

APPENDIX 5: KWAZULU-NATAL MIDLANDS PROGRESS REPORT

CA Farmer Innovation Programme (CA-FIP) for
smallholders in KZN Midlands.

Period: October 2017 - February 2018

**Farmer Centred Innovation in Conservation Agriculture in upper
catchment areas of the Drakensberg in Midlands of KwaZulu-
Natal**



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Identification of the project

Description and selection of study areas

The KZN Midlands programme has been expanding the CA Smallholder Farmer Innovation Programme (SFIP) activities piloted in Bergville to other maize growing areas in the Midlands, i.e. Estcourt, Ladysmith, Greytown and New Hanover.

Communities targeted in this season expanded from Cornfields and Mpolweni (Greytown) to include 4 new learning groups in Swayimanye (New Hanover). Work in Nkandla has been discontinued. The level of commitment from both the community members and the Siyazisiza Trust has remained low.

Approach and Methodology

The farmer-centred innovation systems research process underpinning the programme, which is based on working intensively with farmer learning groups and local facilitators in each of the villages, has been continued and strengthened.

Within the learning groups farmer innovators volunteer to set up and manage farmer-managed adaptive trials as the 'learning venues' for the whole learning group. Farmer Field School (FFS) methodologies are used within the group to focus the learning on the actual growth and development of the crops throughout the season. New ideas (CA practices) are tested against the 'normal' practise in the area as the controls. Farmers observe, analyse and assess what is happening in the trials and discuss appropriate decisions and management practices. Small information provision and discovery-learning or training sessions are included in these workshops/ processes. These are based also on the seasonality of the crop and the specific requests and questions from farmer learning group participants.

Local facilitators are chosen from within and by members of the learning group to be a person who has the required experience, knowledge and a willingness to support the other farmer innovators in their implementation. Facilitators are only chosen and appointed where people with the appropriate skill and personality exists. Local facilitators receive a stipend for a maximum of 10 working days per month, for their support to the farmer innovators. They fill in detailed timesheets outlining their activities against which they claim a monthly stipend.

Learning group members agree to a season long learning process and put forward the farmer innovators to run the trials. Each prospective innovator is interviewed and visited and signs an agreement with the Grain SA team regarding their contribution to the process. They undertake to plant and manage the CA trials according to the processes and protocols introduced as well as a control plot of the same size. For the latter, farmers provide their own inputs.

The adaptive trials are also used as a focus point for the broader community to engage through local learning events and farmers' days. Stakeholders and the broader economic, agricultural and environmental communities are drawn into these processes and events. Through these events *Innovation Platforms (IPs)* are developed for cooperation, synergy between programmes and development of appropriate and farmer led processes for economic inclusion. These IPs also provide a good opportunity to focus scientific and academic research on the 'needs' of the process.

In this season (2017-2018) we have continued to focus on the following elements of the model, namely:

- a) Support farmers who are in their 1st, 2nd and 3rd seasons of implementation,
- b) Conscious inclusion of crop rotation to compare with inter cropping trials
- c) Inclusion of summer cover crops in the crop rotation trials
- d) Continuation with experimentation with winter cover crops, but planted in separate plots rather than in-between maize
- e) Mulching as a form of ground cover
- f) Initiation of nodes for farmer centres that can offer tools, input packs and advice
- g) Continued support for the local maize milling operation for maize meal and cattle feed in Khutsong.

Key activities: October 2017-February 2017

Four learning groups have been set up in Swayimanye (New Hanover). Interest in commercial maize production (green mealies) here is high due to the community's proximity to a large town - Pietermaritzburg. Smallholder farmer groups, mainly women, have been organised into cooperatives and are active in market gardening and field cropping.

The Cornfields (Estcourt area) focus has continued, despite the understanding both in the community and by the facilitators that this is likely a very marginal area for maize production due to climatic conditions and extremely poor soils in the area. The learning group members requested another attempt. Trial sites were chosen across 6 of the 8 village clusters on the farm.

The learning group in Mpholweni (Greytown), started well, but upon realisation that there was not active support for actual planting, no further steps were taken by the participants. This group will be discontinued in the future.

Initial discussions and workshops have been held for a potential expansion into the Estcourt area of Thabamhlophe.

Stakeholder engagement has included open days/ farmers days co-hosted by LandCare (DARD), a co-funder of this programme for this season and a range of networking meetings and processes. Linkages are being forged with the uMgungundlovu District Municipality to engage actively in the DRDLR's RASET programme.

The Madzikane (Creighton) stakeholder forum has continued and been strengthened, to represent and coordinate the interests of a number of role players in the area namely: DARD (Department of Agriculture and Rural Development), Grain SA farmer Development Programme, PANNAR variety testing, LandCare and The Farming Systems Unit from Cedara Agricultural College.

The innovation platform in Matatiele (Nkau) has continued. This forum consists of local leadership and farmers from the area, along with councillors and a few officials from government departments that support participants in this village. In addition, this local forum is linked into the Umzimvubu Catchment Partnership Programme, where landscape approaches to

development, ecosystem services and ecosystem health are being explored, between a number of high level stakeholders including Government Departments and NGOs. A forum is active in Bergville, although not formalised and consists of role players from DARD, the LandCare programme and the KZN No-Till Club. The Local Municipality is involved and has pledged future support for the process.

Two VSLAs (village savings and loan associations) have been initiated; one in Madzikane, where the group is readying itself for its first yearly share out of savings and interest and a new group has started up this season in Nokweja. In Matatiele, Bulelwa Dzingwa continues to support 5 VSLAs.

In Bergville support has been provided for 14 VSL associations in total. Of these 4 are new groups that have been initiated (2 in Vimubkalo, 1 in Stulwane and 1 in Ndunwane).

The budget set aside for the 1st six month period, according to the overall work plan is R367 226. Actual expenditure for the last five months has been R307 375. The overall programme is on track and the budget is deemed sufficient for completion on target in September 2018.

