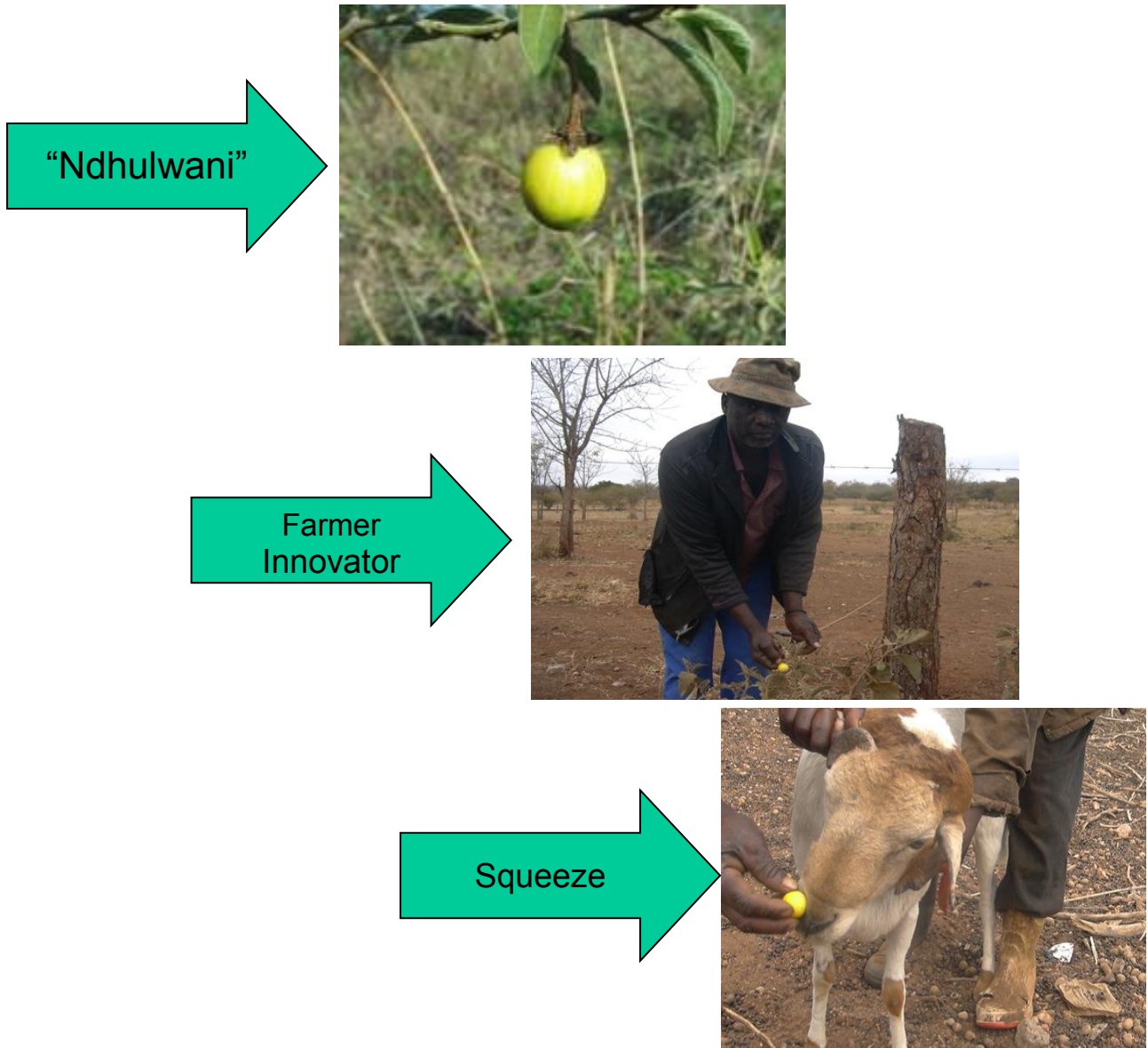


IDENTIFYING LOCAL INNOVATION FOR A LOCAL PARTNERSHIP



THE CENTRE FOR RURAL COMMUNITY EMPOWERMENT, 2008

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TRANSLATIONS

1. *Ndulwane*.....*Solunum pandiriforme*
2. *Swifuwi*.....Domestic animals (livestock)
3. *Tinyimfu*.....Sheep
4. *Nsinya*.....Tree
5. *Tinhomfu*.....Nose
6. *Tshungula*.....Treating
7. *Ntumbuluko*.....Nature

