Western Cape Government
Agriculture
BETTER TOGETHER.

Final Recycle Report: Departmental Research Farms 2017

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March 2018

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1. Background

In October 2013 the Western Cape Department of Agriculture (WCDoA) undertook to adopt a recycling system at all seven of its research farms[1]. This recycling project was a role out of the carbon footprint study that was conducted in 2011 by Ms. Helena Fourie. Since then, Ms. Leann Cloete-Beets and Ms. Vanessa Barends have continued to implement this project from 2013 until now.

The main objective of the recycle project was to ensure that all the Departmental research farms actively attempt to reduce their carbon footprint and by doing so serve as both models and supporters of sustainable farming practices.

The advantages of adopting a recycling system are:

- To assist in combating climate change.
- To assist in reducing the carbon footprint of the farm activities.
- To help improve resource efficiency on each farm.
- To enhance the reputation of the farms as supporters of sustainable farming practices by means of resource efficiency and waste minimisation.
- To reduce waste management cost and ensure that less waste is going to landfill.

This project aligned with the National Outcomes (NO) namely NO 10, which looks at protecting and enhancing environmental assets and natural resources, sub-outcomes 2 and 3 flow from NO10, which focusses on an effective climate change mitigation and adaption response and also an environmentally sustainable, low-carbon economy resulting from well-managed just transition. The study also aligns with the OneCape2040 vision, which looked at the ecological transition from unsustainable carbon-intensive resource use.

The study also slotted in with the National Development Plan (NDP), looking at chapter 5 (ensuring environmental sustainability and equitable transition to a low-carbon economy) and chapter 6 (integrated and inclusive rural economy). Lastly, it also links to the Western Cape Green Economy Strategic Framework for agri-production i.e. sustainable farming practices, balancing farming and conservation needs, resources efficiency and waste minimisation.

[1] Worcester Research farm, under the guidance of Ms. Jody (Farrell) Wentzel (LandCare), implemented a recycle system on the farm in 2012/13. The system was only implemented at the farm office.

The recycling project is coming to an end and this will be the last recycle report of the Department. The rest of the report will explain the reasoning behind the decision.

2. Role and responsibilities of the recycle manager

Recycle managers were appointed by the farm manager or were voted in by the people on the farm. These recycle managers could appoint a recycling team with the approval of the farm manager, to help and assist with competitions, activities, and events to keep the farm involved and motivated in the whole recycling process. The responsibilities of the recycle manager included the following: to facilitate the implementation of the system on the farm; ensure proper record-keeping of the system; provide regular feedback; assist farm managers with the system, and ensure that all recycled materials are delivered to their respective drop-off sites. The recycle managers were also responsible for submitting a monthly recycle report, with proof from the recycle company indicating the volumes recycled. The recycle managers were also requested to attend an annual, day and a half workshop in June each year.

3. Waste management system

The Departmental research farms were asked to not only incorporate the recycle system at the offices but also to try and extend it to the homes and Further Education and Training (FET) facilities on the respective premises. They were given a basic option, for example, to split the waste between recyclables and non-recyclables. The general system for office waste was a two bin system; one for recyclable waste and one for non-recyclables. Office waste mainly includes items such as paper and small amounts of glass, plastic and wet waste.

Each farm made small adjustments to their basic recycling system in order to better suit their farm's needs and the recycling company's standards. The Department then found recycling companies close to each research farm and gathered information on the type of waste that they do recycle. It was then up to the recycle manager and farm manager to decide which company they will use to supply these recyclables to. The recycle managers were also asked to conduct a waste audit to see how much waste comes from the homes and offices and also to group the waste into different categories, for example, plastic, glass, paper, tin, garden waste,

etc. This was also used to determine the type of system that the farm needed. The most common system chosen by the farms was a four-bin system that was placed at offices, as well as at the houses. The four-bin system was used by all the farms except Outeniqua (George) and these are given in Figures 1, 2 and 3 below. This bin system was used for paper, tin, glass, and plastic. Employees and residents were asked to rinse containers before placing them in bins.

