

APPENDIX 3: EASTERN CAPE AND SOUTHERN KZN PROGRESS REPORT

CA Farmer Innovation Programme for
smallholders.

Period: October 2017 - February 2018

**Farmer Centred Innovation in Conservation Agriculture in upper
catchment areas of the Drakensberg in the Eastern Cape and
Southern KZN regions of KwaZulu-Natal**



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Identification of the project

Description and selection of study areas

Matatiele has remained an area of focus for the programme, albeit with a smaller group of participants and working in fewer localities (Nkau, Mqhobi, Sehutlong and Khutsong) primarily managed by the local facilitator, Bulelwa Dzingwa.

Expansion into Southern KZN has been successful and there has been expansion into 5 new villages (Ngongonini, Plain Hill, St Elois, Emazabekweni, Plasistat). The good relationships with stakeholders in the Ubuhlebezwe and Ingwe Local Municipalities and with KwaNalu (The KwaZulu-Natal Agricultural Union) have been extremely helpful in this regard.

Approach and Methodology

The farmer-centred innovation systems (IS) 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 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 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 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 season,
- b) Conscious inclusion of crop rotation to compare with intercropping 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 2018

Implementation has continued in three areas (Matatiele, Creighton, and Ixopo) in 13 villages. 5 new villages were brought on board this season. 2 Village savings and loan associations (VSLAs) have been started; one in Madzikane and one in Nokweja. The stakeholder forum in Madzikane has been continued and two farmers days have been held; one in Madzikane and one in Springvalley in association with Landcare (DARD), a co-funder for this season.

The budget set aside for the 1st six month period, according to the overall work plan is R350 798. Actual expenditure for the last five months has been R284 859. The overall programme is on track and the budget is deemed sufficient for completion on target in September 2018.

Results achieved to date

Learning groups have been set up in each village and have had regular meetings. Training/learning workshops have been conducted for the following topics:

- How to implement CA; introduction to the principles, soil fertility issues, 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.

Local facilitators have been chosen by their groups for 5 villages (Nkau, Nokweja, Madzikane, Ofafa, and Springvalley). These facilitators have assisted with trial planting and monitoring in their areas and will be instrumental in arranging cross visits and farmers' days.

Stakeholder engagement and awareness raising have included the following:

1. Participation in the Ubuhlebezwe LM LED forum and agricultural committee for inclusion of CA and farmer centres onto the economic development agenda in the Harry Gwala DM. A number of meetings were attended and two presentations have been given at these forums.
2. Participation in the CA working group set up through the Grain SA CA facilitator and provision of thematic input on progress and soil health (Mazwi Dlamini).
3. CA planting and dmeosntraiton day in Nokweja (December 2017) in collaboration with DARD and Grain SA FDP
4. 2 farmer days including Government (ADA, DARD, Municipality) and NGO (lima-RDF, PACSA) stakeholders; Madzikane (Dec 2017), and Springvalley (Feb 2018).

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"> - Manuals and learning materials) - Sharing of information through innovation platforms processes - Articles and promotional material 	<ul style="list-style-type: none"> -Use of Grain SA promotional videos, Pp presentations, CA manuals and learning handouts in events and meetings - Participation in Ubuhlebezwe LM agricultural forum, Madzikane and Springvley farmers' days (100% completion) - 3 articles for the Grain SA newsletter; incl a case study for Mr Xaba (Madzikane) (60% completion)
	Interim and Final report	- 6 monthly interim report	- Interim report finalised. Final report at end of project (50% completion)
Objectives	Key activities	Summary of progress	% completion and comment
2. Increase the sustainability and efficiency of CA systems	1 st level experimentation:- use their own practice as a control – size 400m ² ha exp, Control.	- 9 villages, 59 farmers	- 50%. Basic CA design- intercropping with maize beans and cowpeas on a 100m ² - 400m ² plot, with a control plot managed entirely by the participant. Adaptation trials included late season planting of beans with a mixture of winter and summer cover crops.
	2 nd level experimentation: g farmers use their own practice as a control – size: size 400m ² ha exp, 400m ²	- 8 villages, 30 farmers	- 50%. Adaptation trials included late season planting of beans with a mixture of winter and summer cover crops. Most participants opted to continue with intercropping practice from their 1 st year.

	3 rd level experimentation; own contribution, larger plots, own	- 3 villages, 4 farmers	- 50%. Larger level plantings using oxen drawn planters and including cover crops of own choice such as Lucerne. Intercropping still practised. Awa crop rotation and summer and winter cover crops.
	Develop and manage PM&E framework; – weekly and monthly M&E visits	- M&E forms redesigned and used - Digital monitoring system piloted	- 45%. Planting and growth monitoring still to be completed for some areas. Yearly review process to be conducted
	Facilitation of innovation platforms	- Co- facilitation of information sharing and action planning with stakeholders and role players	- 80%. Continuation with stakeholder meetings and events. Start interaction with Umzumbe LM, for expansion linked to Landcare programme (DARD)
	CA working group, and reference group	-Planned for Aug 2018	-
	Sharing of information using a range of innovation platforms	- Presentation at UWC postgraduate student symposium for PLAAS	- 55%

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	4	3
Number of villages active	13	13
No of 1 st level farmer experiments	48	59
No of 2 nd level farmer experiments	17	30
No of 3 rd level experiments	3	4
No of local facilitators	5	5
No of direct beneficiaries	114	102
Participatory monitoring and evaluation process (farmer level)	Yes	Yes
Soil health samples	27	9
Soil samples	36	22
CA manual (English and Zulu)	Yes	CA manual English – yes CA manual Zulu-yes

Initiation of learning groups in Southern KZN has been going very well and CA has been introduced in 9 villages with a total of 56 new trial participants. 46 Participants including both SKZN and Matatiele are continuing into their 2nd and 3rd years of CA experimentation

The table below summarises the planned and actual farmer trial implementation for the 2016-2017 planting season. A total of 102 trial participants volunteered through the planning

processes across 13 villages in three areas. Ninety three (93) of these farmers planted trials (around 91% of participants). The season was quite dry to start with and a number of participants had patchy germination as a result, especially in Matatiele.

Initial results in the Creighton area (Madzikane) as well as the other SKZN sites around Ixopo are very promising and crops have shown good germination and growth.

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

Area	Village	Farmers selected	Farmers planted (1 st level)	Farmers planted (2 nd level)	Farmers planted (3 rd level)	Experimentation	Comments; incl planters used.
Matatiele	Sehutlong	3		1	2	Summer cover crops, crop rotation, OPVs, winter cover crops, intercropping	Bulelwa Dzingwa – local facilitator for Nkau, Mghobi and Sehutlong. She has continued to amange the CA experimentation in Matatiele- but has a much smaller group of participants this season
	Nkau	2		1	1	Summer cover crops, crop rotation, OPVs, winter cover crops, intercropping	
	Mghobi	2		2		Intercropping – new village and group	
	Khutsong	1			1	Summer cover crops, crop rotation, OPVs, winter cover crops, intercropping	
Creighton	Madzikane Farmers Association	10	2	8		Intercropping (beans and cowpeas), late season beans and cover crops	Partnership KwaNalu. GM control plots, trials for PANNAR. Local facilitator: Mr CD Xaba
Ixopo	Ofafa	8		8		Intercropping, summer and winter cover crops,	Local facilitator; Mr Ndlovu. Area is hilly and steep with variable to bad soils
	Springvalley	6		6		Intercropping, summer and winter cover crops,	Local Facilitator; Mr B Dlamini. Local homestead based fields. Area is hilly nad steep with variable soils
	Plasistat	12	12			Intercropping, summer and winter cover crops,	Local facilitator The beginnings of a farmer centre. Here there are larger fields- need for a tractor drawn planter.

	Nokweja	4		4		Intercropping, summer and winter cover crops,	Local facilitator, Mr Mkhize. They are also working in larger fields with DARD and grains FDP
	St Elois	12	12			Intercropping, summer and winter cover crops,	Expansion area from Nokweja supported by Mr Mkhize the LF
	PlainHill	13	13			Intercropping, summer and winter cover crops,	Expansion area from Nokweja supported by Mr Mkhize the LF
	Ngongoni	13	13			Intercropping, summer and winter cover crops,	Expansion area from Nokweja supported by Mr Mkhize the LF
TOTAL	13	93	59	30	4		Total area planted to trials~ 3,58 ha

Overall trial design 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 model)
- Mixture of basin and row planting models
- Use of no-till planters (hand held and animal drawn)
- Use of micro-dosing of fertilizers based on a generic recommendation from local soil samples
- Herbicides sprayed before or at planting
- Decis Forte used at planting and top dressing stage for cutworm and stalk borer
- Planting of cover crops; winter mix in Autumn

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 layout 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.

