the time, Nomaphelo Shezi from FSG represented PROLINNOVA at the meeting on 22 June 2011 and gave a short presentation. The workshop was titled: Replication of Broad-Based Innovations with Social Impact.

2.7 NETWORKING WITH OTHER INITIATIVES

Another opportunity for networking has been provided by the SCI-SLM *(Stimulating community initiatives in sustainable land management)* project which is being coordinated by FSG. This has broadened the group of stakeholders that are looking at cases of local innovation beyond those originally involved in PROLINNOVA. There is much overlap between the two initiatives, though SCI-SLM focuses on cases that relate to sustainable use of natural resources and looks at cases that involve groups of people rather than individuals.

3 WAY FORWARD

With no specific funding available to support the network functioning currently or specific activities of its partners, Prolinnova-South Africa will continue to promote participatory approaches to research and development and will share information electronically. There is interest in maintaining the network for a number of reasons, including this comment from the CRCE at UL: 'As a collaborating member of the provincial task team, we believe that in the network we achieved common goals – which may have not been achievable as individuals'.

APPENDIX 1: THE EVALUATION OF THE EFFICACY OF AN INDIGENOUS REMEDY TO CONTROL INTERNAL PARASITES IN INDIGENOUS GOATS IN LIMPOPO PROVINCE

PROLINNOVA Progress Report – May 2011
G T Rootman

1. BACKGROUND

In September 2008 a Participatory Innovation Development stakeholder workshop was arranged by PROLINOVA South Africa, Limpopo Department of Agriculture and The University of Limpopo to identify local innovations amongst smallholder farmers in Limpopo Province. This platform also provided opportunities to identify case studies for the development of research proposals for future research in the field of Indigenous Knowledge Systems under the division Indigenous Knowledge Research and Innovation of the Limpopo Department of Agriculture.

One of the opportunities originating from the workshop was to evaluate the efficiency of an indigenous remedy, used by smallholder farmers of Mbahela Village in Vhembe District of Limpopo Province to control endo-parasites in indigenous goats. Mbahela Village falls within the greater Tshiombo irrigation complex. Smallholder goat keepers are compelled by local bylaws to keep their small stock under zero grazing conditions to prevent them from transgressing into and damaging cash crops of the surrounding irrigation scheme. It is widely known that zero grazing systems present great problems with respect to the build up of and re-infestation potential of endo-parasites in goat houses without raised floors. Mbahela smallholder goat keepers have previously used commercial remedies to control endo-parasites, but they reverted back to an indigenous remedy because of a general believe that the indigenous remedy is more effective in terms of cost and the control of endo-parasites.

A research proposal was developed and in January 2010 a research project with the tile: The evaluation of the efficacy of an indigenous remedy to control internal parasites in indigenous goats in Limpopo Province, was approved by the Research Committee of Limpopo Department of Agriculture.

2. OBJECTIVES

The research effort strongly rests on two main objectives. The first objective is to evaluate if the indigenous remedy, which the Mbahela goat keepers use to control internal parasites in their goats, is effective. Secondly, the participatory partnership which has been established in pursuit of the first objective also aims at supporting smallholder goat keepers to further develop their innovation/ local knowledge and empower them towards improving their goat enterprises in order to enjoy more benefits from these enterprises.

The objectives of the research trial were as follow:

(i) To document the indigenous knowledge concerning a traditional remedy used for the control of internal parasites in indigenous goats in Limpopo Province.

(ii) To evaluate the efficacy of the traditional remedy used for the control of internal parasites in indigenous goats.

(iii) To establish a profile of the seasonal patterns and the species-spectrum of internal parasites present in indigenous goats in smallholder systems and on station herds.

3. METHODOLOGIES

Pursuing the broader objectives of the intervention comprised of a number of interlinking activities and methodologies.

3.1 Documentation of the indigenous knowledge

An approach, generally inline with the protocols for participatory innovation development, was applied to lobby for the participation of the goat keepers of Mbahela Village, to share their indigenous knowledge with the researcher and extension staff and to approve a request to evaluate the efficiency of the remedy through a registered research project.