Figure 1: Elsenburg's four-bin recycle system
Source: Vanessa Barends

Figure 2: Oudtshoorn's four-bin system in the residential area
Source: Vanessa Barends

Figure 3: Nortier's four-bin system
Source: Elzanne De Waal

The Outeniqua farm made use of a three-bin system; paper, wet waste (general waste) and dry waste (recyclables). Figure 4 below shows the recycle bins that were placed all around the farm.

Figure 4: Outeniqua's recycling bins
Source: Michelle Zeelie

Nortier, Langgewens, Tygerhoek, and Worcester utilises a common recycle collection point for household waste. Residents are supplied with plastic bags that they fill and once a week (depending on their consumption) deposits their waste in the relevant recycling bins.

Outeniqua research farm, on the other hand, does not sort the recyclable waste and mix bags get delivered to the recycling plant that collects the waste as is. George only makes use of a two-bin system, one for recyclable waste and one for non-recyclables.

Oudtshoorn had a donation of bins in 2013 and was able to supply each household with their own set of four recycle bins. Bins get emptied on a weekly basis.

Please note that household waste does not get collected from Elsenburg for recycling.

3.1 An outflow of the recycle project: Composting and gardening

Farm household waste included organic waste that was used by some farms as compost. Tygerhoek, for example, extended their four-bin system to a five-bin system that includes compost, see Figure 5.

Figure 5: Tygerhoek's bin system
Source: Leon Petersen

Tygerhoek research farm was also the first farm to start an organic vegetable garden in 2014 for the children living on the farm which can be seen in Figure 6 and 7. Nortier also started a vegetable garden to keep the children busy after school, so they also made their own compost.

Figure 6: Tygerhoek staff busy preparing the garden
Source: Leon Petersen

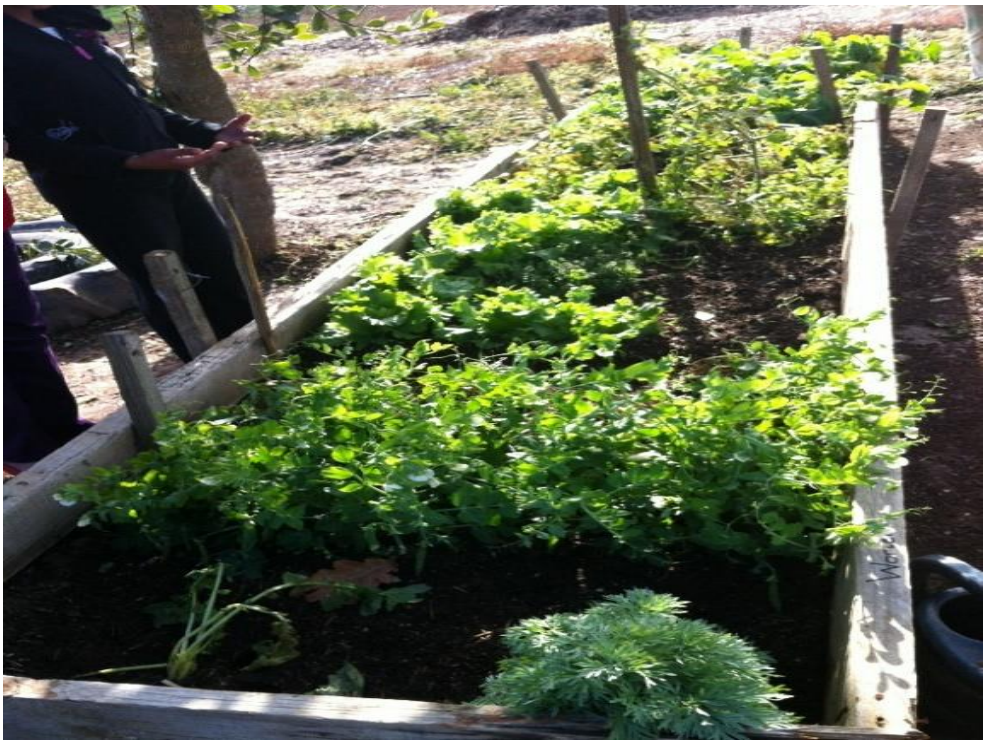

Figure 7: Tygerhoek organic vegetable garden
Source: Vanessa Barends

3.2 An outflow of the recycling project: Upcycling

The research farms had various events and competitions to keep the staff and residents interested in the recycling project. When the project was launched the upcycling of waste was the general feel of the recycling project. See Figures 8 to 12 below.