ACRONYMS

NGO	NON GOVERNMENTAL ORGANIZATION
PROLINNOVA SA	PROMOTING LOCAL INNOVATION IN SOUTH AFRICA
PID	PARTICIPATORY INNOVATION DEVELOPMENT
IKS	INDIGENOUS KNOWLEDGE SYSTEM RESEARCH AND INNOVATION DIVISION
CRCE/UL	CENTER FOR RURAL COMMUNITY EMPOWERMENT
UL	UNIVERSITY OF LIMPOPO
SAES	SCHOOL OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES
LDAS' IKS	LIMPOPO DEPARTMENT OF AGRICULTURE'S INDIGENOUS KNOWLEDGE SYSTEM RESEARCH AND INNOVATION DIVISION
ARC	AGRICULTURAL RESEARCH COUNCIL
IKS	INDIGENOUS KNOWLEDGE SYSTEMS AND INNOVATIONS

In this paper the farmer innovator is sometimes referred to as a “herder” since they assume the role of herders of their animals

SOME DEFINITIONS

According to PROLINNOVA South Africa the term “**local innovation**” refers to the dynamics of indigenous knowledge (2006/2007, Catalogue).

- 1. Indigenous knowledge** – refers to knowledge that originates and grows within a social group, based on learning from experience over generations but also including what was gained at some time from other sources but has been completely internalized within the **local ways of thinking and doing**.
2. According to PROLINNOVA South Africa (2006/2007, Catalogue).there is a difference between local *innovation with an “s” and the one without an “s”*. The one with an “s” refers to the outcome of the process for example: farming techniques or ways of organizing work that are new for that particular locality. *Local innovation without an “s”* refer to the process by which people in a given locality discover or develop new and better ways of doing things (*using the local available resources and their own initiative*), without pressure or direct support from formal research or development agents. Where the outcomes of this process are “*local innovations*” (PROLINNOVA South Africa (2006/2007, Catalogue).
3. According to PROLINNOVA SA (2006/2007, Catalogue) a farmer innovator is a farmer or land user who innovates at his/her own initiative. Who tries out and tests new methods of resource conservation for production, often using ideas from various sources, often curious, proud, and willing to take risks. Not ‘model farmers’ groomed by projects.

ACKNOWLEDGEMENT

First thing I would like to thank the one and only farmer innovator Mr. Etiyani Chauke. It is difficult for people to share knowledge, it was a difficult task for him to dish out everything that he had in mind because of age and the work that he is doing as a header which demands a lot of concentration from him, but he managed to sacrifice his time and provide me with the whole information at his disposal. I thank him very much for his kindness. Secondly I want to thank PROLINNOVA SA and CRCE for exposing me to this kind of activity and for supporting in at these activities, My Family for supporting me in difficult times and in all activities I participated in CRCE, thank you very much for that.

ABSTRACT

Indigenous knowledge practices have been practiced by many cultures from one generation to the other. Unfortunately few people seem to have known about our indigenous knowledge practices and few cases of them have been documented and transferred to the next generation.

This article intends to share my experiences with indigenous knowledge practices and local innovations as a postgraduate student from animal production background. Exposure to this valuable experience came from interacting within and participating in various PROLINNOVA SA workshops and Limpopo PROLINNOVA Task Team bi-monthly meetings. When I was tasked to identify local innovations in my area, I recognized one farmer innovator who had a local solution to emerging livestock farmers in the Limpopo province; the use of *Solanum penduriforme* commonly known as Ndhulwani among the Tsonga speaking people. This shrub is identified by one livestock farmer to be useful in controlling nasal worms in sheep during wet and rainy seasons. This is a Solanaceae shrub that shares the same family with tomatoes, potatoes and tobacco. However, this shrub has been identified as an invasive alien species to be eradicated in future.

The aim of this article is to document and share the identified local innovation and to share lessons learned regarding local partnerships in recognizing, supporting and developing farmers' indigenous knowledge and innovations.