A documentation workshop was arranged to discuss the innovation and to document the origin of the local knowledge, the preparation of the indigenous remedy and the protocols to administer the remedy to the goats. The documentation format, which was collectively developed during a PROLINOVA PID workshop, was used for the documentation.

3.2 The research trial

The research trial comprises of an on-station and an on-farm component. The on-station research is conducted at Mara Research Station (near to Makhado in Limpopo Province), while the on-farm research is conducted at Mbahela Village of Thulamela Municipality in Vhembe District.

3.2.1 Research protocols and treatments

(i) On-station research

The research treatments for the on-station research comprised of the following research treatments: (i) the indigenous remedy under study (ii) a commercial remedy used in preventative care programmes at Mara Research Station and (iii) a control of clean water from the tap. The protocols and dosage recommended by the manufacturer were used as guideline to administer the commercial remedy, while Mbahela goat keepers prepared and administered the indigenous remedy according to their indigenous protocols. For the control clean water from the tap was administered at 25 ml per goat.

Rectal faecal samples were collected before and one weeks after goats were dosed with these remedies. Faecal samples were kept on ice immediately after taking the sample until it could be processed and analysed in the laboratory. Eggs per

gram (EPG) counts were conducted on the samples according to standard laboratory protocols in the Makhado Veterinary Laboratory. This analysis premise on the principle that a reduction in EPG indicates that the remedy used is effective to control endo-parasites in goats.

A herd of indigenous goats is used to for the on-station evaluation. Twelve goats were allocated to each treatment and the control according to the following procedure. During the first year a group of female goats between two and four years old was used to randomly select the animals for each treatment. Variable and wide ranging EPG's between and within the different treatment groups, with EPG counts showing that some goats do not carry any endo-parasites, necessitated a change in this procedure.

During the second year the entire goat herd was screened to select a group of goats (through eggs per gram (EPG), known to carry high populations of endo-parasites. Goats were listed from high to low in terms of the EPG counts and were systematically selected and allocated to the research treatments and the control.

In the second year re-sampling of goats was conducted three weeks after implementing the research treatments.
Details regarding dates and the need to adapt the original research protocols are provided under Procedures, Findings and Discussion.

(ii) On-farm research

Four goat keeper households from Mbahela village participated in the on-farm research. The number of goats per household varies between three and seven. Recognising the compromising dynamics of smallholder systems, the on-farm farm research aimed to introduce as little interference, inconvenience and or risk to smallholder systems. All the goats of a household were dosed with the indigenous remedy by the goat keepers according to their indigenous protocols. No comparative or control treatments were instituted.

Faecal sampling and laboratory analysis were conducted as for the on-station component of the research trial.

3.3 Farmer support and empowerment

Several participatory activities were initiated and coordinated within this intervention.

3.3.1 Joint experimentation

Participating goat keepers, researchers, extension staff and laboratory staff were at all times regarded as equal partners in a joint learning and sharing process. When Mara Research station was visited to administer the research treatments for the first time, the project coordinator facilitated an introductory workshop to introduce everybody to each other and to outline the different roles and responsibilities. Laboratory personnel were offered the opportunity to explain the faecal sampling procedure, the laboratory procedure to determine the number of internal parasite eggs and the significance of high endo-parasite populations on livestock performance and infant mortalities. Special attention was given to facilitate a clear understanding of the potential of zero grazing conditions to allow a build-up of endo-parasites in and an increased risk of reinfestation from damp floors, animal excreta and forage residues. Mbahela goat keepers explained their experience and perceptions about endo-parasites and their current practices to counteract it. An interactive discussion identified general best practices and the measures that smallholder farmers could implement to minimise the problem. Extension staff also benefited greatly from these discussions.

3.3.2 Improvement of smallholder goat systems

After the financial support from PROLINOVA was approved participatory meetings were held with the participating goat keepers to discuss how best the funding could be utilised. The costs and benefits of several options were explored. It was jointly decided that the construction of functional goat houses will have the greatest immediate positive impact on smallholder goat systems.