Results achieved to date

Six learning groups (mentioned above) have been supported under this process. Training/learning workshops have been conducted for the following topics:

- **How to implement CA:** introduction to the principles, soil health, crop diversification and different planting options for CA
- **Working with herbicides and knapsack sprayers:** information on different herbicides, their uses and safety measures, as well as operation of knapsack sprayers, protective clothing, etc.
- **Trial plot layout and planting** using different CA planting equipment such as hoes, MBLI planters, and animal drawn not till planters.
- **Top dressing and pest control measures** for mid-season growth of crops and planting of cover crop mixtures where people have been interested in this option

The learning groups provide the innovation platforms also for discussion of the value chain issues, such as bulk buying, harvesting, storage and milling options and marketing.

In Cornfields and Matatiele, mid-season visits revealed unsatisfactory growth of the trials. In both areas prevailing weather patterns and bad soils have led to patchy germination in trials and slow subsequent growth of crops. In Madzikane and Swayimanye. Farmer level experimentation has expanded to include planting with a 2-row tractor drawn planter for the larger fields and the experimentation layout and planting procedure were adopted to also suit this process.

Inter-cropping has been used in all the villages and Planting of cover crops (both summer and winter mixes has been actively promoted.

Stakeholder engagement and awareness raising have included the following:

1. Quarterly presentations to the Ubuhlebezwe LM LED forum on agriculture.

2. Cooperation with the UKZN, running a research process on Climate Smart Agriculture through the Water research Commission – CA is one of the technologies they are demonstrating in their sites in KZN (Swayimanye) and the Free State.
3. A PROLINNOVA network ing meeting; to discuss local innovation systems and support for these
4. A Greenfund concept proposal meeting; called by the INR with a number of organisations to put together a consortium proposal.
5. A farmers day in Swayimanye co-hosted by LandCare and a year end function for one of the cooperative groups.

The table below outlines activities related to objectives and key indicators for the period of October 2017-February 2018.

TABLE 1: SUMMARY OF PROGRESS (OCTOBER 2017 - FEBRUARY 2018) RELATED TO OBJECTIVES AND KEY ACTIVITIES

Objectives	Key activities	Summary of progress	% completion and comment
1. Document lessons learned	Documentation for learning and awareness raising	<ul style="list-style-type: none"> - Printing of hand books and learning support materials for groups and individuals - Sharing of information through innovation platforms processes -Articles and promotional material 	<ul style="list-style-type: none"> - 500 copies of Individual savings books and 50 group savings books have been printed (100% complete) - Madzikane, Matatiele, Bergville (50% complete) -3 articles of the GrainSA monthly magazine and 1 for the Adaptation Network newsletter. (50% completion)
	Final report	- 6 monthly interim reports	- Interim report finalised. Final report at end of project (50% complete)
2. Increase the sustainability and efficiency of CA systems	1 st level experimentation: 40	<ul style="list-style-type: none"> - 32 participants in Swayimanye planted 400m² intercropping trials as advised. One larger field planted in Swayimanye 2 using the two- row planter- also using intercropping - Planting in Mpholweni has not taken place; 	<ul style="list-style-type: none"> - Basic CA design- intercropping with maize beans and cowpeas on a 100m²- 400m² plot, with a control plot managed entirely by the participant. Adaptation trials will include late season planting of beans with a mixture of winter and summer cover crops. (45% complete)
	2 nd level experimentation: 13	- 8 participants in Cornfields planted their 400m ² intercropping trials.	- Participants opted to continue with intercropping practice from their 1 st year.(45% complete)
	Develop and manage PM&E framework; – weekly and monthly M&E visits	<ul style="list-style-type: none"> - M&E forms redesigned and used - Digital monitoring system piloted 	- Monitoring of planting and crop growth in progress (35% complete)

	Facilitation of innovation platforms	- Co-facilitation of information sharing and action planning with stakeholders and role players	- A farmers day has been held in Swayimanye and farmers from Madzikane(SKZN) were brought to present their progress and demonstrate the 2 row planter Further stakeholder meetings with DM, UKZN and NGOs to be held. Initiate discussions in potential expansion and new areas. (60% complete)
	CA working group, and reference group	- Planned for August 2018	

A performance dashboard is indicated below. This provides a snapshot of performance according to suggested numbers and outputs in the proposal.

TABLE 2: PERFORMANCE DASHBOARD; FEBRUARY 2018

Outputs	Proposed (March 2017)	Actual (Feb 2018)
Number of areas of operation	3	3
Number of villages active	4	6
No of 1 st level farmer experiments	24	40
No of 2 nd level farmer experiments	6	8
No of local facilitators	4	-
No of direct beneficiaries	75	53
Participatory monitoring and evaluation process (farmer level)	Yes	Yes
Soil biological assessments	36	9
Stakeholders forums	4	3

The table below summarises the planned and actual farmer trial implementation for the 2017-2018 planting season. A total of 53 trial participants volunteered through the planning processes across 6 villages in three areas. Forty one(41) of these farmers planted trials.

TABLE 3: SUMMARY OF FARMER INNOVATION NUMBER AND AREAS PLANTED PER VILLAGE IN THIS CA PROCESS; KZN MIDLANDS, 2017-2018

Area	Village	Farmers selected	Farmers planted (1st level)	Farmers planted (2nd level)	Experi-mentation	Comments; incl planters used.
Estcourt	Cornfields	13		9	Intercropping, late season beans, cover crops.	Farmers planted using hand hoes and MBLI planters. The group is not well established
Greytown	Mpholweni	8	0			Group members were unprepared

						to do the planting for themselves
New Hanover	Swayimanye 1	6	6		Intercropping, late season beans, cover crops.	Very active group members; Hand hoes and MBLI planters used
	Swayimanye 2	9	9		Intercropping, late season beans, cover crops.	Very active group members; Hand hoes and MBLI planters used. One 2 row tractor drawn planter demonstration
	Swayimanye 3	8	8		Intercropping, late season beans, cover crops.	Very active group members; Hand hoes and MBLI planters used
	Gobizembe	9	9		Intercropping, late season beans, cover crops.	Very active group members; Hand hoes and MBLI planters used
TOTAL		53	40	9		

Overall process

As this is an existing 'technology' the farmer level experimentation is in essence an adaptation trial process.