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 inter cropping 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 and weeds. Dual Gold at planting (or just after planting 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

Soil health

Soil health tests have been conducted for a small number of participants between 2015-2017 (4) and for 7 participants in total during that period across three villages in Matatiele.

The soils in and around Matatiele are generally not good, being sandy and infertile and in addition weather conditions in this mountainous region can be harsh with long dry spells and severe storms and hail. The implementation of the CA trials in this area has shown some positive results, but not nearly as coherently as for the Bergville region for example.

The soil health scores and some of the indicators were compared across the three seasons for the CA trial plots to see whether any trends are visible for improvement of soil health for the CA participants. The results are summarised in the figure below.

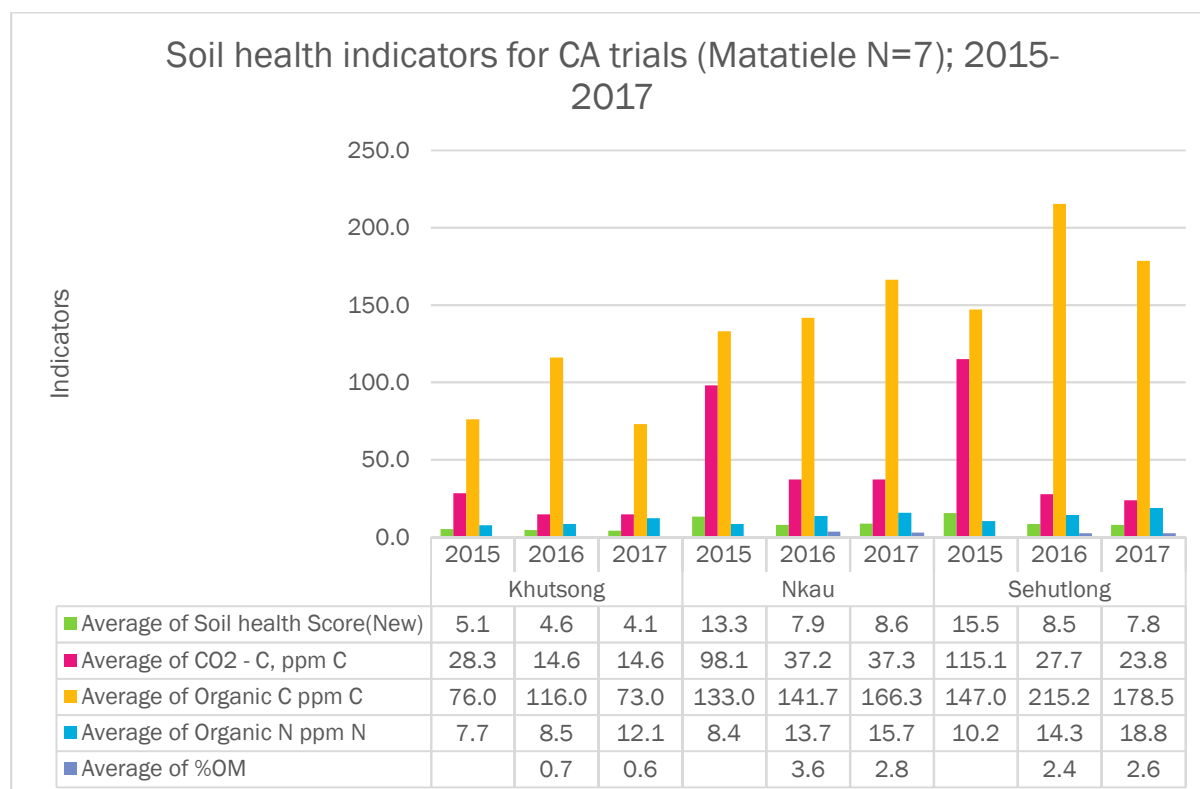


Figure 2 Soil health indicators for 7 participants' trials (Matatiele); 2015-2017

Observations from the figure include:

- For all three villages the organic N has increased each year.
- For Nkai there is an upward trend for the soil health indicators year on year; which means there has been some accumulation of Organic C and Organic N in the soils.
- Microbial activity in the soils (estimated from the Solvita tests) and mirrored in the soil health scores has been a lot more variable. For the 2015 season, which had good rains, the scores are comparatively high. They drop markedly for the 2016 season, a drought year, but only increased again in 2017 (late rains, with extreme heat) for Nkai.
- The average % organic matter in the soil has decreased slightly for all three villages over the three seasons.

Although the CA trials have outperformed conventional tillage plots in terms of growth and yield, the effects on soil health are still quite variable. There is a definite trend for increase in Organic carbon and nitrogen in the soil, both indicators for increased soil health, but extremely low organic matter in some of the soils (Khutsong) and decreasing organic matter in the other two villages (Nkai and Sehutlong) is a matter of concern.

An analysis was then done to compare the different cropping practices in the trials (intercropping, mulching and cover crops) for the Nkai village for the three seasons (2015-2107), to ascertain which of the practices tried out have the greatest potential to increase the soil health for these participants.

The results are shown in the figure below

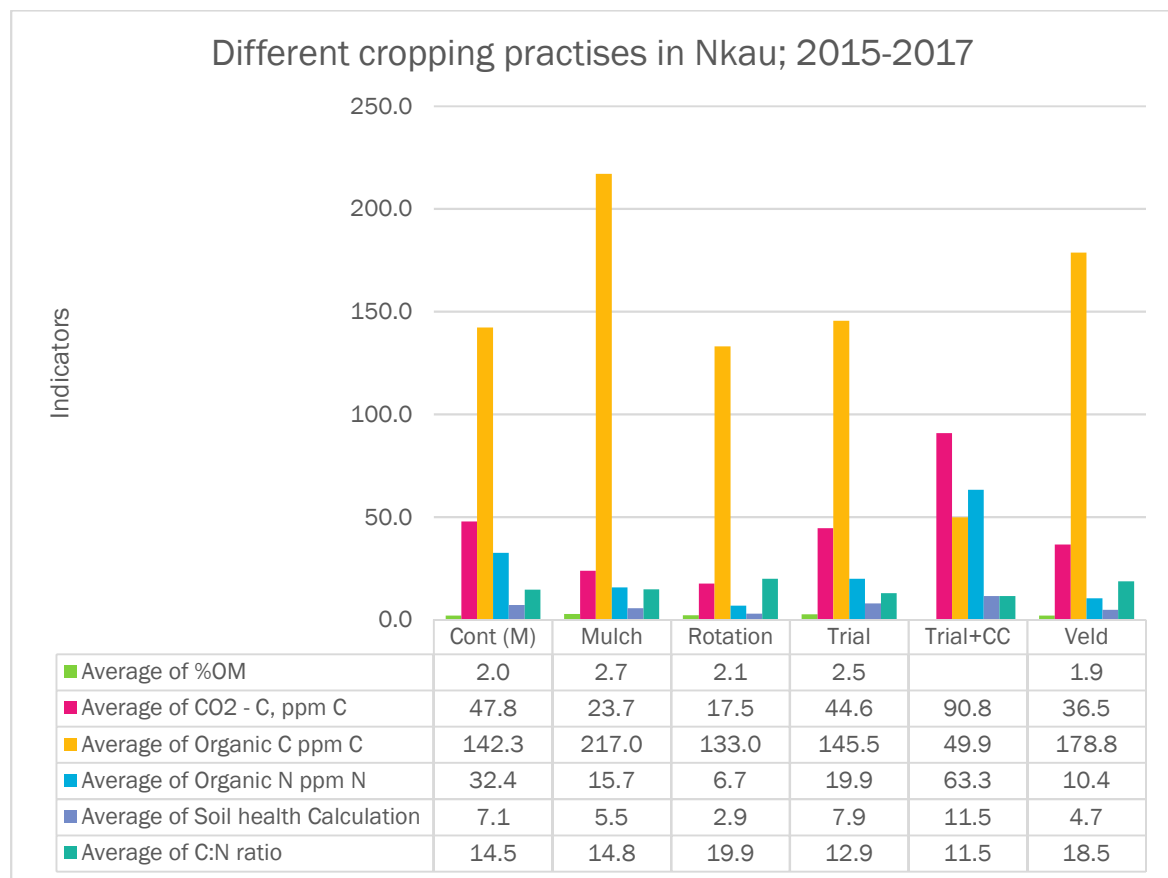


Figure 3: Soil health indicators for different trial cropping practices in Nkai (Matatiele); 2015-2017