A participatory planning meeting was facilitated by extension staff to jointly develop criteria for the construction of a functional goat house for zero grazing conditions. A list of the material needed for this purpose was compiled and the quantities were calculated collectively. Farmers and extension staff were responsible to negotiate quotations from local suppliers and to collect the material after the suppliers were paid.

Extension staff negotiated the input of the engineering section of Vhembe to assist with the planning of goat houses and especially with the construction thereof. One joint workshop has been facilitated and a final workshop will shortly be held to clarify the roles and responsibilities before the construction of goat houses commence.

3.4 Partners

The institutional partners and the roles of individuals collaborating in the intervention were as follows:

(i) Limpopo Department of Agriculture

Logistical support in terms of travelling and accommodation costs, provision of research infrastructure and the opportunity and facilities at Mara research Station

(ii) University of Limpopo – Centre for Rural Community Empowerment

Logistical support for the PID platform and arrangements, facilities and hosting monthly PID meetings

(iii) PROLINNOVA SA

General support with the Participatory Innovation Development (PID) programme and provisioning of catering during PID meetings. Funding for the construction of goat houses for participating goat keepers at Mbahela Village.

(iv) Towoomba Research Station

G Rootman - Project coordinator. Responsible for the development of the research proposal and to obtain approval from the research committee. General coordination and management of the stakeholder partnership. Planning, coordination and timing the execution of the research project and participatory innovation development activities. Coordination of monitoring and evaluation exercises. Report writing.

(v) Mara Research Station.

M Mokghele – Co-worker, animal health technician and overseer of Mara indigenous goat herd.

T S Matalganyi – Livestock Technician in charge of day to day management of Mara Research Station indigenous goat herd.

(vi) **Makhado Vetiranary Laboratories**.

M E Sekwati – Team leader responsible for sampling and laboratory analysis

M K Mahlo – Laboratory Technician, responsible for collection of faecal samples and EPG counts

L Mevhalani – Laboratory Technician, responsible for collection of faecal samples and EPG counts

(vii) Thulamela Municipality

F Mudzielwana – Co-worker. Responsible for coordinating the input of extension staff, arranging transport to PID meetings and for the dosing of Mara goats.

(viii) Mutshenzheni Extension Ward

F Tshililo – Local Extension Officer responsible for mobilising and supporting the Mbahela goat keepers. Coordination of and taking Mbahela goat keepers to Mara Research Station. Negotiation of quotations collecting and delivering of material for goat houses. Development of criteria for the construction of goat houses.

(ix) Mbahela Goat Keepers

Rosinha Lebago

Helen Liphadzi

Wilson Mudzungo

Wilson Liphadzi

4. PROCEDURES, FINDINGS AND DISCUSSION

Generally speaking positive progress has been made on the participatory farmer support side, but the research trial has only delivered positive outcomes in terms of experience as a basis for continuous improvement towards realising the original objectives.

4.1 The research trial

The research trial was finally approved towards the end of January 2010. Practically this did not allow for a series of dosing and faecal sample analysis during a full season evaluation. However, the opportunity was used to have one trial dosing and faecal analysis to gain experience in managing the logistics of coordinating the participation of all the stakeholders.
The results for the eggs per gram (EPG) counts for both Mara and Mbahela were disappointing. A high level of variability and inconsistency with respect with the number of endo-parasite eggs in faecal samples before and after dosing was observed. This variability was observed across the commercial remedy, the indigenous remedy and the control treatments. Particularly confusing was the fact that EPG counts were in several cases higher after than before dosing.

Exploratory discussions with scientists from Onderstepoort Veterinary Institute and the University of Pretoria suggested that the inconsistency points to technique mistakes and or the inexperience of the laboratory personal regarding the processing of samples and the counting procedure. The matter was discussed and laboratory technicians who committed to practice the laboratory techniques and procedures in order to enhance their skills level and accuracy and consistency of the results.