Background and introduction

The Centre for Rural Community Empowerment (CRCE) was formed to become an outreach arm of the School of Agriculture and Environmental Sciences (SAES) at the University of Limpopo (Turfloep campus). CRCE has the ambition to bring together development actors and the University of Limpopo (UL) academic community for a sustainable rural livelihoods development process in the Limpopo province.

CRCE operates along three strategies which are: (1) Action research and training through pilot projects to improve the sustainability of the small scale family farming and to produce knowledge out of the process (2) Documenting rural development processes and events through visual aids and other printed material and make it accessible to all kinds of audiences (3) Networking among rural development stakeholders at local, provincial and international levels.

CRCE offers internships opportunities for postgraduate students to gain experiences in rural development processes. During this internship the academic supervisor team up with a CRCE team member to assist the intern in focusing on a particular activity in a rural community. Then the intern periodically report back to the team and to the community.

The Centre for Rural Community Empowerment partnered with various NGOs' and government departments to develop rural communities around the Limpopo Province. Some of these institutions are the Limpopo Department of Agriculture's Indigenous Knowledge System and innovations (IKS) section and the PROLINNOVA SA. PROLINNOVA SA initiated task teams in four provinces of South Africa namely: North-west, KwaZulu-Natal, Mpumalanga and the Limpopo. In the Limpopo province PROLINNOVA task team is formed by various institutions and government departments. In brief the task team stands as follows; Universities of Limpopo and Venda, Agricultural Research Council (ARC), Mara Research Station, Tsoelike Research Station, Madzivhandela and Tompi Seleka Agricultural Training Centers, Limpopo Department of Agriculture Indigenous Knowledge Systems and Innovations and Bio-Watch South Africa.

In one of the PROLINNOVA SA Participatory Innovation Development (PID) workshops participants were tasked to identify local innovations in their various locations. As a CRCE intern from animal production discipline, focus was on indigenous knowledge and innovations regarding livestock production. This article will focus on my experiences as an intern from identification of innovations and understanding of differences between indigenous practices and innovations. This article also will focus on lessons learned from the Limpopo PROLINNOVA task team.

Indigenous knowledge and local innovations... *Is there a difference?*

When I was tasked to identify local innovations in my area of Giyani, I was confused and not clear about the difference between local innovations and indigenous knowledge practices and this has been a huge debate in my first workshop as a CRCE intern. According to PROLINNOVA South Africa (2006/2007, catalogue); the term “local innovation” refers to the dynamics of indigenous knowledge. Indigenous knowledge –refers to knowledge that grows within a social group, based on learning from experience over generations but also including what was gained at some time from other sources but has been completely internalized within the local ways of thinking and doing. According to PROLINNOVA South Africa (2006/2007, catalogue) there is a difference between local innovation with an “s” and the one without an “s”. The one with an “s” refers to the outcome of the process for example: farming techniques or ways of organizing work that are new for that particular locality. Local innovation without an “s” refer to the process by which people in a given locality discover or develop new and better ways of doing things (using the local available resources and their own initiative), without pressure or direct support from formal research or development agents. The outcomes of this process are “local innovations (PROLINNOVA South Africa 2006/2007, catalogue).

What is indigenous knowledge?... *Is it important?*

As an animal scientist who was never exposed to indigenous knowledge (IK) and local innovations during my training I had to understand the term indigenous knowledge and its value. Some of the literature consulted in understanding IK as concepts that are drawn from Warren, (1991), who defined IK as the knowledge used by local people to make a living in a particular environment. He further indicated that the terms used in the field of sustainable development to designate this concept include indigenous technical knowledge, traditional environmental knowledge, rural knowledge, local knowledge and farmer's or pastoralist's knowledge.

According to Johnson (1992), indigenous knowledge can be defined as "A body of knowledge built up by a group of people through generations of living in close contact with nature" Generally speaking; such knowledge evolves in the local environment, so that it is specifically adapted to the requirements of local people and conditions. It is also creative and experimental, constantly incorporating outside influences and inside innovations to meet new conditions.

In understanding the value of indigenous knowledge, Thrupp (1989) when citing Warren, (1991); indicated that indigenous knowledge is dynamic, changing through indigenous mechanisms of creativity and innovativeness as well as through contact with other local and international knowledge systems. He further explained that these knowledge systems may appear simple to outsiders but they represent mechanisms to ensure minimal livelihoods for local people. Indigenous Knowledge Systems often are elaborate, and they are adapted to local cultural and environmental conditions (Thrupp 1989, cited Warren (1987).