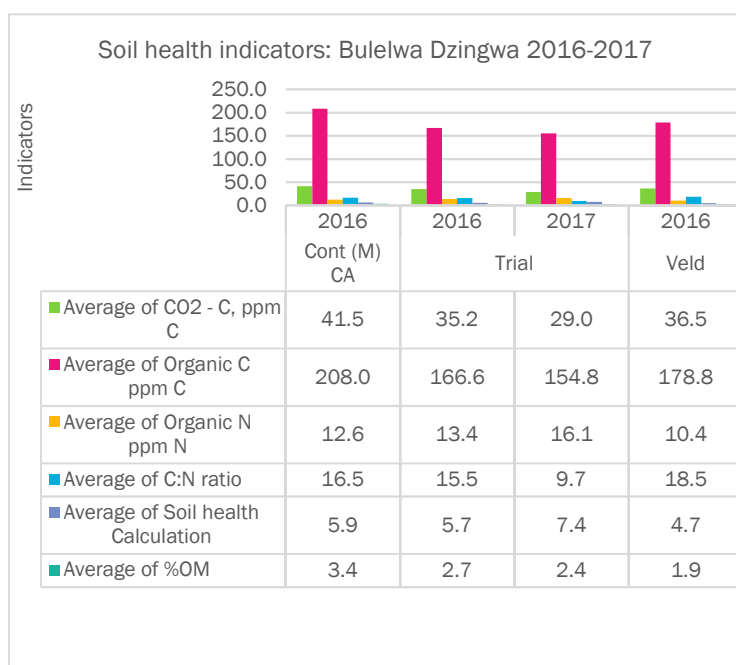
The following observations can be made from the figure above:

(All trails in Nkau are intercropped plots of maize and beans and maize and cowpeas)

- Soil health indicators for the veld in this area are low; giving a clear indication of the low potential of these soils in general.
- Soil health scores for all cropping practices, except crop rotation provide for increased soil health compared to the veld.
- In Nkau the CA cropping practices (except crop rotation and mulching) have provided for increased microbial activity when compared to the veld samples.
- Mulching has provided for a substantial increase in Organic C
- Use of Cover crops with the trials have provided for the highest accumulation of Organic N and the lowest C:N ratio and thus the highest soil health score. This practice is clearly the most beneficial in this area in terms of soil health

In conclusion, it can be said that only with intensive use of mixtures of cover crops can the soil health in this area be significantly improved.

Three individuals have been involved in the CA trials for 3 seasons.



For Bulelwa Dzingwa from Nkau (Figure on the left) the effect of intercropping trials on soil health indicators can be clearly seen when comparing her mono-cropped Maize CA control plot with her trials.

- The C:N ratio of the intercropped plots are lower than the control and decrease over time, along with an increase in Organic N in the soil.
- The soil health scores are higher for the trial (intercropped plots), than the mono-cropped CA plots after a period of three years of implementation. This indicates the systematic increase in soil health for intercropping.

Figure 4: Soil health indicators; Bulelwa Dzingwa (Nkau)

Bulelwa is likely to be able to increase her soil health substantially with a coherent inclusion of cover crops in her system

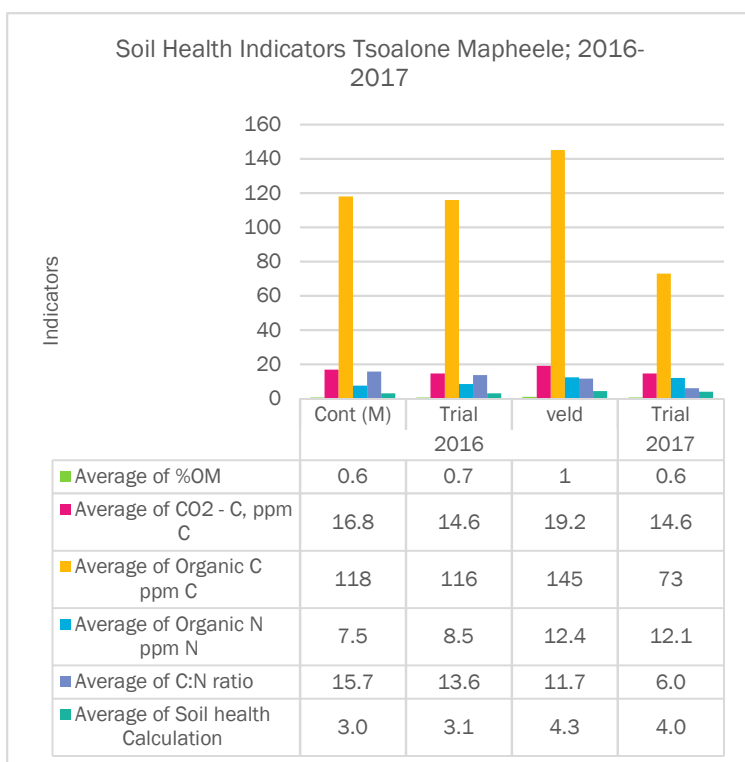


Figure 5: Soil health indicators for Tsoalane Mapheele (Khutsong)

A Lucerne plot established in 2016 did well until supplementary irrigation was no longer possible and has now died back to some extent. He will continue to include cover crops, but until soil residues are also left on the soil for increased organic matter, progress is likely to remain slow.

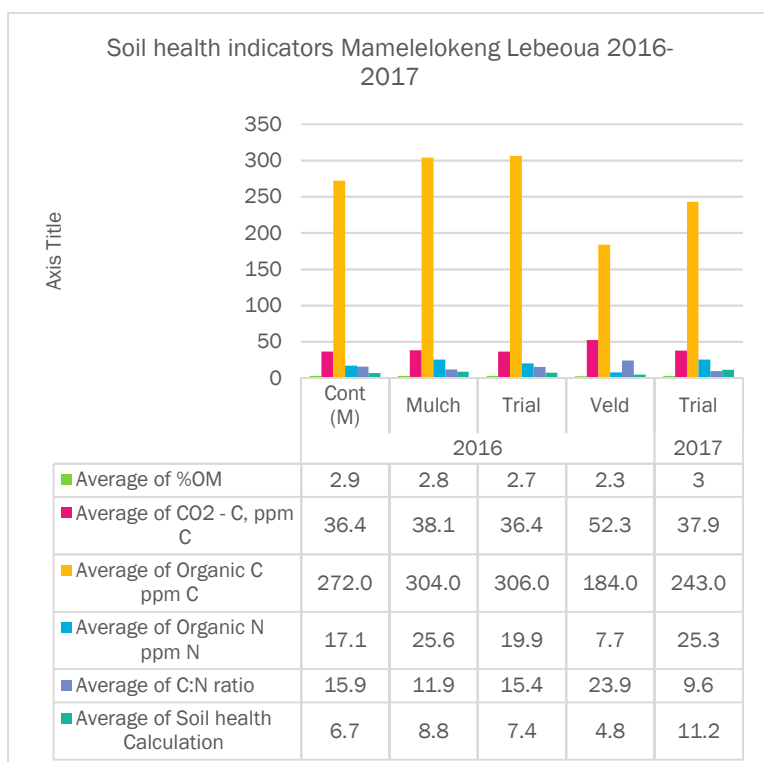


Figure 6: Soil health indicators for Mamolelekeng Lebeoua (Sehutlong)

For Tsoalane Mapheele in Khutsong there is a similar reduction in C:N ratio and increase in organic N in his intercropped trial plots as compared to his Maize only control plot, indicating an increase in soil health. Soil health scores for the trial plots are higher than the control plots, but still below average given the extremely sandy and infertile soils he is working on.

He has attempted a number of versions of including cover crops in his system, but has been unable to reap the benefits of these for the most part due to lack of germination and growth.

Soil health indicators for Mamolelekeng Lebeoua from Mamolelekeng Lebeoua from Sehutlong also show the same trend where the intercropped trial plots start to outperform the single cropped maize plots after a period of 3 years of implementation, with increased organic N, lower C:N ratios and higher soil health scores.