A further concerned raised by the scientists of Onderstepoort Veterinary Institute and the University of Pretoria was that the period, which helminthic remedies take to reach maximum effectivity after the dosing of animals is endo-parasite species specific, meaning that the one week allowed between implementing the research treatments and re-sampling was probably not enough as a general rule across the spectrum of endo-parasite species present in the Mara goat herd.
A further negative indicator was the fact that a number of the goats selected through random sampling carried no or relative low populations of endo-parasites, meaning that little or no effect from the experimental treatments could realistically be expected.

This exploratory trial run, in hindsight proved valuable and provided a basis for eliminating the same mistakes during the second year.

(i) On –station component 2010 /2011

During the 2010 / 2011 season the entire indigenous goat herd at Mara was screened to only include goats with high EPG counts in the trial. Due to the late rains and no leaf production from the trees, the indigenous remedy could not be prepared.

Hence the screening of the goats was only conducted on 17 December 2010. The intension was also collect enough faeces for a big enough collective sample (around 750g) for Onderstepoort to hatch the eggs in order establish a spectrum profile of the endo-parasites parasites present in the Mara herd. This data would inform the time allowed between dosing and re-sampling. It was found that Onderstepoort Veterinary Institute no longer provides this service and it was decided to allow three weeks between dosing and re-sampling.

Mara goats were dosed and sampled on 19 January 2011. Mbahela farmers were again responsible for administering their indigenous remedy according to their indigenous protocols. EPG counts were consistent and it appeared as if the technique mistakes were rectified.

The EPG counts for the follow-up sampling on 10 February 2011 showed some strange trends. Eventually it was established that the livestock technician, who is familiar with the trial protocols, dosed the entire goat herd with a commercial remedy as per the normal preventative care program and schedule at Mara Research Station. This eliminated the effect of the research treatments and nullified effectively the results.

A recent sampling of the goat herd indicated that the endo-parasite populations have not sufficiently built up to warrant implementing the research treatments. Therefore no results will be generated for this season from the Mara herd.

(ii) On-farm component 2010 /2011

The indigenous goats of the goat keepers at Mbahela were dosed and faecal samples collected on 11 February 2011. Re-sampling was conducted three weeks later. A general problem was that very little faeces could be collected from the goats. Close analysis of the data could not decisively indicate that the indigenous remedy affected a reduction in EPG.

5. CHALLENGES

The multidisciplinary nature and multiple partner approach of this intervention presented a range of challenges. The main challenge is probably the fact that the project coordinator is not based in the near vicinity of either of the project sites. In the early stages of the intervention the situation became less problematic.

Secondly, facilitating adequate buy-in into the process and general ownership by all the partners is a constant challenge.
Thirdly, purchasing building material for the goat houses, arranging transport for the collection and delivery to the goat keepers was a particular challenge.

In hindsight, all these challenges could be dealt with and the outcomes were favourable.

6. LESSONS LEARNT

From the exposure gained from this intervention, it became clear that many opportunities exist to support smallholder farmers to in the field of indigenous knowledge systems.

The literature search created a clear understanding that indigenous knowledge systems are real assets, which make a valuable contribution towards problem solving in smallholder systems in rural communities. Many case studies, which have been investigated, proved the value of indigenous knowledge systems to modern society, generally relying on Western scientific systems as the only reliable source of knowledge generation. Putting this into perspective, it was learnt that there are many opportunities for research in the field of indigenous knowledge and therefore to support smallholder knowledge holders to protect their intellectual property and to recognise their knowledge.

This intervention again emphasised that supporting smallholder households is a slow and difficult process with many disappointments. However in the context of development it is important to persevere. Processes like this require a large investment in time and energy in the initial stages and very little reward should be expected in terms of positive outcomes in the beginning.

Action research interventions like this do not provide the comfort zone of total control over most things, as is the case for on-station research at research stations. In addition, the coordination of multiple partner interventions like this tends to present many unexpected challenges