Year 1:

Experimental design is pre-defined by the research team (based on previous implementation in the area in an action research process with smallholders). It includes a number of different aspects:

- Intercropping of maize, beans and cowpeas
- Introduction of OPV and hybrid varieties for comparison (1 variety of maize and beans respectively)
- Close spacing (based on Argentinean system)
- Mixture of basin and row planting models
- Use of no-till planters (hand held, animal drawn and tractor drawn)
- Use of micro-dosing of fertilizers based on a generic recommendation from local soil samples
- Herbicides sprayed before or at planting only
- Decis Forte used at planting and top dressing stage for cutworm and stalk borer
- Planting of cover crops; summer and winter mixes

Experimental design includes 2 treatments; planter type (2) and intercrop (2). See the diagram below.

	PLOT 1: Hand Hoe			PLOT 2: Planter	
10m or 5m	Maize 1, bean 1	Maize 2, Bean 1		Maize 1, bean 1	Maize 2, Bean 1
	Maize 1, Bean 2	Maize 2, Bean 2		Maize 1, Bean 2	Maize 2, Bean 2
	10m or 5m				
	PLOT 3:		OR repeat plot 1 and 2	PLOT 4:	
	Hand hoe	Planter		Hand hoe	Planter
	Maize 1, cow pea	Maize 1, cow pea		Maize 1, Dolicho	Maize 1, dolichos
	Maize 2, Cow pea	Maize 2, Cow pea		Maize 2, Dolicho	Maize 2, Dolichos

Figure 1: Example of plot layouts for the 1st level farmer trials

The basic process for planting thus includes: Close spacing of tramlines (2 rows) of maize (50cmx50cm) and legumes (20cmx10cm) intercropped, use of a variety of OPV and hybrid seed, weed control through a combination of pre planting spraying with herbicide and manual weeding during the planting season and pest control using Decis Forte, sprayed once at planting and once at top dressing stage.

For the tractor drawn two row planter the layout has been adapted to incorporate both close spacing and inter cropping. Rows are planted with the following order and spacing; Maize-50cm -Beans-25cm-Beans-50cm Maize

Year 2:

Based on evaluation of experiment progress for year 1, includes the addition of options that farmers choose from. Farmers also take on spraying and plot layout themselves:

- A number of different OPV and hybrid varieties for maize
- A number of different options for legumes (including summer cover crops)
- Planting method of choice
- Comparison of single crop and intercropping planting methods
- Use of specific soil sample results for fertilizer recommendations
- Early planting
- Own choices

Year 3:

Trials are based on evaluation of experimentation process to date; to include issues of cost benefit analysis, bulk buying for input supply, joint actions around storage, processing and marketing. Farmers design their experiments for themselves to include some of the following potential focus areas:

- Early planting; with options to deal with more weeds and increased stalk borer pressure.
- Herbicide mix to be used pre and at planting (Round up, Dual Gold, Gramoxone)
- A pest control programme to include dealing with CMR beetles
- Intercropping vs crop rotation options
- Spacing in single block plantings
- Use of composted manure for mulching and soil improvement in combination with fertilizer,.
- Soil sample results and specific fertilizer recommendations

- Planting of dolichos and other climbing beans
- Summer and winter cover crops; crop mixes, planting dates, management systems, planting methods (furrows vs scatter)
- Seed varieties; conscious decisions around POVs, hybrids and GM seeds
- Cost benefit analysis of chosen options

Possible agrochemical spraying regime options

1. Roundup 2 weeks before planting - if there has been some rain. DualGold at planting (just after with Decis Forte/Kemprin).

2. Gramoxone at planting (just before or after planting) with or without Dual Gold and Decis Forte/Kemprin – Dual Gold does not work on dry soil (followed by heavy rain)

Soil fertility and soil health

No soil health tests have been done for the Midlands project as yet, as most participants are in the beginning stages of their implementation.

Soil samples for fertility analysis at Cedara were taken for the 4 learning groups in Swayimanye (New Hanover).

A summary of the results for these samples is presented in the small table below

TABLE 4: SOIL FERTILITY RESULTS FOR SWAYIMANYE; 2017-2018

		Swayimanye 1	Swayimanye 2	Swayimanye 3	Gobizembe
Ph		4,4	4,4	4,4	4,3
% Acid Sat		29,7	29	12,2	30,3
N (kg/ha)	Maize	76	60	60	64
	Beans	40	40	40	40
P (kg/ha)	Maize	34	20	45	38
	Beans	31	20	37	36
K(kg/ha)		6,4	0	5	12
Lime(t/ha)		2,5	3,5	0,85	3,4
% Org C		1,6	2,5	2,3	2,5
% Org N		0,3	0,2	0,1	0,2
% clay		38,6	39,4	39	44
Fert recom		MAP (2x50kg/ha) with LAN top dressing (1,9x50kg/ha)	MAP (1,8x50kg/ha) with LAN top dressing (3,9x50kg/ha)	MAP (3,4x50kg/ha) with LAN top dressing (2,6x50kg/ha)	MAP (2,9x50kg/ha) with LAN top dressing (2,9x50kg/ha)

The basic soil conditions in these four villages are qualitatively similar. It is considered that the generic recommendation for fertilizer that has been used throughout (2x50kg MAP/ha and 4x50kg LAN, plus 1t/ha lime) would be suitable here as well.

Progress per area of implementation

Cornfields (Estcourt)

MDF started working with the community in Cornfields in 2016/17 and a total of 13 participants planted CA trials. The season did not go as expected as Cornfields is characterised by hot and dry weather conditions with highly leached and compacted soils. Furthermore, the group did not have a clear understanding of CA and its principles and the participants planted according to their conventional way of planting save for a few who planted the maize and bean/maize and cowpea intercrop according to the guidelines. In the 2017/18 season, the MDF team continued to work with Cornfields as there was still keen interest from the participants to plant CA trials. There has been a number of challenges in the current growing season, the most significant being the lack of cohesion within the group as the participants reside in different subsections in Cornfields. It was discussed during a CA workshop that the participants organise themselves into two groups in order for them to work as a unit and have a more solid platform for learning and sharing. The outcome of the meeting was that the participants would continue working as individuals but attend meetings and workshops as a group. Below is a final list of Cornfields Participants that received inputs for the 2017/18 growing season.