For her fields, the inclusion of mulching in one of her trials provided for more Organic C and the highest microbial activity. It would appear that mulching is most beneficial when there is already some organic matter in the soil and in her case provides for added soil health benefits.

A closer look at the nutrient cycling of Nitrogen for the trials in Matatiele, for both the 2015/2016 and 2016/2017 seasons indicates a trend both of accumulation of long term release nitrogen in the soil as well as available organic nitrogen. This shows increase in soil health and fertility related to the cropping practices used in the CA trials. See the figure below for more detail.

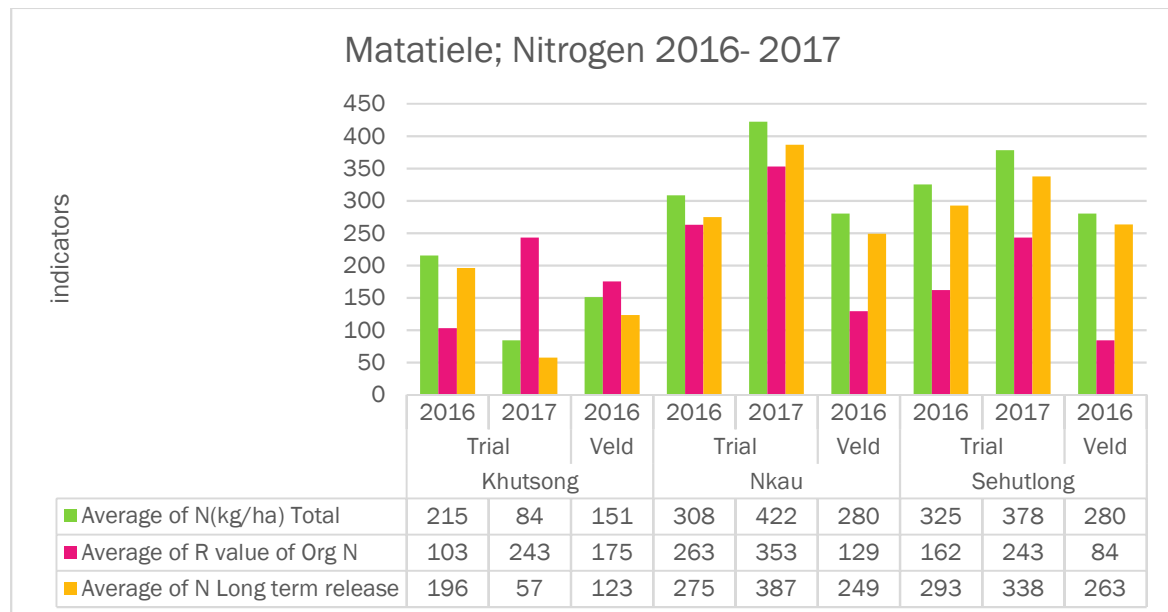


Figure 7: Nutrient cycling of Nitrogen in the Matatiele CA trials; 2016-2017

From the figure above the following observations can be made:

- The Rand (R) values of available nitrogen have increased from 2016 to 2017 and are substantially higher than the veld samples, on average around R150/ha. This shows that the implementation of the CA trials, with the intercropping and addition of cover crops for further diversity, is increasing the amount of Nitrogen that is available in the soil and the Rand value is an indication of both organic and inorganic N available, that can be saved in terms of addition for the next crop cycle. This amounts to savings of around 14 % of bought fertilizer.
- For both Nkai and Sehutlong there is also a substantial increase year on year of the long-term release N (kg/ha). This means that in addition to providing available Nitrogen for the following crop the CA cropping practices also build up organic nitrogen bound in the soil for longer term availability. This is a very strong indication of a positive process for soil health and soil fertility.

Progress per area of implementation

Introduction

2017 was a good year in the newly established sites. The MDF team are now working in nine villages, namely: Madzikane (Creighton), Springvalley, Nokweja, Ngongonini, Plainhill, St Elois, Ofafa, Plasistat and Emazabekweni, all around Ixopo town. The increased number of villages translates into more trials planted with second year participants now doing bigger plots through use of the two row planter from Edenequip.

Madzikane (Creighton)

This was our first season experimenting with the two row planter and participating farmers are convinced that this tractor drawn implement is the answer for bigger plots, reducing labour while still focussing on the three CA principles with the groups maintaining the intercropping practise (maize and beans). Mr Xaba and Mrs Shozi, both part of the farmers' association and the SFIP learning and savings group, were the first to plant using this implement in the area planting Sahara maize seed, Gadra beans and mixed brown cowpeas. Farmers secured a tractor, diesel and driver at their own costs as per the agreement.

Using the two-row planter is a faster, easier and accurate way of planting without tilling the soil. After loading in seed in compartments, gear number 6 was selected for maize and gear number 1 was used for planting legumes, the different gears accommodate for different spacing in row. Before starting the planting, the compartments were raised and the planting wheel turned to check whether the seed and fertilizer were dropping. The tractor then drove for a few metres and stopped to check if seed and fertilizer were deposited at the correct depth and intervals. After the first two rows, the tractor turned around with the wheels aligned in the centre of the first two rows to accommodate for the close spacing between bean rows.



Figure 8: Farmers checking the placement of seed and fertilizer by the two row planter, in Madzikane.

Simon Dlamini



Figure 9: Left, Simon Dlamini standing in his trial plot, right, Dlamini's maize zoomed in

Mr Simon Dlamini is a 59 year old family man who is staying at home and working on the land producing crops for household use as well as selling. He maintains an eight member household with five children, a *makoti* and his wife who comes home every weekend from work in Ixopo. Simon is in his second year in the CA process, a member of the KWANALU farmers' association and chairperson of the Masibambane saving group through the Mahlathini and Stract Act collaboration and is key in spreading CA in the Centocow expansion area.

He planted his 220m by 10m trial in the middle of November 2017, maize germinated and is still growing very well, beans germinated a lot better than the cowpeas; this was the case in other trials as well. Farmers were blessed to have early rains this year which saw good crop growth, inevitably weeds emerged as well and the first weeding was done on the 22nd of December 2017. This saw his crop grow well, developing a nice dense green colour and strong stalks. He has also sprayed kemprin as he spotted some stalk borer. The next activities for Mr Dlamini and the rest of the group are to top dress plots, as crops are now at knee height as well as the planting of cover crops. There are a total of ten participants in Dlamini's learning group. Below is a picture of Mrs Gambu's plot that also had poor germination of cow peas.



Figure 10: Mrs V Gambu's trial plot; Left- good maize and bean germination and reasonable growth. Right- lack of cowpea germination between the maize

Nokweja and extension areas (Ixopo)

In this area the original learning group consisting of a majority of older gentlemen was supported again. They undertook to work together better than last year, where they gave each other little support and their trials even less attention. This trend however was repeated this year, for the four gentlemen participating, except for Mr Mkhize, who is also the local facilitator for the area. In an attempt to circumvent their dominance in the group another learning group called Ngonini has been established, consisting of a majority of female participants.

Three further new learning groups were also established in extension areas of Nokweja, St Elois, Plainhill and Emazabekweni. All participants in these groups have planted and monitoring is slowly taking place. We are also to hold mid-season workshops with the groups with regards to weeds, maintenance, top dressing and the planting of cover crops. A joint farmer's day between the four villages will further spread CA and its awareness in the greater Ixopo area. The Ngongonini learning group was the first group to pay for input subsidises and most participants in the groups are willing to pay more towards subsidies as buying inputs at their normal retail prices is not affordable for those who rely on social grants and remittances as major income sources.

Ngongonini

The Ngongonini CA group is in its first year of planting CA and it was established after the group requested a meeting with MDF as they had heard about the programme and wished to learn more about it and participate in planting trials. The new group in Ngongonini consists of 10 members. Crop growth monitoring took place on 12 January 2018 and a total of thirteen (including old participants) CA trials were monitored. Some of the trials were performing well although in some households the maize was starting to turn yellow due to lack of Nitrogen. All participants planted

400 m² trials. Some of the challenges identified were late planting, overgrowth of weeds, incorrect spacing and uneven crop growth. Below is a summary of the main findings.