According to Pretty and Sand Brook (1991), Indigenous Knowledge Systems are tuned to the needs of local people and the quality and quantity of available resources. They pertain to various cultural norms, social roles, or physical conditions. Their efficiency lies in the capacity to adapt to changing circumstances.

Norgaard (1984) emphasized that, traditional knowledge has been viewed as part of a romantic past, as the major obstacle to development, as a necessary starting point, and as a critical component of a cultural alternative to modernization. Only very rarely,

however, is traditional knowledge treated as knowledge *per se* in the mainstream of the agricultural and development and environmental management literature, as knowledge that contributes to our understanding of agricultural production and the maintenance and use of environmental systems.

Through this search of literature I also found it interesting to know that there are sources of indigenous knowledge and that they need to be documented for future references. Elderly people are usually the dominating group which has information on different kinds of innovations. Other common sources of innovation are through visits to various places where indigenous knowledge is applied, e.g. at organic farms. Migration of people from other parts of the country with different ethnicity, radio programs and extension workers and own discoveries are regarded as supplementary sources of indigenous knowledge.

On the other hand, I have realized that there are some limitations to sustained use of indigenous knowledge. The biggest limitations to sustained use of indigenous knowledge include (1) minimal sharing of “intellectual property rights” i.e. “*selfishness*” and sometimes limited co-operation amongst farmers, (2) lack of farm records and (3) increased interest in new technologies. In schools students are taught modern techniques which are easier to manage. In the past, most farmers produced for subsistence unlike today where production is commercial-oriented. While commercial production have led to more application of modern and convenient technologies, lack of knowledge, co-operation and sometimes attaching monetary value to provision of IK has reduced its continued use.

A changed perception...*Indigenous Knowledge and Local innovations works*”

It is usually a mistake to think of indigenous knowledge as 'old-fashioned,' 'backwards,' 'static' or 'unchanging' there are effective innovations which are cheap and environmentally friendly like Mr. Chauke's innovation (The use of *Solanum penduriforme*)

Meeting the Innovator (Mr. Chauke)

Mr. Chauke is a livestock farmer around Giyani area of the Limpopo province. He is 53 years of age. Every year during the wet and rainy seasons he experiences a problem of nasal worm in his sheep flock.

As part of my task given during the training I met Mr. Chauke as a farmer innovator. When I visited him in his farm at Giyani Siyandhani area. I learned a lot of things on traditional medicine for livestock. Mr. Chauke has been working as a header for 10 years at the farm. He clearly proved his knowledge of using indigenous plants by demonstrating while applying it to an animal. One of the indigenous plants that were demonstrated to me by the innovator was Ndhulwani which is a wild shrub found in the local bush. They have it around the farm since the farmer explained that they do not normally disturb their occurrence because they benefit from Ndhulwani being available at the farm.

The farmer explained that they were encountering problems especially with their sheep flock where nasal worm infection was always a case at the farm until they started using Ndhulwani, and they managed to control the infection. Mr. Chauke learned the innovation from his grandparents when he was still a young boy. He grew up being a header and he had to know how to use and identify indigenous plants which are of use to animal health issues. Animal infection problems such as nasal worm pushed the Innovator to continue using the knowledge adopted from his grandparents because it was working with no costs involved.

The problem ...“Sheep nasal fly (Oestrusovis)”

Sheep nasal flies are dark grey in colour and their bodies are densely covered with yellow to light brown hair. Black spots occur on the thorax and the abdomen is mottled. Their mouth parts are completely undeveloped and nonfunctional. They like sunshine and are very active in the warmer weather. The females, which are exceptionally swift and nimble fliers, dart in at lightning speed and deposit from one to a few dozen living larvae on the nostrils of a sheep. The larvae immediately crawl up the nasal passages, they are only 1 to 2 mm long but they grow and moult twice, into second and third stage larvae, and ultimately reach an average length of 12 mm. When they have completed the third larval stage they are darker in colour, with dark transverse bands. They are often found at this stage when sheep are slaughtered and their heads are cut open. The larvae have spines on the ventral surfaces of their bodies that irritate the mucous membranes of the animal and cause a profuse discharge of mucus. A severe infestation with these larvae will cause the host to lose its appetite and become emaciated. Sometimes the larvae, when they grow larger, are trapped in the cavities in the nose and the sinuses and are unable to get out through the small openings. Such larvae die there and serious infection and consequent inflammation is caused by their decomposition. Normally the adult larvae eventually crawl out of these cavities, or are sneezed out, and drop to the ground where they pupate in the sand. They emerge as adult flies later. The times spent in the nasal and sinusal cavities of the host, depending on the weather conditions, vary from five to six weeks to as long as several months in the winter (GADI Collage of Agriculture, Undated. <http://Gadi.agric.za>).