Figure 8: Langgewens: A chair from an old tyres
Source: Vanessa Barends

Figure 9: George Garden decorations
Source: Michelle Zeelie

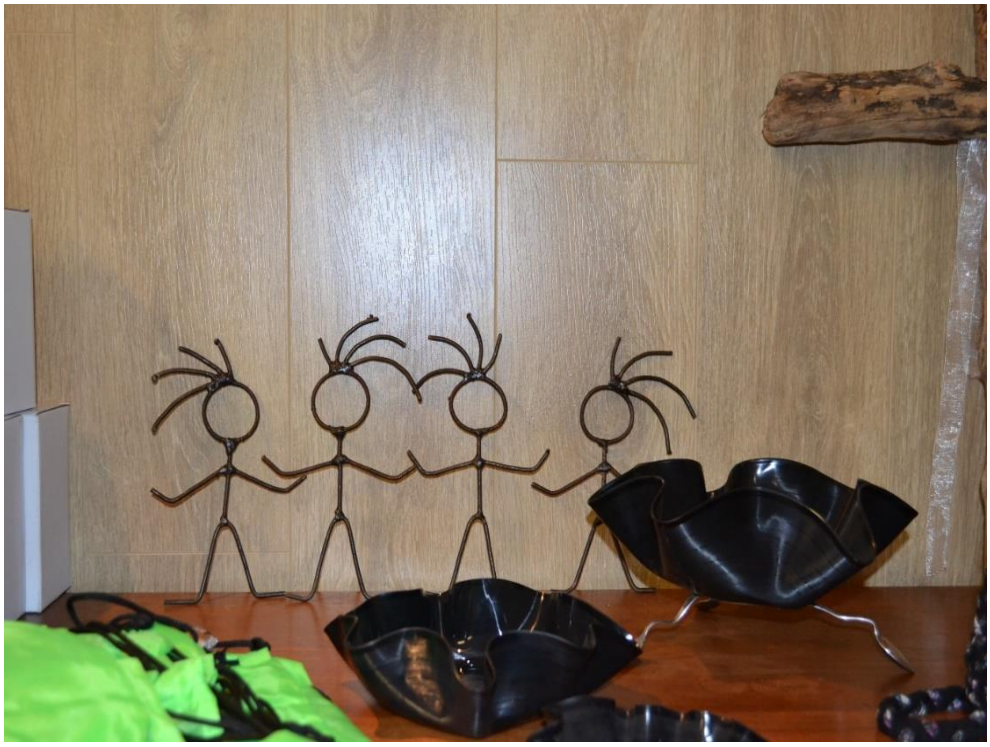

Figure 10: George Décor
Source: Michelle Zeelie

Figure 11: Oudtshoorn Mr. B Boois (Recycle Manager) wearing a jacket made out of recyclable material
Source: Ben Boois

Figure 12: George: House made from recyclable material
Source: Michelle Zeelie

Upcycling was also used so that the value of what is being thrown away could be seen. The hope was also that wives not working could start to make things from the waste and sell it to generate an additional income to add to their household income. In the beginning, the ladies were excited about these possibilities but unfortunately, their participation quickly faded due to various reasons.

3.3 An outflow of the recycling project: Saving electricity and water

The saving electricity and water campaigns were also linked to the recycling project and recycle managers were trained at one of their annual sessions on how to be an advocate for saving water and electricity. They were also given marketing material (posters and stickers) to promote this campaign. The realisation was that all our resource has to be looked after and therefore awareness creation about energy and water was done long before the water crisis.