Mrs Mkhize

Mrs Mkhize's trial is performing poorly. There were large patches in between the maize and beans and the soil is pale in colour suggesting that it is probably leached and low in organic matter. The soil was also dry and mostly bare in between the plants with little residue cover. Crop growth was uneven and the maize at the centre of the field appeared to be performing the poorest. Beans were yellow green in colour and showed signs of heat stress. There were no cowpeas planted.



Figure 11: Mrs Mkhize's trial; indicating poor soil, lack of germination and poor growth



Figure 11: Mrs Mkhize's trial does not look promising; maize is light green, no bean/cowpeas visible in this plot

Mr. Mkhize

Mr Mkhize is in the second year of the CA programme. Although he and Mrs Mkhize planted in the same field, the trials are significantly different in appearance and his is doing far better in terms of crop growth, colour and quality. His trial was planted two weeks prior to Mrs Mkhize's trial which can explain some of the major differences between the two in terms of crop quality. The trial was planted closer to the household and germination was very good. He has already applied LAN to his maize which could also explain the darker green colour and good vegetative growth. The contrast between the two trials highlights the importance of planting at the correct time and good crop management.



Figure 12 Mr Mkhize's trial, he is planting for the second time using CA

Ntombifuthi Phungula

Ntombifuthi Phungula is a 51 year old lady who lives with four children. She works under the CPW program and is a first year participant for CA. She planted two maize and bean plots and one plot of maize and cow peas. Maize and beans were growing well on all three plots but were light green in colour. Germination was very good and no pests were identified. The field was ploughed in the previous season and she changed to no till as she wanted to see if it would yield better results.



Figure 13: Ms Phungula's trial

Plainhill

Plainhill is another new area in Nokweja that joined the Grain SA-SFIP programme in the 2018 growing season. The group is made up of 10 participants who are predominantly women. Plainhill farmers plant maize, beans, amadumbe, potatoes and they have vegetable gardens which are planted to cabbage, spinach, carrots, green pepper, chilies etc. Cow manure is used to fertilize the soil and occasionally fertilizer is also applied. Some farmers save seeds to plant in the following season and others purchase hybrid or GM seeds. Fields are cultivated through conventional planting and ploughing. Some farmers do sell their maize for R35/ 5l of de-cobbed maize. Maize is mainly for household consumption and it is also used as chicken feed. Traditional beer and homemade mealie bread are other products of their maize crop. There is no local mill in the community therefore the farmers do not mill their maize but purchase maize meal from supermarkets.

Planting in Plainhill took place at Mr Mbongwa's household. Spraying was done three days prior to planting, however, some of the weeds did not die and had to be sprayed again after planting. The trial layout is as follows:

M+B 10mx10m	M+C 10mx10m	M+B 10mx10m	M+C 10mx10m
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Crop growth monitoring took place on 02 February 2018 and the main highlights were that the trials were growing well. Planting in Plainhill was done in November which was in time for the summer rains and probably explains the better crop growth compared to neighbouring Nokweja. Challenges identified were excessive weed growth, leaves turning yellow in some trials and uneven crop growth on sloping fields. Below is a summary of the findings.

Mrs Fisani Ndlovu



Mrs Fisani Ndlovu resides with her husband in Plainhill. She was unavailable when the team went to monitor her trial. She has always been an active farmer, focusing on maize and vegetable crops. Her trial was performing well, with good germination in the maize and bean, maize and cowpea intercrop. Most of the crops were dark green in colour and appeared to be growing vigorously. However, crop growth varied across her field where the crops planted at the bottom part of the field appeared to be stunted and were light green in colour. She stated that this could be due to acidity. There were no signs of compaction or crusting and it was agreed that a soil test would best explain what was going on with the soil.

Figure 14: Mrs Fisani Ndlovu's maize and cowpeas showing good germination and growth



Figure 15: Maize is light green further down the field, beans had started to dry out

Mr Khoza

Mr Khoza is a pensioner who resides with his wife and grandchildren. His field was used for the planting demonstration, which was conducted on one plot and he proceeded to plant the rest. The germination was very good for both maize and beans, however he did not plant cow peas. The crops were yellow across the field due to excessive weed growth. Gramoxone was sprayed prior to planting, however it was ineffective in controlling nutsegde which sprouted again after planting. Also, the spacing between the maize and bean intercrop was too big which left ample room for weeds to grow as there was not enough canopy cover from the maize and beans to suppress them. Weed control in the first six to eight weeks is important in maize production as excessive weeds in these early stages can lead to up to 50% yield losses.



Figure 16: Mr Khoza's maize and beans have turned yellow-green

Mrs Sosibo

Mrs Sosibo who is a former teacher planted the 400 m² trial and sweet potato and also has a vegetable garden. She planted the maize and bean intercrop and then planted the cowpeas separately. She stated that she was not aware that the cowpeas also needed to be planted together with the maize. Yellow and black beetles had started eating the beans. The overall appearance of her trial was impressive.



Figure 17: Mrs Sosibo's maize and bean intercrop



Figure 18: Mrs Sosibo, planted cowpeas separately from the maize

Emazabekweni

The planting demonstration in Emazabekweni was conducted by Tema and Khethiwe and took place at Mr Dlamini's household (22/11/2017). Gramoxone was used to kill the weeds and was effective in killing most of the actively growing weeds. A demonstration on how to use the MBLI planter was also done, however the soil was hard in some portions of the field. His trial layout was as follows:

M+B 10mx10m	M+C 10mx10m	M+B 10mx10m	M+C 10mx10m
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Springvalley

This is a promising area in its second year of experimentation under the Ubuhlebezwe Local Municipality. The programme lost two participants from last year and now has 6 members; Sbonelo Zondi is now employed part-time, constructing the local school and his mother is too old to see to the plots, while Mr Sindane's ill health necessitated his withdrawal from the learning group. Regardless of this the group is still working well helping each other plant plots although a

few concerns have been shared by some participants with regards to late planting due to unavailability of people to help plant.

Bonginhlanhla Dlamini, the local facilitator, is quite instrumental in keeping the process going and keeps attracting people to his green plot in the hot sun. Mr Dlamini is a family man with children and sustains himself through growing his own crops within the Grain SA SFI program and growing and selling broilers locally through the Lima Rural Development's Jobs Fund program. He also grows potatoes from his back yard and sells locally at R30/bag; he has sold 18 bags thus far. He is one of the six people who planted this season and whose plot is looking quite good. This year he planted three plots of maize and bean intercrop and just one plot of maize and cowpea. However his cowpea is doing really well compared to beans. Cover crops were then planted using the Haraka in between the maize rows, however germination and growth was not great due to shading by the tall maize crops. A mixture of summer and winter cover crops was used. This is an issue for the rest of the participants in this learning group with regards to cover crops.



Figure 19 Cover crops being planted at BM Dlamini's plot using the Haraka planter

Dlamini's beans seem to be losing colour with yellow leaves underneath and whitish spots at the top, maize in that plot is not looking very good however there are no major weeds present. This appears to be an effect of the excessive heat and dry spell experienced during November-January 2018.

Of the six people who have planted four have planted cover crops using the Baraka and these are; Bonginhlanhla Dlamini (local facilitator), Mrs Bakhulumile Shozi, Mrs Leta Ngubo and Mzikayifani Sosibo. Cover crops were planted on the 23rd of January 2018 on all these plots. We couldn't plant cover at Mr Mfanyana Mkhize's and Diyo Dlamini's as their plots were infested with weeds. Participants promised to weed plots and then cover crops would be planted, however time is not

our side and it is quickly getting too late to put in the cover crop mix.



Figure 20: M Sobiso's trial plots showing maize and beans on the left and cowpeas intercropped with maize on the right.

This gentleman stays with his wife and two grandchildren, with old aged and child support grants as their main sources of income. Mr Sosibo grows most of his family's food -potatoes, maize, and beans and he also keeps traditional chickens. He grows to eat and sell some of it to help him source material for building his family a house. He is in his second year of experimentation and provides all the labour for his agricultural activities and is sure that CA is the way to go in growing crops especially with weather variations. From the picture above it is quite clear that the cow pea intercrop is doing a lot better.