Symptoms of a nasal worm as explained by the innovator

The innovator explained nasal worm symptoms in sheep, which are running nose, weight loss due to poor feed intake resulting from nasal worm infection. Giyani is situated at the Northern part of Limpopo Province which is characterized by high temperatures; due to this reason the sheep die easily since nasal worm are very effective in high temperatures areas. The same symptoms are the ones that one read about in books.

During our conversation with the farmer, the interesting part while listening to the farmer is that as a researcher I could see that the farmer is confident about his work by the way he clearly explained while demonstrating the process step by step. I realized that there are many things that one could learn from farmers or elders that could be learned in a classroom.

According to Mr. Chauke, in the past years farmers did not have scientifically mixed medications to give to their animals or cure diseases, they were using different kinds of herbs which they called medicinal herbs collected from the bush, for them it was the best way of preventing their animals against different kinds of infections and harmful parasites. Today some farmers are still practicing the systems and it works for them. Their main concern is that most of the plants that were used for medicinal purposes are in the process of being eradicated. Mr. Chauke managed to conserve and share his knowledge with other farmers around his village. When heading, while livestock are grazing, headers meet and share livestock problems they encounter especially those related to animal health. During discussions farmers usually share criteria which can be used to solve animal health related problems. Usually the advice will be on how to use certain indigenous medicinal plants

Description of Ndhulwani (*Solanum Panduriforme*)

Solanum Panduriforme is an indigenous plant found in summer rain fall regions. According to the farmer innovator there are two species, the smaller one and a bigger one. The smaller is poisonous when grazed by cattle and the bigger one is the one that is used. However, black rhinos and antelopes eat them without any effect. There are many other species of *Solanum* often referred to as “bitter apples or wild tomatoes”. Many of them such as these have thorns on the stems and leaves. Some of them are toxic with the unripe fruit being more toxic than the ripe fruit. The ripe fruit does not fall off easily and often remains on the plant in winter. The fruits are then spread around by birds and animals that eat them.

According to Mey (1997), distribution of *Solanum Panduriforme* occur in grass land along road-sides in the four provinces of South Africa, in the Free State, KwaZulu-Natal, the Eastern Cape, Swaziland Lesotho, Namibia and Botswana.

The *Solanum penduriforme* is a wild shrub. However recently it has been considered as the invasive alien species by the program of Working for Water and Agricultural Research Council (ARC) and it is being eradicated. The above mentioned species is an effective, cheap, accessible and easy to apply parasite controller plant that is used by the emerging farmers to treat livestock especially sheep that are affected by the nasal worm infection which is deadly if left untreated.

One of the sources of information about Ndhulwani (*Solanum Panduriforme*) could be accessed in the University of Limpopo, Botany Department Herbarium where there are various plant specimens. The information in the Herbarium indicated that Ndhilwani was collected by E.C SEHUME during the year **1971/19/05**. This information for the small shrub specimen is available at the University of Limpopo Botany Department Herbarium.

Uses of Ndulwani

Normally fruits which are round, fleshly shiny yellow, + or – 20mm diameter are generally heavily browsed fruits by Inyala antelope and black rhino. Green fruits which are poisonous are used as traditional medicines to treat skin infections, toothache and hemorrhoids (Pooley, 1998).

Solanum Panduriforme can serve as botanical pesticides environmentally friendly alternative way of controlling pests in vegetable production (Duve et al, 1999). Currently it has been discovered as a convenient way of controlling nasal worm infection in sheep.

The innovator's materials and methods used in applying Ndhulwani

The innovator collects only ripe fruits of *Solanum panduriforme* from the farm camps and brings them to the kraal where the sheep stays. He then takes one **large fruit per animal** which he pricks with a **thorn** and squeezes the fluid inside the **nasal cavities of the sheep**. **The innovator does not use the** whole part of the tree but the yellow big fruit. The plant can be identified by **green fruits** when raw but they turn yellow when ripe and for controlling nasal worm large ones are used.