3.4 An outflow of the recycling project: Skills transfer

The recycle managers that were chosen were amongst others mainly one of the farm foremen and general workers on the farm. In the process of initiating the recycling project, various skills were developed such as report writing, teamwork and dynamics, and the opportunity to give a presentation to the group. These activities have ensured skills transfers during the project to equip and train farm workers.

4. Competitions and events conducted throughout the lifespan of the project

The recycling project started with a launch, where everyone living and working on the farms were introduced to the concept of recycling and how the recycle system will work. Each farm had to plan their own launch and they could incorporate any elements that they wished too, provided that it did not need many financial resources. Most of the farms had a fashion show; an example of one is given in Figure 13. The children of the farms were asked to participate and to make outfits from recyclable materials and they were not allowed to buy anything. This encouraged participant to apply their minds and find innovative uses of used materials.

Other events that were hosted included a farm clean-up event with the kids and a Mandela day event.

Figure 13: Tygerhoek Launch
Source: Leon Petersen

From the Department's side, we had two major competitions where the farms were competing against each other. The Scarecrow competition was hosted in May 2015, whilst the Protecting our Planet competition took place in July 2016. Worcester research farm was the overall winner of the Scarecrow competition and Langgewens research farm the overall winner for the Protecting our Planet competition.

Figure 14: Worcester research farms' scarecrows
Source: Jannie Geyer

Figure 15: Langgewens' competition winner
Source: Rentie Strauss

The competitions and events worked really well until participants expected to get incentives every time that there were events. We tried to change the mind-set of people that the prize is not important but the conservation of the earth is. Looking after our environment and leaving a clean and healthy planet for our children and grandchildren should be part of our priority list. Unfortunately, not everyone automatically switched to that thought pattern and most still needed incentives to do their part. The prizes soon lost their "value" to participants because prizes were the same for every event. Budget constraints and Communications not having a budget for gifts anymore further contributed to a drop in participation.

5. Recycling statistics comparison between the Research farms

This section will now review and update the data from each farm's recycling project to get a sense of the performance and outputs since its launch in 2013/14. A few key observations can be made when looking at Figure 16, most notably the strong and continued growth in recycled materials from Oudtshoorn and Langgewens. In 2017, both of these had their highest recorded volumes recycled with 11.44 tons and 4.45 tons respectively, whilst Nortier also performed well over the implementation period even though it had a slight decrease in 2017.

The other farms had a much more irregular or even declining trend over the same period, for example, Tygerhoek and George. Both farms started the project off well but Tygerhoek especially has had declining volumes since 2014 and did not submit any reports for 2017. Worcester farm did not submit all 12 reports for 2016 and therefore the drop showed for the year 2016. Looking at Elsenburg, it shows an unusual increase for 2013/14. When zooming into the 2013/14 period, the monthly recycle records shows that huge amounts of white paper and old metal scrap were recycled.