Plasistat (Plaas Estate)



Figure 21 Mrs Shoba's trial plot

This is an extension area from Springvalley and the group is predominately women, Bonginhlanhla Dlamini from Springvalley has been helping the group of ladies with spraying and planting. We have a total of 15 participants and about 12 have been monitored, there are two who we are sure have not planted due to ill health. Four participants in the group have cover crops planted already in their plots and the remaining individuals need to weed before cover crops are planted. Above is Mrs Shoba's trial plot, she sits in the development committee in the local council

and has been very helpful in organizing farmers and setting up meetings. She was also part of the group that came to the Springvalley awareness day. Her plot is made up of sandy soils that are infested by kikuyu grass that was sprayed before planting but has since regrown and is competing with crops. She has manually weeded her plot before weed seed dried out and will plant cover crops in attempt to suppress weeds.

Mrs Shoba also noticed a few mistakes in the way they planted her trial specifically as they planted on their own without field staff after the demonstration. One major issue she picked up was the inconsistency with spacing between the maize rows. The group also couldn't keep basins in a zigzag form meaning not all rows are offset. Cowpea is no longer a common crop and to those who still remember it, not a preferred legume and many individuals in the group were reluctant to plant any. As a result, they have three plots of maize and bean intercrop and only one of maize and cowpea.

Mrs Mkhize

Mrs Mkhize who is unarguably the eldest in the group, she takes care of her grandchildren while her children look for employment. She has an approximate plot of 900m² in which she grows potatoes for household consumption, she has been struggling with growing maize faced with issues of fertility and poor yields. She became part of the program in the hope that things will change in time and realizes that this will take time and compliments the intercrop and micro dosing fertilizer.

She is however facing a tough time with *ngongoni* grass with deep strong roots dominating her plot but is however determined she will work it out of her plot in time. Mrs Mkhize planted her plots in three consecutive days as she couldn't put in all the required labour, she planted alone without help from the learning group as she realized she was pressed for time. Picture on the right below shows maize and bean intercrop growing really well as she planted it first, the other three plots are lagging behind. Cover crops were also planted at her plots with the Haraka planter and further monitoring is to take place.



Figure 22: Mrs Mkhize's trial plots planted on different days. On the right is the first plot she planted, which is growing well and doing better than her other three plots.

Mrs Shange

On a not so good note is Mrs Shange's plot below where maize seed germinated, but was eaten by crows. Mrs Shange had her control maize germinated already when we had the demonstration, but that was also destroyed by birds; she tried replanting in basins in weeds; picture below on the left.



Figure 23: Left, Mrs Shange standing in front of her control where she has replanted. Right, trial plot eaten out by birds and weed infested

Matatiele progress

Introduction

The Grain SA SFIP has been faced with challenges in this area with major issues being sandy soils and increased variability in rainfall patterns. It has proven quite a task trying to grow crops in loose sandy soils with poor to no organic matter with extended dry periods and sudden heavy rains where seed gets washed out. We have tried to incorporate mulch into the system but little has changed, CA's potential is limited by the more and more unpredictable weather patterns where it's hard to grow crops, which is compounded then by the lack of residue to feed back into the soil. As a result most participants have thrown in the towel now, they are not seeing the benefits of the system and have resorted back to minimum efforts of seed broadcasting and ploughing it in. They feel planting by hand is not worth the produce, which also made it a bit difficult to have any payments for input subsidies from these participants.

The planting and monitoring of trials in three villages – Nkau, Mqobi and Sehutlong is managed by the local facilitator there, Bulelwa Dzingwa, who has continued to be enthusiastic, despite the challenges.

Nkau

This is where we have the local facilitator who is also finding it hard to maintain good crop growth in her trial plots. In the 2016/2017 season we had a good year with rains coming in time and at somewhat favourable in intervals with regards to crops. As a result we managed to host a farmer's day with walkabouts in plots with tall maize and strong roots, climbing beans over maize and cover crops. This season however was a different story as we had unpredictable rains and longer dry periods. Farmers believed rains would come and planted anyway only to find their crops wilt and die in the soil. This is the area where we also had two participants: Mapontsho Ranqabang and Makemelo Nkejane drop out as they felt their efforts were fruitless. This year has been no

better if not worse, experimental plots in the area are looking exceptionally bad generally with very little hope for change.



Figure 24: Bulelwa Dzingwa's trial with poorly germinated crops and poor growth.

Sekhutlong

This neighbouring village has been facing the same problems struggling to grow anything in those impoverished soils. Matsepo Fufu's plot below, is characterized by low organic matter in the sandy soil and poor water holding capacity. Mulch was also introduced into the system and things seemed to change for the better but sourcing it is quite intensive and couldn't been seen through into this season. Maize germination was somewhat better and growth is promising, although the legumes did very badly and were out competed by weeds.



Figure 25: Matsepo Futtu's plot, with weeds having out competed bean growth. Maize is looking much more promising.

One farmer who has been getting good results ever since introduction of the programme is Mamolelekeng Lebueoa. Both germination and growth are very good with very little weeds growing in between the closely spaced crops. She has maize and bean intercropped plots as well as mono-cropped plots. Her crops were looking very good and soil moisture was high, when last visited. The kraal just above her trial has been the source of manure as she has been pumping

manure into the plots weeks before planting. Rains also washes nutrients down into the plots, further increasing fertility over and above the fertilizer applications.

With the dense growth of maize and beans, it has not been possible to do the relay cropping of cover crops in Mamolelekeng's plots.



Figure 26: Mamolelekeng's intercropped plots (left) and mono-cropped plots (right) both showing impressive growth..

Mqhobi

This is an extension area from both Nkau and Sekhutlong but progress in the area has been slow. People still believe ploughing is the way to go and poor results from the plots we planted in the 2016-2017 season didn't make things any better in generating interest from people in the locality. The 2017-2018 season proved to be even worse with poor germination and growth of crops due to high temperatures and lack of rains. When we visited the areas, soils were baking and starting to crack in the plots and there was no chance of cover crops making it either.

Farmers feel we have to find ways of collecting water in the plots as they are realizing the harsh realities of rain fed crop production. Below is Morena Khkhotho, a participant in the area who is now trying to pipe water from a nearby spring to water his vegetable and food crops. He realizes issues of fertility and sandy soils but maintains that without water he will starve, he has opted to start with water as his major issue and incorporating kraal manure into his plots. He grows to sell and sources vegetables outside his village as crop production is the primary source of income for him and his part time employed wife and their children.



Figure 27: Morena Khkhotho in his CA trial- with poor germination and growth

Khutsong

Simon Mapheelle is the only participant still in the programme in this area. He has been active for 4 years now and has been using an animal drawn planter on this larger field. Again, we have had a hard time growing crops in his shallow sandy soils with no organic matter. Relay cover crops



has made some difference to increasing soil health, but overall increasing soil fertility in his plots is a very slow process and increasing organic matter content has been even more difficult. Over the years beans have germinated and grown poorly. Soil in between the maize is left bare but there are no major weed issues. Mr Mapheelle will be top dressing and planting in cover crops in an effort to close bare patches and increasing diversity in his field.

Figure 28: Mr Mapheelle's CA plot. Beans have died off completely and maize growth is average at best. Bare soils, baking in the sun are a problem.

Conclusion

Working with soil in the Matatiele area still proves to be a huge task, soils need to be fed with organic matter and resultantly fertilizer alone cannot solve problems. Participants need to put in more effort in sourcing material and or dedicating plots for the growing of cover crops that will be rotated with food crops and need to be meticulous in this process in order to assess changes.

Stakeholder interaction- Innovation platforms

Madzikane 2nd annual stakeholder forum

Date: 12 December 2017

Venue: Madzikane Community Hall

Attendees: Thamoney Naidoo (Land Care), Gugu Hlongwane (Land Care), Vivian Ncwane (KZNDARD), Sibusiso Madiba (Farm Systems Research), Roy Dandala (KWANALU)

Program director: Roy Dandala

Apologies: Nqe Dlamini (StratAct)

Introduction

This was the second stakeholder forum held in the area. It is an annual event aimed at sharing information and experiences on Conservation Agriculture (CA) and bringing stakeholders together to better understand each other's programs and to identify platforms to collaborate in providing support to communities. This process is done collectively with farmers where they have room to share experiences with organizations, review support and provide recommendations for them to better understand their rural situation therefore provide better assistance. Furthermore these stakeholder forums are used as awareness days seeking to spread the CA message across to the wider public as a food production strategy to diversify livelihoods;

crops, livestock, small businesses; for the purposes of food security while conserving and sustaining the natural resource base. There was a total number of 32 people who attended, brief summaries of presentations from each stakeholder were recorded and summarized below.