TABLE 5: LIST OF CORNFIELDS PARTICIPANTS

No	Name	Surname	Area
1	Philemon	Madondo	Thamela
2	Moses	Sthomo	Ezitendeni
3	Zakhe	Xaba	Entabeni Ebomvu
4	Simon	Vilakazi	Shiyabazali
5	Florence	Luthuli	Entabeni Ebomvu
6	Mbuso	Mkhize	Entabeni Ebomvu
7	Shintshile	Mbatha	Entabeni Ebomvu
8	Zandile	Dubazane	Briya
9	Qinisile	Mdletshe	Entabeni Ebomvu
10	Gwaja	Khumalo	Ezitendeni
11	Fisokuhle	Ngcobo	KwaMbombo
12	Sgidi	Khumalo	Shiyabazali
13	Mr Miya		Entabeni Ebovu

Planting Demonstration

The planting demonstration was conducted at Mr Mgwaja Khumalos' household on the 20th of December 2017. The CA trial was planted on the same field that was used in the 2017 growing season but on a different section of the field. The field had about 14% residue cover at the time of planting and consisted mainly of maize stalks and dry weed material. Spraying was done two weeks prior with Round Up and Dual Gold, which killed more than 50% of the weeds which had started to sprout again due to the rains. Planting was carried out late due to delayed rainfalls as the first rain only came around the 17th of December. The session opened with a discussion around CA as an approach to improving soil fertility with an emphasis on the three principles, namely minimum soil disturbance, permanent soil cover and crop diversification. The planting procedure in terms of spacing, fertiliser application and seed sowing was explained in detail.

Spacing for maize was 50 cm x 50 cm intra and inter row spacing and 25 cm x 25 cm intra and inter row spacing for beans and cowpeas. The cultivars planted were PAN 53, Gadra and Mixed brown for maize, beans and cowpeas respectively. Below are pictures of the planting demonstration.



Figure 2 Mr Khumalo opening planting basins and Khethiwe sowing maize seed, Tema demonstrating how to open planting basins



Figure 3 Mr Khumalo and Mrs Hadebe opening lines and basins, a rope was used to straighten the rows, field had left over residues from previous season when it was planted

Crop Growth Monitoring

Crop growth monitoring was undertaken on 26 January 2018. Participants all planted small trials of 400m² or less. A total of eight trials were monitored as the rest of the participants were not available. It was clear from the eight site visits that the trials have not made much headway, despite continued efforts to support the area in terms of training and provision of inputs. Although people in Cornfields grow crops, this is mostly on a small scale in but a few households. Some community members also farm cattle, goats and chickens. From the site visit, it was evident that relying on crop production as a source of food would prove too risky for most people as the

area is hot, dry and has poor quality soils. Hence, most people have either stopped producing crops citing lack of water or downscaled or insist on conventional farming as the outcome is more predictable and it is more familiar than the relatively “new” concept of no-till farming. Main constraints identified during monitoring were poor germination and overgrowth of weeds. In addition planting was done, on the 20th of December 2017 as the rains came late, however the few days of rainfall were followed by a prolonged dry spell. Below are some of the trials visited.

Mbuso Mkhize

Mbuso Mkhize is a 48 year old gentleman who lives at eNtabeni Ezibovu, a subsection of Cornfields with his wife and seven children. He works as a security guard at the local school on a temporary basis. He also grows vegetables and owns goats, chicken and cattle. His maize was only starting to germinate and he cited late planting and excessive heat as the reason. His soil was mostly grey in colour and portions of his fields had high clay content which forms crusts when dry, explaining why the soil becomes very hard and almost unworkable when dry.



Figure 4 Mr Mbuso Mkhize's trial

Gwaja Khumalo

Gwaja Khumalo lives at Ezitendeni which is also a sub section of Cornsfileds with his wife and son. The germination of his maize and beans was patchy and in two out of the four plots it was less than 30%. Some of the beans had dried up due to excessive heat but the maize was slightly more resilient although it did show signs of heat stress. The soil was light brown in colour and had a sandy loam texture. The performance of the maize was similar in both the trial and control plots.



Figure 5 Gwaja Khumalo's trial germination was inconsistent, and some of the plots had large patches where the maize and beans did not germinate

Mdumbeni Miya



Figure 6 Mr Miya Maize and Bean plots.

Mdumbeni Miya is a 67 year old gentleman who lives Ezintabeni Ezibovu with his wife, six children and seven grandchildren. He and his wife are pensioners and five out of the six children

are working, and one is still in school. He Planted maize and beans separately and explained that weeding was difficult in the intercropped plots. Nonetheless, his maize and beans were not performing well.

Conclusion

Cornfields is a marginal area for field crop production and the farmers believe the best way to grow field crops is by first ploughing the soil as it becomes unworkable when it is too dry, making it difficult to plant using no-till. Additionally, the soil is either sandy or clayey in most parts and thus releases water too fast in the former and retains water too much in the latter which are both unpleasant scenarios as water and nutrients are not readily available for plant absorption.

Swayimane

Planting Demonstrations

The planting demonstrations in Mayizekanye were conducted on the 16th, 17th and 18th of January 2018 as per request from the farmers during the CA introductory workshops. Farmers in Mayizekanye plant maize not only for household consumption but also for market supply, and planting commences in November up to the first week of February. Maize planting for market supply mainly takes place in January in order to avoid competition with neighbouring commercial farmers. The level of participation from the farmers during the workshops and planting demonstrations was encouraging as more than 95% of the participants attended workshops and planting demos, also bringing other community members. The planting sessions opened with a review of what was discussed during the introductory workshops and also included an explanation of the planting procedures, their significance and outcomes. For instance; opening of planting basins and direct application of fertiliser into the basins saves on fertiliser costs as it reduces the amount of fertiliser used during planting.