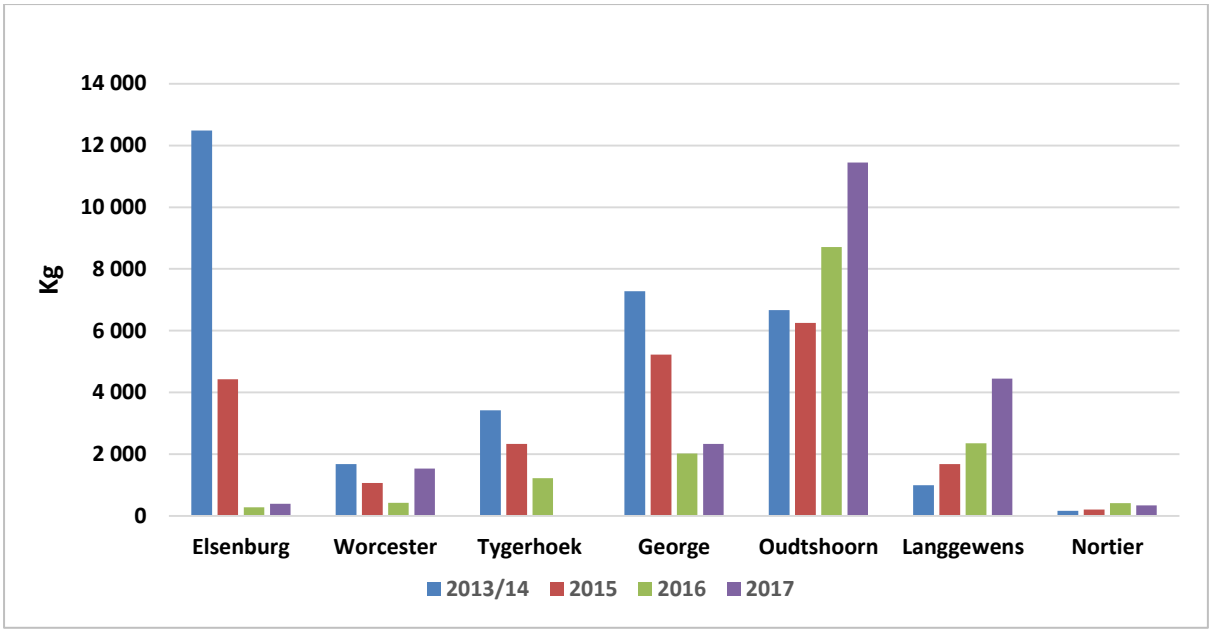

Figure 16: WCDOA Research Farms Recycling Statistics – Annually
Source: Own compilation

Figure 17 shows the average annual growth rate (blue columns) for the recycle project since its inception in 2013/14 until 2017. For this period an annual positive grow percentage for Oudtshoorn, Langgewens, Nortier, and Worcester can be seen. The other farms show an annual negative growth rate.