How can this method be improved?

This method can be improved by involving researchers who will investigate the Ndulwani shelf life in order to preserve it. Packaging it in the bottle or spray gun to simplify the administering of the liquid content into the nasal cavity of the sheep. Research will also assist in investigating the active ingredients of Ndulwani fruits.

Supplies and use patterns...*What are the useful parts of other medicinal plants?*

With Ndhulwani the innovator emphasized the use of the fruits when they are ripe meaning that, when they turn yellow in colour. As I searched through the literature it was amazing to know that various medicinal plants have their strength in their various parts.

According to FRIM (2003), the majority of locally-valued medicinal plants occur naturally (uncultivated wooded grasslands). However, in some cases, smaller patches of natural vegetation around the homestead, often flanking farm-plots appeared to be the main sources of medicinal species. Many of the most popular remedies are derived from native trees. The continued availability of such species is increasingly endangered by ongoing land-clearing, -deforestation and in some cases, over-harvesting. The most frequently cited therapeutic plant parts were the roots and bark. Some highly valued medicinal tree species appear to be threatened by unsustainable (bark or root) harvesting practices. For example, 'mwavi' (*Erythrophleum suaveolens*) a tree noted as being 'scarce' and valued as a source of several medicines among the communities, is known to have disappeared from certain forest reserves elsewhere in Malawi.

Problems and challenges... *Can they be overcome?*

In farming business there are lots of constraints and challenges which limits production to the farmer. The innovator who is the farmer at Siyandhani village also mentioned his problems which in future can limit the existence of Ndhulwani at the area where he is working. The farmer indicated that one of the biggest problems is Veld fire which is a damage committed by a human being.

“Veld fires are one of the major problems around our area which result in many disturbing conditions to the farmers and vegetation around the area. We lose many indigenous plants which are used in farming, some of which never regenerates after the veld fires. We also lose the grazing feeds for our animal since sometimes rains are scarce”, said Mr. Chauke.

Other problems are destruction of nature by cutting trees and using the grazing area for livestock for other purposes. For this problem the farmer suggested that they should create a strong relationship with the official of the Department of Nature Conservation in order to control these kinds of problems. The farmer again suggested that the government should provide support linking them to animal health officials in order for them to easily network with other farmers and exchange indigenous knowledge and experience. According to the farmer PROLINNOVA South Africa played a very important role in helping him to share and provide opportunities for researches for Ndulwane and other indigenous plants that he is familiar with.

Working for Water and Agricultural Research Council...We do not need this plant!!!

Working for water and Agricultural Research Council (ARC) are in a process of eradicating Ndulwane and other species, these are referred to by the program as alien species.

However from my experience with the innovator I learned that we need these plants as researchers to open opportunities for research and development of our own indigenous knowledge practices and supporting communal livestock farmers. According to the farmer there are many things which can be done to protect these plants from being eradicated. The innovator indicated that they require assistance on how to protect these plants, such as creating an album which indicates all indigenous plants which are of use to their animal health or any other purposes to their farming systems. This will be able to cater also for youth or future farmers where they will be able to refer to those plants if they encounter problems such as nasal worm infection. Such indigenous plants photo albums could be used for livestock health and be archived in galleries or libraries where it will ensure easy flow of information and opportunities for research.

The farmer stated that universities can also play a very important role by helping them to investigate the shelf life of the indigenous plants such as Ndhulwani. This can be performed at the laboratories at universities where possibilities of packaging the plants can be made. According to the farmers innovator, commercializing of Ndhulwani is also their main objectives. Commercializing of Ndhulwani will ensure

market availability for other indigenous plants which are useful in farming to participate in the market. It will also insure that other farmers get equal chance to bring along other indigenous plants which can play a vital role in farming. All this suggestions can be made possible when land is provided to these pioneer farmers to perform by planting if possible different types of indigenous plants which can be used in farming including Ndhulwani in a larger scale.

There is a need for research institutions, government departments, NGOs and universities not only to assist farmers to document their indigenous knowledge practices and innovations but also bring research opportunities and protect what is useful to farmers. In the Limpopo Province various institutions came together to form PROLINNOVA SA task team that will inspire farmers to promote their innovation and indigenous knowledge practices in a sustainable way.