As a consequence of having larger fields than ordinary participants, the farmers showed a keen interest in using the two row planter from Edenquip on their fields. The two row planter was demonstrated at the Land Care Awareness Day which took place on the 11th of December 2017. The team agreed to bring the planter, to test it in one of the households. The planter was used on an area of 0.5 hectare and the farmer noted that the planter saves a lot on fertiliser and reduces labour costs significantly as the field is normally planted by hand and she has to hire labourers. In addition, planting using the two row planter saved a lot of time. Challenges experienced included the planter getting clogged and having to be cleaned out frequently and ensuring proper seed plate adjustment. The first area where the planter was tried out had been sprayed with Gramoxone, but some of the weeds did not die back and got hooked on the back wheels, hence the team changed the planting site and it was recommended that Miss Nxusa sprays the area again before planting. The pictures below show the planting demonstrations in the three groups in Mayizekanye area.



Figure 7 Planting Demonstration, Mayizekanye 3, MaNene Mkhize's Group



Figure 8: Planting Demonstration, Mayizekanye 3, MaNene Mkhize's Group



Figure 10: Planting Demonstration, MaShandu's Group



Figure 9: Planting Demonstration, Mayizekanye 1, MaShandu's group



Figure 11 Planting with the two row planter in Mrs Nxusa's field



Figure 12 Mrs Nxusa's field had good crop cover at planting

Crop Growth Monitoring: Gobizembe

Monitoring was carried out on 28 February 2018. All participants planted 400m² plots and the trials were growing well in most households. The farmers showed keen interest in planting using no-till, as they were used to conventional farming methods and wanted to try out something new. During monitoring, they highlighted how well cowpeas were growing in all the fields compared to beans and most said they would grow cowpeas again in the upcoming season. The general trend was that the maize intercropped with cowpeas was light green to yellow, had thinner stalks and showed signs of uneven growth, possibly due to competition with the cowpeas which appeared to be growing much more vigorously. Beans started out well and showed signs of heat stress later in the season, especially in January. It rained again in February and some of the beans started to rot. Cow peas appeared to be much more resistant to the heat as they seemed unaffected. In some fields the maize was yellow and stunted due to excessive weed growth and some had purple leaves which could be a sign of Phosphorus deficiency. As a result of the abovementioned challenges, some of the farmers are not convinced about intercropping as they believe it has a negative effect on the growth of their maize which normally performs exceptionally well when planted as a monocrop. It was explained that since this is the first year of planting under no till, results may not go as expected and it may take time to see positive results. Some of the farmers, such as Ntombencane Gasa mentioned that their fields had been fallow for over five years and they did not think anything would germinate but were pleased to see the trial doing well. All the farmers planted according to the guidelines given during the demonstrations and seemed to have grasped the concept of no-till planting.

Ntombencane Gasa

Ntombencane Gasa planted her CA trial in a field that had been fallow for over five years. Previously, she had planted trees and in 2017 she planted the 400m² trial with little hope that anything would grow as she had not grown anything there for a long time. Her maize and cow pea intercrop appeared to be performing well compared to maize and bean intercrop. Germination for beans was patchy and some of the beans had already dried out before forming pods.



Figure 13 Ntombencane Gasa's trial was doing very well.

Busisiwe Khoza

Busisiwe Khoza's trial was not looking good due to overgrowth of weeds. The maize and beans were yellow and starting to dry out. Her reasons for not weeding were that the beans had reached flowering stage and she did not want to damage the flowers as that would have a negative impact on yield. However, it seemed no weeding was ever done on the trial from the time it was planted. Germination was good overall, and it seemed she may have fallen short in terms of looking after the trial. In the maize and cowpea intercrop, maize germination was less than 30% and the cowpeas seemed to be growing well. Below are some pictures of her trial.



Figure 14 Busisiwe Khoza's trial

Rita Ngobese

Mam Rita Ngobese's trial household was used as a demonstration site for planting. Her trial was looking good overall although the maize intercropped with cowpea appeared thinner, shorter and uneven in height. The maize intercropped with beans was darker, taller and the cobs were bigger. The maize had reached tasseling stage and beans had already been harvested. The beans almost went rotten due to the rain which affected the quality of the final yield. Rita also planted taros and cowpeas with the hope that the cowpeas would grow and close the space in between the ridges and thus reduce runoff. When the rain came, it washed the soil into the furrows and covered the cowpeas. However, they are still growing and she is hoping to get a good yield from both crops.



Figure 15. Rita Ngobese's maize had reached tasseling stage and she had harvested the beans

Gugu Ximba

The season did not go well for Miss Gugu Ximba. In the maize and cowpea intercrop, the maize was yellow and stunted and the cowpeas grew well and had formed pods. Gugu explained that she normally has problems growing crops in her field and suspects the soil might be acidic. In the maize and bean intercrop however, the maize was green and had reached tasseling stage. She also managed to harvest the beans. The soil test results From Cedara could help explain why the maize crop performed poorly as this was the case even in her control plot.



Figure 16: Gugu Ximba's trial, maize intercropped with cowpea was yellow and stunted, cowpeas were doing well. Maize intercropped with beans reached tasseling stage and beans had already been harvested

Farmer Innovation Platforms

Estezi (Mayizekane) Farmers Association Year End Function

Date: 13 December 2017

Venue: Dutch Reformed Church, Estezi

Time: 10h00

Present

Estezi Farmers' Association, Representatives

Ms LN Ndlovu, Agricultural Advisor, Department of Agriculture and Rural Development

Mr W Ndlovu, Agricultural Advisor, Department of Agriculture and Rural Development

Mr SNTuli, Municipal Manager, uMgungundlovu District Municipality

Mr Nxumalo, Local Councillor, Estezi

Mr Ngubane, Councillor, uMshwathi Municipality

Ms TN Mathebula, Mahlathini Development Foundation

Introduction

Estezi Farmers Association held their annual closing function on the 13th of December 2017. The meeting was organised by the farmers and various stakeholders with whom they have worked were invited to be part of the event. The purpose of the meeting is to reflect on the year, the milestones achieved, challenges and areas of improvement.