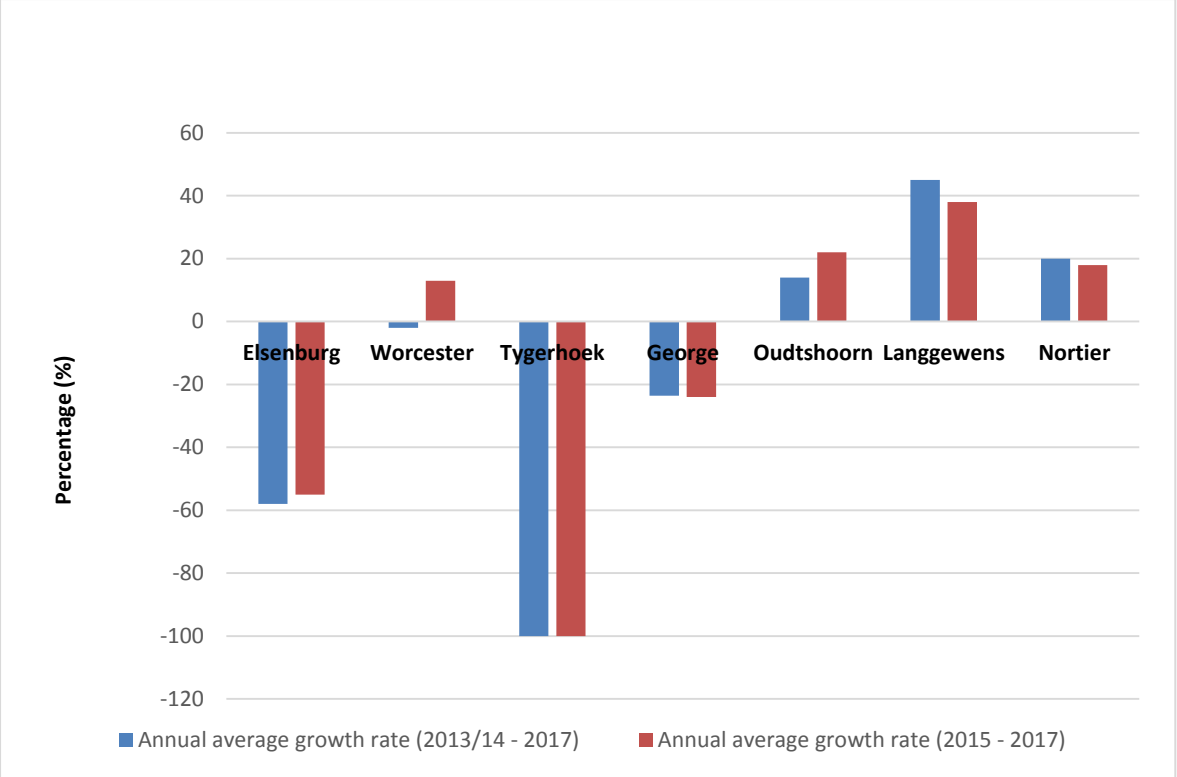

Figure 17: Average annual growth rate (2013/14 – 2017 & 2015 - 2017)
Source: Own compilation

In order to have a more accurate comparison, the 2013/14 period was excluded in Figure 17 as well. This is due to farms being given the option to decide for themselves when they want to launch the recycling project on their farms and some farms only starting to implement the project in late 2014. 2015 till 2017 information looks vastly different than the information presented for the 2013/14 to 2017 period. Langgewens, Oudtshoorn, Nortier, and Worcester still having a positive average annual growth rate but the three first mentioned farms slightly are lower and Worcester slightly higher when the 2013/14 period is excluded.

Comparing 2016 to 2015 and 2017 to 2016 also gives an idea of what the real situation is on the farms in terms of the recycling project. Figure 18 shows that overall there is growth but it is either the same as the previous year or a small percentage increase.

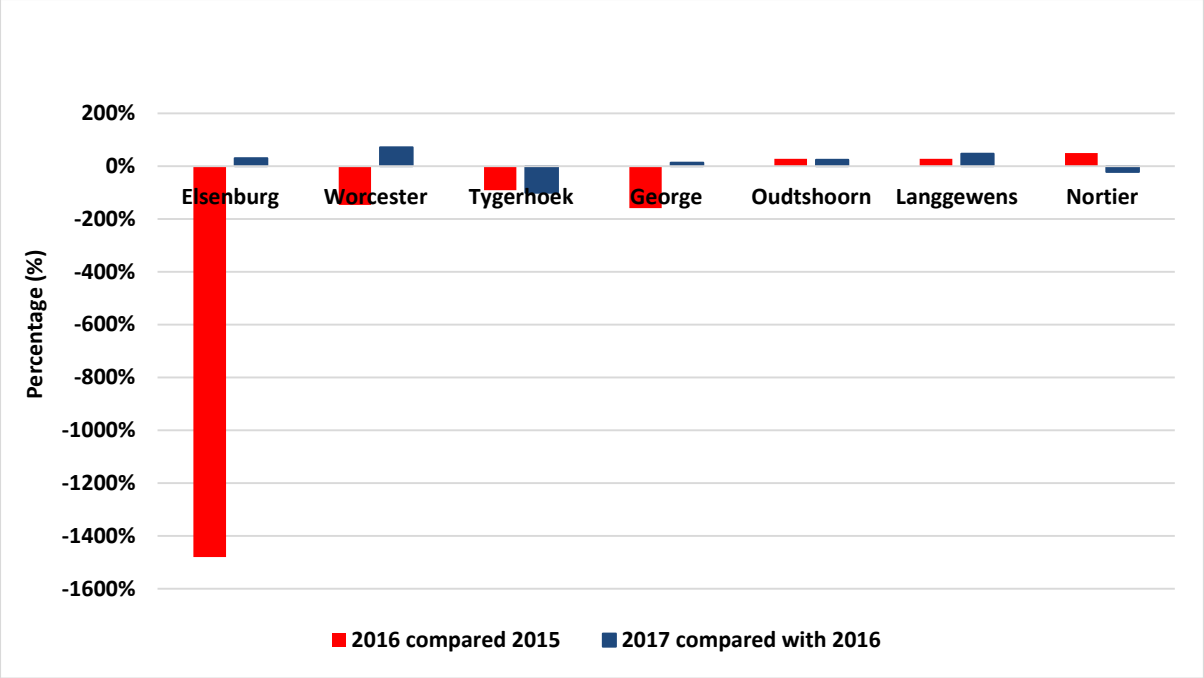

Figure 18: Recycling comparison of the Departmental Research Farms
Source: Own compilation