Stakeholder presentations

1. Vivian Ncwane (KZNDARD)

Farming will always have a great role to play in food production for household use and for nutrition, more especially given the high unemployment rates in the country. From the small gardens people have there is the opportunity to grow more and buy less through the use of available land. Form a piece of land people use to grow a variety of crops including maize, potatoes, beans, imifino, pumpkins and so forth. However things have changed over time and monocrop has been in practice for quite some time, however, we realize that this system is limiting in terms of variety and inevitably nutrition. Moreover



it has negative impacts for the natural resource base as well. Therefore it is important that we marry traditional and modern farming to accommodate for variety, nutrition as well as soil and water conservation. Conservation agriculture has the potential to reduce labour and inputs while proving different kinds of foods e.g. dark leafy green vegetables, pumpkins and butternuts

Figure 29: Vivian Ncwane from KZN DARD addressing farmers

2. Thamoney Naidoo (LandCare)

Land Care is a body from the Department of Agriculture and Rural Development that is tasked with working at community level in making sure that natural resources are well looked after. Land has three main pillars namely; Community based projects, Junior Care Awareness as well as Conservation Agriculture. LandCare partners with both private and public institutions in spreading and experimenting with CA as one of their pillars, such collaborations reach more and more people in this way and helps the spread of CA as a sustainable food production system. LandCare has been involved in the Madzikane community and assisted with implements and inputs.

The majority of the partaking farmers are women of whom the majority reside in rural areas where there are fewer young people, as they migrate to urban areas to seek job opportunities. LandCare is still open to assisting farmers but to get to them they need to go via the local and district offices.

3. Sibusiso Madiba (Farm Systems Research)
FSR has been conducting a survey within the area of Madzikane where they are trying to assess tools people have in the area. This will help them to identify gaps in terms of machinery and tools still needed by local farmers to effectively engage in agricultural activities. FSR usually becomes involved if there are challenges within the communities- they are “need driven” with focuses on maize, dry beans, vegetables and livestock and provide inputs for research purposes.



Figure 30: Sibusiso Madiba from Farming Systems research (CEDARA), addressing the group

Comments

- The group from Nokweja are interested in participating
- Mr Xaba asked a question if there could be any other use for maize besides just planting - to sell as an ingredient for poultry feed for example.
- Ms Naidoo emphasised more on the possibility of FSR assisting farmers in planning how they could effectively make use of their land seasonally. Farmers grow crops for both consumption and selling, keep livestock as well hence field planning is important in making sure that all needs are met.

4. Roy Dandala (KWANALU)

KWANALU works together with agricultural Departments, NGOs, NPOs, Unions and speaks on behalf of farmers. Farmers organize themselves and form associations where they pay membership fees in the farmer union, opinions then link farmers with stakeholders and help them deal with challenges they may be facing. The union also provides information to farmers and brings outside stakeholders to assist as well. They have representatives on all KZN districts, there is a board that is serving in all districts and these individual influence agricultural policies in the name of farmers in unions.

Comments

- Visiting farmers were thankful as they were not aware of the union.
- Mr Xaba is thankful to all present stakeholders as all assistance is welcomed and appreciated and stresses that KWANALU aided in getting farmers organized and as a result, help from other organizations happens a lot better if they are in groups.

5. Temakholo Mathebula (MDF)

MDF works with smallholders experimenting with CA in the Bergville, Southern KZN, Midlands, and Eastern Cape areas. CA is based on three key principles; minimum soil disturbance, soil cover and diversity; and the work is done through collaborations and learning groups that experiment and learn together. From those learning groups information is shared with the greater public through awareness days such as this one, presentations at conferences, farmer's days, workshops and demonstrations. This helps in growing the number of farmer volunteers and reaching neighbouring communities. Inputs and implements cost money and farmers need to save together to buy them. Village Level Saving and Loan Associations (VLSA's) through Strategic Action; a partnering organization, are established to locally finance agriculture. Learning groups also form farmer centres; local centres providing inputs and information on CA; where groups make

profits and provide inputs in smaller quantities as most people cannot afford to buy inputs at normal retail prices.

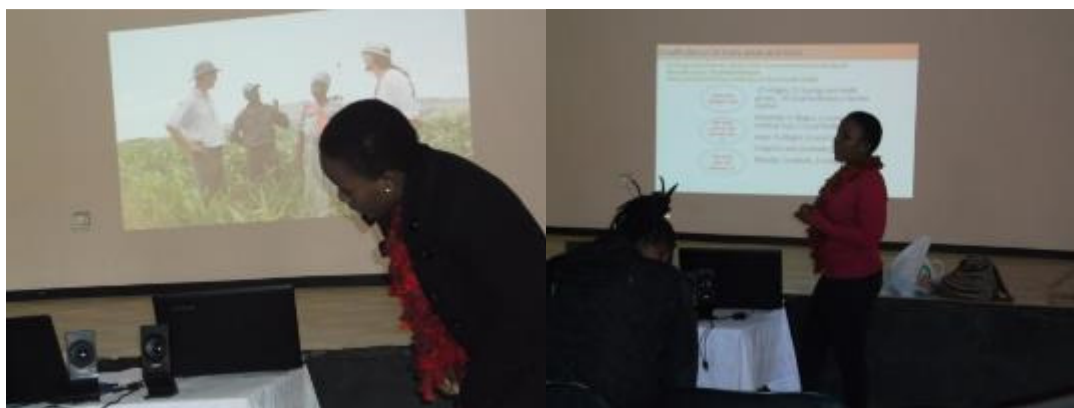


Figure 31: temakholo Mathebula presenting MDF work at the stakeholder forum

Open discussion

- Mr Mkhize from Nokweja pointed out that they need help in procuring inputs, specifically seed and fertilizer. More often than not, they are forced to plant late, planting seed they may not have wanted just because they cannot get it in time. They are willing to club together in groups, put monies down and bulk buy. Local bulk buying groups would make it easier for them to deal with transport constraints, small undesirable orders and timing. MDF will take the group on forming bulk buying groups for the coming season.
- Mrs Shozi raised an issue with regards to fencing; this is an issue in the community but not an issue where an external organization has power over. Organizations such as Land Care have provided fencing but it has been stolen and people continue to ask for fencing and donors are not supporting fencing anymore. The need for fencing is actually a result of loss of traditional control over livestock which is outside the jurisdiction of supporting bodies.
- Mr Xaba raised the point of issues with storage, they do not have storage facilities and are forced to sell produce at low prices or risk it rotting. Joint storage was introduced as an option but a lot did not warm up to the idea stressing that issues of quality control, dryness and administration of the storage will be an issue. For those reasons farmers would rather store maize individually; however this is expensive and not all farmers are affording. Mr Dandala rose and mentioned that quality control workshops may be provided for the group, which is a possibility, but then this will kick out farmers who are finding their way with CA and still growing.

Summary help received and issue needing attention:

Help received (info, contacts 'stuff')	Help still in need
MDF conservation agriculture trials	Assistance with planting bigger plots and farmers willing to pay Establishing bulk buying groups
MDF two row planter	There is high demand for the two row planter
Farmer associations	Fencing

Knaptic planter from Land Care	Farmer's centre for locally available inputs
	Storage facilities

Resolutions

1. Roy Dandala to champion and facilitate the meeting between stakeholders i.e. MDF, FSR, KWANALU regarding field crop planning for learning groups.
2. MDF to set up bulk buying groups in Nokweja as per Mr Mkhize's request
3. MDF to continue the idea of exploring with local feed rations for broilers and to include Mr Sbongiseni Gcumisa in the process.

Springvalley Land Care CA Awareness day, 21 February 2018

Introduction

This is an area with potential for project growth and in its second season. Although this was the first farmer's day in the area, it was a very successful with key stakeholders present such as LIMA, Dept. of Agriculture and Rural Development with apologies from the Agribusiness Development Agency and the local councillor who were already committed.

We were also visited by the Umzumbe agricultural office who had a few farmers keen on CA. Land Care will be rolling out a CA initiative in the area and MDF can assist there with the implementation. Nqe Dlamini from Strat Act; a collaborative partner in micro finance; was directing the day. We also had a taxi load from Plaas Estate as well as villagers from KoShange and Thandabantu who had have heard of this work and wanted to witness.