Presentation by Farmer representative: Mrs Nxusa

The year 2017 was a good year for Estezi farmers as they have seen an increase in support from government departments and NGO's. Through continuous support and mentorship, farmers have seen themselves growing in terms of production and selling surplus. Mr W Ndlovu, who was the previous Extension Officer laid the foundation by introducing the farmers to different maize cultivars, chemical control and assisting them in finding a market for their maize. Today farmers are independent because of the support received from the Department through him and Ms L Ndlovu. MDF is a new organisation working in the area and the farmers are looking forward to learning more about Conservation Agriculture. Mshwathi Local Municipality has not provided adequate services to the farmers, especially pertaining to food production and household food security. In the coming year, farmers wish to see an increase in support, regarding market access, provision of essential services and access to information. There are still many challenges pertaining to access to water, procurement of inputs and social issues such as a high unemployment, especially among the youth.



Figure 17 Estezi Farmers Association, Year End Function

Relevance to Mahlathini: MDF, uMgungundlovu District Municipality

The meeting was an opportunity for MDF to get to know the farmers as well as to connect and possibly liaise with the other stakeholders working in the area. It is important for the different stakeholders working in rural communities to have a good working relationship and offer each other support and this can be achieved by always putting the farmer first. The uMgungundlovu District municipality seeks to collaborate with Mahlathini in providing support to rural communities through the introduction of sustainable agricultural practices. The municipality launched Radical Socio- Economic Transformation (RASET) in 2017 and seeks to partner with NGO's during implementation. A meeting between MDF and the Municipality will be arranged during the last week of January 2018.

PROLINNOVA meeting

Date: 05 February 2018

Venue: INR

Time: 12h00

Chairman: Zanele Shezi

The meeting took place at INR on the 05th of February to discuss ideas around reviving Prolinnova in South Africa as currently there is nothing happening. The organisations represented at the meeting were INR, MDF and PACSA. Each organisation presented its current projects and how these could serve as platforms for innovations.

Organisation	Representative	Activities	Comments on Prolinnova
PACSA	M Malinga	Focus area of at PACSA is Social Justice which is not linked to innovations. However an interesting proposal can be written explaining the benefit of being part of Prolinnova.	Ideas/innovations are already on the ground. Participating NGO's need to pay more attention to what is happening.

INR	Z Shezi	Agroforestry project is ongoing in Ixopo and Bergville. Agroforestry is based on cultivating trees, intercropping trees with main crops. There are challenges in that trees take a long time to reach maturity and some farmers do not see much benefit from growing them.	INR seeks to engage organisations previously involved in PROLINNOVA to revive interest and seek platforms for generating new innovations/supporting existing ones.
MDF	TN Mathebula	MDF is currently working on CA, mainly intercropping of field crops with leguminous crops for improved soil fertility. WRC project has just been launched, focus is on implementing a suite of Climate smart agriculture practices to increase resilience to Climate change. Savings group, mainly for saving up towards inputs, plus make credit available during course of the year. Savings-possible platform for innovations.	Although it is a great idea to revive PROLINNOVA, organisations would do well if they first looked into why PROLINNOVA became inactive and get input from farmers. Some farmers in Bergville stated that the conditions for innovations were too strict. Can we revisit how we define innovations?

Discussions

The economic and political land scape in South Africa could be a contributing factor to people becoming less interested in coming up with new ideas. Government and NGO's have created a dependency through social grants, free housing, and free inputs etc. People now have an expectation of receiving without putting in much effort. In other African countries, new inventions are sometimes the only way of survival. In South Africa, there are cases where people are taught something and they adapt it to their specific needs. However, NGO's and government have a tendency to want people to adhere to a text book manual of doing things. Case in point: there is a group of women who saved R2 every week, and they could afford to build brick houses from that money. When presenting their success, they were asked how houses could be built from saving such a small amount and it turned out they had modified the model but were reluctant to reveal how. The organisations which are interested in PROLINNOVA will engage in further discussions as time goes on.

Way Forward

Ms Shezi requested that organisations involved in PROLINNOVA start engaging more through attending each other's events, sharing progress on possible innovations and other interesting updates. Progress reports to be uploaded on the Prolinnova website.

NB: There is currently no funding from PROLINNOVA, organisations must work these innovations into their existing programs.

SANBI Green Climate Fund Meeting

Date: 20 February 2017

Venue: Lima Boardroom

Time: 14h00-15h30

Organisations Represented: Lima, Mahlathini Development Foundation, Farmer Support Group, KZN Wildlife, INR, WWF, EWT

Chairman: Brigid Letty (INR)

The meeting was convened by the abovementioned organisations to discuss the possibility of applying for the SANBI-GCF as a consortium and to discuss each organisation's program as well as how it links to the project's funding requirements.

The South African National Biodiversity Institute (SANBI) which is a direct access entity for the Green Climate Fund (GCF) has called for proposals for projects which are transformative, innovative and will lead to a paradigm shift. The amount of funding available is \$50 million and the projects need to fall within the following priority areas:

- a) Agriculture, food systems and food security
- b) Energy efficiency and energy demand management
- c) Carbon capture and storage Disaster risk reduction and management
- d) Health, land, biodiversity and ecosystems
- e) Low carbon, climate resilient built environment, communities and human settlements
- f) Low carbon climate resilient spatial development
- g) Low carbon, climate resilient transport systems
- h) Renewable energy
- i) Social protection systems and public works programmes
- j) Waste management Water conservation and water demand management

Project focus

The organisations represented at the meeting are involved in the fields of agriculture, biodiversity and ecosystems, food security, community development, climate change adaptation, mitigation and resilience.

The meeting highlighted that rangeland improvement has gained traction and should therefore be the focus of the project. However, focusing on rangeland farming would exclude organisations which focus mainly on crop production, hence the proposal should argue for the inclusion of everyone who fits into the aforementioned criteria. It was also noted that the proposal should involve academic institutions i.e. UKZN (agriculture, research, hydrology), Ezemvelo wildlife as well as government departments. INR was identified as the leading organisation for the project. The project may require 50% co-funding from each organisation. This still needs to be confirmed with SANBI.

Action: Brigid to send an email on what each organisation is expected to provide.

The proposal will be written over a period of 18 months with the possibility of monetary support from SANBI. A concept note of 12 pages is required by the end of April. The first draft is due mid-April.