Contributions of the different stakeholders to farmer innovators

1. Centre for Rural community Empowerment, University of Limpopo

As one of the stakeholders CRCE contributes through (1) documentation of farmers experiences, (2) involving students in action research on indigenous knowledge systems and farmer's innovators, (3) networking through farmer platforms and link-working to get other interested farmers innovators to be part of the network and (5) providing training workshop farmer innovators and government officials.

2. PROLINNOVA S.A

PROLINNOVA S.A. is part of an international partnership of Non Governmental Organizations, Government Departments, Universities and members of the private sector. It is engaged in promoting local innovations by farmers around the country. It also facilitates the process of disseminating information to other farmers in the form of leaflets, catalogues and videos. The aim of this organization is to support innovative efforts of farmers and institutionalize Participatory Innovation Development. The programme also serves to support Agricultural Research for

Development (ARD) approaches, as promoted by the Agricultural Research Council. PROLINNOVA SA has already contributed this as an important role in documentation and exposing opportunities for researches by other institution

3. Limpopo Department of Agriculture

Government (Department of Agriculture and other relevant Departments) play a role in mobilizing farmers and encourage sharing of information by rural farmers and linking farmers to research institutions. They also provide training for farmers who are experimenting and linking farmers with extension service. Department of Agriculture has a section called Indigenous Knowledge Systems (IKS) which supports, encourage and motivate farmers' innovators and strengthen PROLINNOVA SA activities. The Government department sometimes organizes workshop on training officials on how to identify local innovation and IKS activities.

4. Limpopo Agricultural Research Stations

Mara and Tsoelike Research Stations contribute through advises on scientific knowledge and planning of research activities with farmer innovators. Their practical skills in conducting research are acknowledged and supported by other partners as well as farmer innovators.

6. Limpopo Farmer Training Centers

Madzivhandila and Tompi Seleka College of Agriculture are training centers where all these stakeholders conduct their training workshops and lay out research on various aspects of agriculture for farmers and providing a platform for farmer innovators to share their experiences.

7. Small Scale Farmers Networking Forum (SFNF)

This is a platform for small scale farmers' leaders from various provinces currently formed by members from the three Provinces of South Africa i.e. Limpopo province, Mpumalanga and KwaZulu-Natal. These farmer leaders represent farmers from the

mentioned provinces, from the village level and provincial level. In the Limpopo province and Mpumalanga this forum went to the extent on taking a lead at supporting farmer experimentation in a sustainable way. This forum is a member of a regional forum called East and Southern African Small Scale Farmers Forum.

Lessons learned from the farmer innovator and various stakeholders

After attending the Limpopo Task Team, I have learned what partnership is. Practically, partnership is when these various stakeholders planned their agenda together and contribute resources towards learning and supporting small scale farmers and farmer innovators.

During the discussion with the farmer innovator, I realized that there is much information to be learned from farmers, more especially resource poor farmers. Resource poor farmers innovate for a reason; they become creative because of the problems they are facing.

One other lesson that I have learned while conducting this activity is that opportunities for research on IKS and innovation from farmers are there, where farmers are in need of assistance from researchers, where researchers could facilitate the development of the innovations captured by Limpopo Task Team.

I visited one of the Projects at Sekhukhune District around Limpopo Province as part of Participatory Innovation Development and Indigenous Knowledge System meetings with farmers at the projects. I realized that indigenous plants can work and become a solution for different farming problems. At Diphagane project I have learned that farmers do care about the environment that they are farming at. Farmers at Diphagane project demonstrated their organic farming practices where they are using indigenous plants mixture to control insects in their cultivated vegetable garden. Farmers indicated that their farming practices are one of the best because at the end of the day production is achieved without any damage to the environment. Usually they said “where they collect these plants, they ensure that those plants remain in a state where they can still recover”.

I have also learned that some farmers like Mr. Chauke are free and confident to provide information that is needed and that will assist other farmers. The willingness does not just come but it requires some communication skill to probe for more with the farmer. Chauke was willing to share information with other farmers and also understands what he is doing. It will serve many farmers who do not have indigenous knowledge or who are not innovative to adopt some of the innovative work which Mr. Chauke has initiated.

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