After introductions of stakeholders, the purpose of the day was explained, which was to share between stakeholders what we do and how we can put concerted efforts in proving better service to farmers, ore especially with farmers present so constructive dialogue would be facilitated. People also got to know what roles the different organizations play and how they could make use of such organizations. Moreover, it was a platform to create a space for sharing ideas and knowledge and painting a picture of co-operation.



Figure 32: Mazwi Dlamini describing the CA planting process to the farmers attending the open day (left). Around 120 participants attended (right)

Stakeholder presentations:

LandCare - Gugu Hlongwane



Ms. Gugu Hlongwane, gave a brief explanation of what the LandCare Unit does and its three pillars namely awareness, school programme, CWP. She described their involvement in CA as a body that is tasked with spreading CA also working with other stakeholders inclusive of NGO's, farmers associations and so on. This has been going since the year 2015 and is still on the table and supporting other municipalities and organized groups of farmers expand production through CA. They mainly offer inputs and implements to

farmers in various areas in KZN and made emphasis on the impact made towards their livelihoods through the provision of inputs which gave them a head start in terms of production. However this is not a input provision scheme but a research process where inputs are offered to buffer associated costs.

Lima Rural Development -Thembellhle Mkhize



Ms Mkhize explained Lima as an NGO established in 1989 and working in 7 provinces with various programmes whose objective are on food security and job creation. The various programmes include construction, farmer development and support and early childhood development programmes. Lima is supported by the municipality as well as the Jobs Fund. The flagship programme is called Abalimi Phambili which supports smallholder farmers with training, registration on the Lima database and provision of start-up capital as revolving credit/loans. The farmers supported are visited on a regular basis to monitor their progress in

terms of production and support in market access, as well as with input procurement. In the Ubuhlebezwe Municipality Lima is mainly focused on Farmer Development Programme.

Department of Agriculture-Ixopo - Mr Sanele Gasa

Mr Gasa is an agricultural advisor based in Ixopo at the Department of Agriculture and Rural Development and is the extension officer for Springvalley. The primary focus is on rural development, i.e. support of smallholder farmers to improve their livelihoods. The Department has challenges with funding which limits the amount of support that can be provided to communities. One program that is currently running is the Food and Nutrition Security programme which places emphasis on household food security through the planting of household gardens. Inputs such as vegetable seeds are provided by the local office to communities. Farmers need to submit requests for inputs to the War Room, which is a platform for farmers to express which challenges they face and the assistance required from the department. A new programme, “one home, one hectare” was established in order to support farmers with a fields of one ha with inputs and fencing. The focus of this programme goes beyond food security but also includes selling surplus to increase household income. Support through this programme is also provided through the war room. Changes in leadership means changes every time the administration changes thus limit program impacts through both time and funds



Mahlathini Development Foundation- Mr. Mazwi Dlamini

Mahlathini Development Foundation is an organisation supported by Grain SA to implement conservation agriculture in smallholder farming systems. Soil erosion is one of the major challenges in crop production systems as it has resulted in poor quality soils which negatively impacts final crop yield. Conservation Agriculture (CA) is an approach to improve soil health through minimum soil disturbance, permanent crop cover and crop diversification. The three aforementioned principles contribute towards mitigating the effects of erratic weather conditions such as flash floods and heavy winds which lead to soil erosion. Permanent soil cover increases SOM and thus the water holding capacity of the soil, which allows water and nutrients to be absorbed by plants. Chemicals are used prior to planting to kill actively growing weeds. The different planters used in manual planting include the MBLI planter, hand hoe and harraca planter and are considerably reduce labour, there are also different types of animal drawn planters, which open lines, drop seed and fertiliser. More advanced planters which are tractor drawn include the two-row/ multi row planters which allow large fields to be planted using minimum labour. CA is implemented through the establishment of learning groups or groups where knowledge is shared and disseminated through farmers days, awareness days and cross visits. The programme is implemented over a three year period, beginning with a predefined first year where farmers plant the same trials of maize/beans and maize and cowpeas, as time progresses cover crops are introduced and in the third year farmers come up with their own design. Farmers need to save together to fund their agricultural activities, Village Local Savings groups are community savings groups established to promote saving towards inputs. These groups have had a significant impact in the lives of smallholder farmers as they are also important in providing for household needs, i.e. during the year farmers take small loans not only to purchase inputs but also to purchase

household goods and pay school fees amongst others. Primary challenges in CA include lack of storage facilities, high inputs costs, and lack of maize mills, climate change and aging rural communities. Granted, challenges will always be there, CA is one of the strategies to try and minimise the impact of shocks and stresses on local farmers' production systems.

Springvalley learning group-Mrs Ngubo

Local farmers in Springvalley are in their second year of planting CA trials, using hand hoes intercropping maize and beans/cowpeas which is mainly for household consumption. The process is labour intensive but working in groups reduces labour costs and work is done a lot quicker although there are delays in planting times. We have been supported with inputs for experimentation and we are seeing increases in quantity and quality of food we produce. Lima has also assisted with sourcing potato seed and rearing broilers for local selling. The farmers grow field crops mainly for household consumption.

StratAct-Mr Nqe Dlamini

Rural communities have various strategies to save money and prepare for unforeseen events such as the death of a family member. These strategies come in the form of stokvels and burial societies which reserve available money for use at a later stage. Additionally, food stamps are bought at local supermarkets in order to buy groceries in bulk, mostly during the festive season. The shop owners take the money to buy additional stock and generate higher profits at the expense of the poor. A number of banks in South Africa were established using the African model of stokvels and the model still proves to be successful. Village Local Savings groups work on are share purchase and credit based approached. These groups promote wise and planned spending. The VLS groups are a counter approach to the loan shark businesses which issue loans at exorbitant interest rates, trapping people in an endless cycle of debt.

Walkabouts

Shortly after the presentations and a few questions, the crowd was divided into two groups for walkabouts. The one group went to see the CA plots by MDF while the one groups visited the poultry house where Lima works with the groups of farmers under the Jobs Fund program. The walkabout gave a chance for farmers to see what we talked about in the hall. Most farmers were quite interested in the closed spacing and the reasons behind those, they were also noticed the greener maize in the cowpea intercrop than the bean intercrop. A question on the nitrogen fixation of legumes came up and the crow was asking about the nodules, crops were taken out from the crow to show the nodules, there were more nodules on cow pea crop than beans which contributed to the difference in colour. For some farmers it was not easy to believe that crops before them were planted by hand, for a lot of people growing maize still translates to tilling the soil. Farmers could only stand out the fence looking in as there was very little space for them to walk in. A few minutes were spent talk on cover crops, why and how they are planted, visiting farmers appreciated the use of cover crops not only on their soil improvement attribute but also for as livestock feed and more often than not farmers grow crops, keep chickens and rear livestock in cattle, sheep and goats.



Conclusion

A lot of farmers are interested in exploring CA further and have requested meetings; a group of organized farmers have asked for a meeting on the 1st of March in an extension area to the already existing group in Springvalley. We will be meeting at their fields where they have crops growing there, they are keen on the oxen drawn CA planter.

Summary of issues and learnings from individual visits and monitoring

- Uptake of CA in Southern KZN has been a lot more promising than in the North-eastern parts of Eastern Cape.
- In Southern KZN there is a more definite distinction between larger cropping fields away from homesteads and homestead plots and fields. For the larger fields farmers are not prepared to work there unless some form of mechanisation is offered. Given also their inability to pay for inputs for these larger areas there is a high expectation of support for inputs.
- Both DARD and Grain SA- FDP provide mechanisation and input support for larger fields. Both organisations focus on GM varieties of maize and soy in these fields, although DARD also provides hybrid maize seed.
- The introduction of the two row tractor drawn planter has been well received in Madzikane and implementation is to be expanded to other SKN villages in the future
- The season has been somewhat difficult; resulting in heat stress in maize and yellowing and dying off of beans
- Partnerships are being forged with LandCare, DARD and the Local Municipalities, as well as the FDP of grains in implementation and awareness raising.
- Planting of summer and winter cover crop mixes as a relay crop in the intercropped plots is still only meeting with marginal success. The MDF team is to push harder for participants to take on rotational planting of cover crop plots

Problems encountered, milestones not achieved and reasons for that

There are a few larger conceptual issues that may need some consideration going into the future of this programme

1. This season the expansion into new villages has been very positive and milestones have been achieved according to the proposal submitted.
2. Monitoring of growth of trials is lagging behind slightly, but this is not considered a major problem as the monitoring will continue into March and April of this season.