VSLA (Village Savings and Loan Associations) Progress Report

Bergville

Village Local Savings (VLS) have become increasingly important in supplementing household income in rural villages in the Okhahlamba Local Municipality, KwaZulu Natal. Through VLS, communities have been able to provide for their immediate, short term and long term household needs, e.g. purchase inputs, groceries, pay off debts and renovate their homes. This could explain the success, longevity and resilience of these groups. The increase in the number of people interested to be part of the VLS groups also testifies to the fact that people see real benefits from participating in savings groups. The purpose of this report is to provide an update on the progress of the savings groups supported by Mahlathini Development Foundation (MDF) in Okhahlamba Local Municipality (OLM).

MDF supports a total of fourteen groups in OLM and four of those are newly established and these are uKhamba and Nyonyana groups in Vimbukhalo, Mbalenhle group in Stulwane and Sibonelo Group in Engoba. This report will focus on the groups that were visited. Out of the fourteen groups, eight were visited by the MDF team during the month of February to monitor their performance and to ascertain which groups conducted share outs at the end of 2017. Six out of the eight groups conducted their share outs between October and November and one group is due to share out in March 2018. The groups that were visited were Masibambane and Masithuthuke in Eqeleni; Phelandaba in Ndunwana; uMntwana in Stulwane; Gudlintaba and Amangwe in Bethany and lastly Sakhokuhle and Sibonelo group in Ngoba. All the groups that had conducted share outs in 2017 were given new VLS books for the year 2018.



Figure 18: A VSL association showing their newly printed savings books.

TABLE 6: SUMMARY OF NEW BOOKS DISTRIBUTED TO VLS GROUPS IN FEBRUARY 2018

No.	Village	Individual Books	Group Summary Books
1	Nokweja	12	1
2	Stulwane	33	2
3	Ngoba	23	1
4	Bhethani-Amangwe	19	1
5	Ndunwana	Received from previous batch	1
5	Ndunwana		
6	Bhethani-Gudlintaba	20	1
7	Eqeleni-Masibambane	Received from previous batch	1
8	Vimbukhalo	25	5
9	Ezibomvini	30	3
10	Ngoba-Isibonelo	31	2
Total		193	18

The table above depicts the total number of books distributed to VLS groups in Bergville and other areas. Five hundred individual savings books and fifty group summary books were printed. A total of 193 individual books and 18 group summary books have been distributed.

Group Progress

The overall progress of the groups was impressive and most of them had a clear understanding of the savings model and its rules and procedures. One trend identified in all groups was that members do not adhere to the rule of loan repayment within a three to four month period. The reasons given are that the recommended timeframe is too short. Loan repayment over a longer period means more interest is accumulated and it puts less pressure on their pockets. The groups generally have a positive working relationship and although challenges arise, they are often able to settle them amicably e.g. when people do not pay back loans, the groups holds them accountable by swallowing their shares to replace the unpaid loans. In terms of saving for agricultural inputs, the groups admitted that farming is an important part of their lives but savings go beyond just their farming activities as they have transformed their lives in other ways, especially with regard to supporting their families. Finally, the groups shared that savings are important in protecting their dignity, as the loans taken are known only to the group unlike borrowing from individuals who would turn around and tell the whole community if the loan is not repaid. Apart from benefiting at household level, some group members have used the money from savings for businesses such as sewing, poultry production, street vending and other activities. Savings group members are predominantly women who are unemployed and depend on government aid, employed on a seasonal basis or own informal business in order to support their families.

The table below provides a summary for 7 VSL groups which have recently been monitored

TABLE 7: MONITORING INFORMATION FOR 7 VSL GROUPS IN THE BERGVILLE AREA; FEB 2018

No	Area	Name of Group	No. of Members	Years Active	Highlights of 2017	Challenges	Date of Share out	Final share price	Amount shared out	Use of money received from share out
1	Eqeleni	Masuthuthuke	25	5	Group worked well in 2017, there was mutual respect and cooperation	Members were not always able to pay back loans within 3-4 months. Some members paid back loans minus the interest.	November 2017	R 134.00	R 88 000	Agricultural inputs (seed, fertiliser), groceries, school fees
2	Eqeleni	Masibambane	20	4	Teamwork and unity	Members not always able to pay back loans within 3-4 months	October 2017	R 143.00		Inputs, groceries, furniture
3	Ndunwana	Mphelandaba	20	2	Cooperation and trust.	Conflict arose towards share out due to outstanding loans. All loans were eventually paid in	October 2017	R 167.00	R 31 310	Inputs, groceries, school uniform
4	Stulwane	uMntwana	32	5	Group share out was successful despite challenges (group had 40 members in 2017)	Group did not follow rule that loans must not be more than twice the number of shares. People that book loans on time are sometimes overlooked in favour of late bookers	November 2017	R 145.00	R 118 350	Household consumption

5	Bethany	Gudlintaba	20	2	Group able to conduct savings meetings without external assistance. Members respect one another	Did not understand the share out process and how money was distributed.	November 2017	R 149.00	R 78 764	Poultry enterprise, home renovations, school uniform
6	Bethany	Amangwe	17	1	Savings progressing well, members function well as a group.	Two members left the group as they could no longer afford contributing towards monthly savings.	March 2018	Pending	Pending	Money will be used towards their businesses.
7	Ngoba	Sakhokuhle	23	2	Group worked well in 2017	Members inconsistent when it comes to meeting attendance	November 2017	R 147.00	R 73 550	Seeds, fertiliser, fencing, school uniform, groceries
	TOTAL		157						R 389 974	

The table above depicts the new share value of each group after interest has been added, as well as the total income per group. All the groups managed to increase their share value. The total amount shared out amongst the groups visited was R 389 974. The highest interest gained was R67.00 which increased the total share value to R 167.00 in the Phelandaba group from Ndunwana, although the total amount accumulated was only R 31 310 due to the low number of shares purchased by the group in general. The amounts received by individuals varied greatly as this is determined by the number of shares. The higher the number of shares, the higher the amount the individual will receive although the interest is distributed equally. In the Gudlintaba group, the person with the highest number of shares received R 6000.00 and the person with lowest number of shares received R 328.00. Although individual amounts vary, the objective of the VLS is to benefit all members of the group.