6. Problems identified

Looking at the overall performance of the recycle project it can be said that there was major interest when the project was new, but with time the interest and motivation dropped dramatically. Interventions in terms of talks, events and competitions where conducted to get people motivated and excited again about recycling but efforts were in vain, especially on the problem farms.

Some of the major problems that arise from the recycle project were the following:

- No or partial support from management and co-workers.
- Lack of interest in the project.
- Demotivated recycle managers.
- Staff and residents throwing waste in the wrong bins (due to that, recycle managers have to allocate more time for sorting of waste).
- Staff and residents not rinsing containers.
- Illegal people (not working for the department) living on farms and who doesn't want to comply with the recycling rules.
- Bad relations with the recycle company due to waste that is not recyclable but is delivered to the recycling site.
- The same farm/people always winning the competitions.

- Only a few people always participating in competitions.
- In-house fighting about the participation rules of competitions.
- In-house fighting about the appointed recycle manager (personal issues affecting the "working together and respect for each other relationship").
- The report is submitted late or no report submitted (so recycling database cannot be updated for specific farms).
- No recognition for recycling managers.
- No rules or regulations in place to keep people living and working on the farm accountable for recycling.

Problem farms like Tygerhoek, for example, decided not to be part of the recycling project anymore and stopped the whole recycling process in July 2016 already, as well as the children's organic garden.

When evaluating the recycle project it is noticeable that from the 7 research farms, 4 is trying to keep the recycling system still alive but with lack of interest and buy-in from staff and residents, there is only so much the recycle manager and farm manager can do. Due to the housing not falling under the departments' scope, although on the farm's property, it is still difficult for the Department to exercise any form of regulations and rules onto the home residents. This created a negative attitude amongst the "legal" residents' for the project and performance dropped considerably.

The current problems that have been identified over the course of the project have now culminated to the point that the project will not continue and this will be the final report. The management has therefore decided that each farm can continue with recycling and any other initiative that promotes sustainable use of resources, whilst those not interested will not be forced to continue.

7. Conclusion and lessons learned

Throughout the four years of the recycle project, many lessons have been learned and most importantly, more than 63, 42 tons of waste has been recycled. Some farms have done well, whilst others have not shared the same enthusiasm towards the project. Any future endeavours to encourage recycling on farms should take note of the following.

First, in orders to have a successful recycle operation buy-in from everyone is needed, from top management to the lower level employees. From the start, a mind-set and culture should be established which encourages recycling as part of our daily lives and not a once-off thing. A pro-active approach is needed when it comes to protecting our environment and teamwork is key to achieve such outcomes. Unfortunately, there was a continued lack of motivation and interest in the recycling project by many and that most of the interventions to address this problem did not solve it. This lack of interest was clearly evident in the fact that people continuously use the wrong bins and recycle manager to not get the desired support from management.

It was decided that the farms that want to continue and do not have above-mentioned problems are welcome to continue with the project on a farm level.

Lessons learned from the project:

- Choosing the right person to be the recycling manager, someone with a bit of authority, for example, the farm manager or an administrative person. Also, someone not living amongst the farming residents. Someone that has access to a computer, e-mails, telephone, etc.
- Starting a project without creating an expectation of always "receiving incentives". The project should run merely on changing people's behaviour and way of thinking. Caring for the environment.
- You cannot change someone's behaviour or thoughts if "wanting to make the change" does not come from within.
- To run a project like this on a farm needs clear rules and regulations applies to all those working and living on the farm. A project will not work if there is no one who has the authority to exercise his/her powers over people not complying with the rules and regulations.