Meeting with New Group: Isibonelo Group, Ngoba

On the 24th of February 2018, Mr Madondo, Tema and Khethiwe conducted a meeting with a newly established VLS group in Ngoba. The group members self-organised themselves with the assistance of the older group that already works with MDF. The group started saving in November 2017 and upon close inspection it came to light that the group did not understand the concept of savings fully. The purpose of the meeting was to formally introduce the savings model and to explain the rules and procedures. The meeting opened with a discussion on the background of savings, the harsh reality of unemployment and poverty, and the increasing number of people who turn to loan sharks due to desperate financial situations.

The savings model was explained in that it is a system of saving money through the purchase of shares on a monthly basis between R 100.00 and R 500.00. The value of an individual share is R 100.00. Loans are issued at an interest rate of 10% per month for a period of three to four months and the loan amount issued must not exceed more than twice the total number of shares accumulated. The conditions for forming a group were also discussed as well as the non-negotiable rules and procedures. The constitution was also explained with the roles of each committee member discussed. A predicament with this group was that since they were already established some of the mistakes would not be easy to reverse. The group has a total of 30 members which is above the recommended limit and there was a discussion where the final decision was that the group appoint a deputy secretary to assist with the record keeping. Some group members lived far from the community and should not have been part of the group and it was agreed that at the end of the 12 month cycle they will be removed from the group. At the end of the meeting, the VLS individual and summary books were distributed. The group still needs to purchase a money box to store their savings. The group also came up with a group name during the meeting, which is "Isibonelo".



Ikusasa Lethu Savings Group: Southern KZN



Introduction

Ikusasa Elihle Savings group was established in January 2018, by request from the Ngongonini CA participants. The group consists of 12 participants; 10 females and 2 males. Group members are mainly retired individuals, teachers and young women who reside in the community.

An induction meeting was held on the 15th of January 2018 to explain the savings model, constitution and non-negotiable rules. The group committee was also discussed in detail with the specific roles of each person. Thereafter the group met on their own to decide on the way forward and appoint people who would serve as the group committee. The first savings meeting was held on the 2nd of February 2018 and the group saved R2800 and no loans were issued.

The primary purpose of savings is to support community members to save up for agricultural inputs. The reality is that rural communities are complex and often derive their livelihoods through a combination of activities that often serve more than one function. Therefore savings groups often serve to support their agricultural production as well as supplement their household income. The two tables below give a list of the group members and a summary of the savings meeting.

TABLE 8: LIST OF GROUP MEMBERS-IKUSASA SAVINGS GROUP

No	SURNAME	INITIALS	NAMES	ROLE
1	Mkhize	Z	Zanele	1:Chairperson
2	Mkhize	N	Nompilo	2: Secretary
3	Zulu	N	Nobesuthu	3: Money Counter 1
4	Kheswa	T	Thokozani	4: Money Counter 2
5	Mkhize	L	Letheni	5: Box Keeper
6	Kheswa	S	Sylvina	6: Key Holder 1
7	Mkhize	L	Lizzy	7: Key Holder 2
8	Nkabane	E	Eunice	8: Key Holder 3
9	Shezi	N	Nomawethu	9: Member
10	Phungula	N	Ntombifuthi	10: Member
11	Gamede	M	Mzikayise	11: Member
12	Mkhize	M	Mandla	12: Member

TABLE 9: SAVINGS SUMMARY

SURNAME	INITIALS	MTG 1	TOTAL	TOTAL VALUE
Mkhize	Zanele	5	5	R500.00
Mkhize	Nompilo	1	1	R100.00
Zulu	Nobesuthu	5	5	R500.00
Kheswa	Thokozani	2	2	R200.00
Mkhize	Letheni	5	5	R500.00
Kheswa	Sylvina	1	1	R100.00
Mkhize	Lizzy	4	4	R400.00
Nkabane	Eunice	1	1	R100.00
Shezi	Nomawethu	1	1	R100.00
Phungula	Ntombifuthi	1	1	R100.00
Gamede	Mzikayise	1	1	R100.00
Mkhize	Mandla	1	1	R100.00
TOTAL		28	28	R2,800.00

Problems encountered, milestones not achieved and reasons for that

This season has seen progress in bringing on board new areas for CA experimentation (Swayimanye and Estcourt), although the expected implementation in Mpholweni once again did not materialise. The latter was due to participants' expectations of ploughing and implementation support, which was not voiced until after inputs were delivered and the whole process planned.

Even though participation in Cornfields has been solid, little progress has been made- with very poor germination and growth in the trials.

With the present vagaries in climatic conditions, any implementation of a production support process is constrained and the risk of failed harvests, especially in the more marginal smallholder

production areas is substantially increased. Climate variability in dryland cropping systems is becoming a major risk factor in production support processes.

The model for awareness raising and expansion of CA into new areas where smallholders produce maize is solid and works well but it may take time to create traction for CA in newer areas, especially if maize production potential is not that great to start with. Positive results from using CA in difficult climatic conditions and in conditions of poor soil fertility and soil health take a few years (3-5 years). Smallholders however expect positive results in the short term and are not motivated to continue with the new ideas if these results are not forthcoming.

Suggestions/ potential solutions

- MDF has employed more field staff to increase capacity and is also now working with 3-4 interns in a continuous basis.
- Areas brought on board where no progress can be made over a period of 2 seasons will be discontinued – as is the plan for Mpholweni and potentially also Cornfields.
- There may be a need to separate the expansion and awareness raising aspects of this programme to an extent from the research aspects-
 - Further funding is required for the expansion, both in terms of resources for the inputs required for the farmer experimentation and the required logistical capacity to service many different areas
 - Research requires greater focus, time and technical expertise than some of the fieldworkers have and specific staff may need to be employed for this. Instrumentation and analysis is generally too expensive to fall within the present budgets
- Bringing other potential donors on board is important both for the research and the expansion as is the initiation of smaller, dedicated research projects within this process.
- Opportunities exist to work within the realm of climate change adaptation and payment for ecosystem services schemes, but this aspect is complex and will require focussed attention.
- Partnerships with government departments such as Agriculture, Rural Development, Environment and Economic Development are important.