

We came across the larvae of black soldier fly. Black soldier flies are beneficial in compost for a number of reasons:

- They help control house flies by competing for the same food by releasing a special smell to chase them away.
- They will never become pests themselves because the adult flies live only a few days to mate and produce.
- They are important in the composting process.
- The larvae are excellent chicken food, containing 35% fat and 42% protein.

In the photo below, the large maggot in my hand is a black soldier fly larva, the small whitish maggot is a house fly larva. House flies should be discouraged by allowing black soldier flies to breed.



Introducing Permaculture Thinking and Compost Making

Facilitated by Calabash Trust and Growing Home Eco-Designs

In partnership with Nelson Mandela Bay Municipality (NMBM), Project for Conflict Resolution and Development (PCRD) and Eastern Cape Gay and Lesbian Association (ECGLA)



Produced for the Mother's Union at the Anglican Church and LGBT CBO in Walmer

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Introduction

We arrived at the church in the morning. While we waited for everyone to arrive, we began to chat informally about the difficulty many people have trying to find jobs, and therefore the importance of exposing people to food growing, helping each other to feel more secure and reduce our cost of living.

Our discussion continued around the battle against weeds. One lady told a story about the effort needed to control and clear the weeds on a potential garden site. This story reminded the facilitator of the first time he visited the church and the group showed him the extensive clearing they had done. There is a strange, as yet unidentified vine growing throughout the garden site. This vine is tough and abundant with an extensive root system.

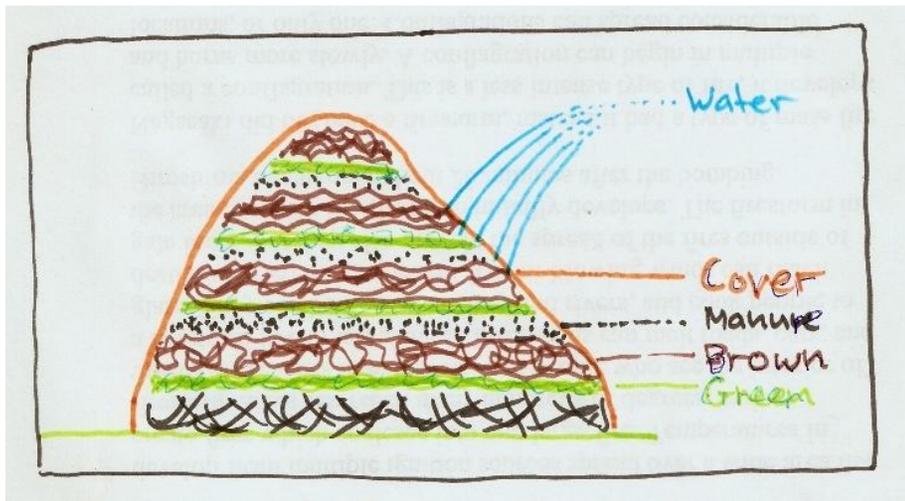


We discussed the role of weeds in nature and how:

- Some weeds help to repair and hold the soil in place,
- Other weeds break up hard soil,
- They also quickly add organic matter to the topsoil due to their fast life cycle.



Making compost is like baking, in the beginning you need to follow a recipe. Then, with experience, you can tell by look and feel if the dough is too dry and you add water, or if it's too wet you add more flour, until it is just right. Over time, you get it right without even thinking. This is how making compost is as well. We can experiment and play a bit, then as we learn, we will improve.



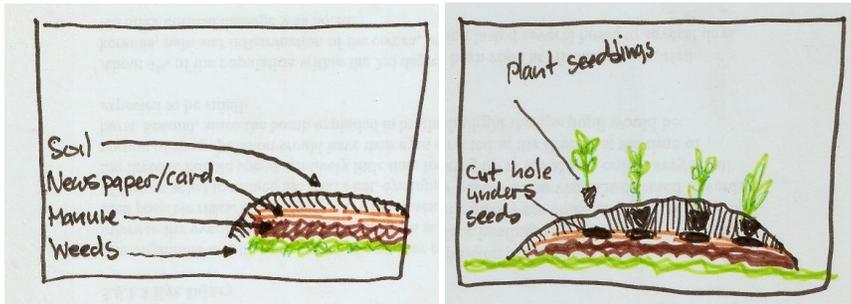
Remember to check for the water content each time the heap is turned. We do this by taking a handful of compost from near the centre of the heap and squeezing it as hard as one can:

- If no moisture forms between your fingers, then additional water must be added.
- If it goes "drip, drip, drip drip", then it is too wet, and more dry material must be added as the heap is turned.
- If you get some moisture between your fingers, plus one or two drops, then it is just right.

The soil at the church is very loose and sandy. The unidentified vine that grows so well is a typical example of weeds that grow on loose sandy soil. that has a characteristic network of roots, helping to bind and hold the soil together. On the other hand we could look at the kinds of weeds that grow on hard compacted soil. We would find that they have long, fleshy taproots, which break and loosen the soil thus improving it.

For the reasons above it's often advisable not to clear the weeds from our chosen garden site and rather:

1. Chop them back, leaving the plant material as mulch. Mulch is a layer of decomposable material applied to the surface of the soil to conserve moisture, improve fertility and reduce weed growth.
2. Mark out the shape of the bed and add manure directly on top of the chopped weeds. As the manure begins to heat up it will kill and control the weed growth underneath.
3. Add a layer of cardboard or newspaper on top of the manure, then add a layer of compost or old manure.
4. Then plant seedlings straight into this top layer, cutting a small hole in the cardboard, under each seedling as it is planted.



We talked about our experiences in gardens, about what we had done before. One of us told a story about how she used to work on her grandmother's plot. She helped with watering, digging and harvesting. She told us how she had to carry heavy buckets of water from a tap at the bottom of the hill. This was her worst job. Her favourite was digging and turning the soil, as well as harvesting.

Another lady had experience with growing flowers, and our facilitator mentioned the benefits of growing crops and flowers together. She had also had the wonderful idea of asking a neighbourhood gardener, who was growing various kinds of vegetable, to teach her one day. Unfortunately she has not taken up this opportunity yet, but is an excellent example of how we could begin to use the knowledge of the people around us.

By this time the rest of our group had arrived. Permaculture is a vast subject with many techniques and methods, so we began

1. Lay down some rough material, such as twigs or small branches. We used the unidentified vines that were cleared from the garden site. If we don't have any rough stuff, this is also OK- we just use the roughest material that we have for the first layer.
2. Add a thin layer of green material, not more than 5 cm thick, such as green leaves, green grass or kitchen scraps.
3. Add a thick layer of brown material, 20cm- 30cm thick (remember the brown material we used was wet because it rained the night before, and does not count as green material). If we are using dry material, we must water between layers.
4. Add a layer of manure, only about 3cm thick, just a sprinkling all around.
5. Now we repeat step 2 -4 again and again until we have finished the pile. **Green, brown, manure, water.**
We layer the heap like this into a dome shape until it is at least chest height, shoulder height if there is enough material. Remember to rake and fork the materials flat on top as the layers are added. This also helps to keep the heap in shape.
6. Cover the heap with undervelt, old carpet, sacking or plastic sheeting, now leave for 4 days.
7. After 4 days, turn the heap by forking the top layer to one side (to help, you can mark a circle for the new heap with the rake to keep the base of the heap the same size as the old one). Fork until your whole heap has been moved to one side, making a new pile. Most of the material that was on the outside of the first heap should now be on the inside of the new heap.
8. Now leave for 2 days.
9. After 2 days turn the heap again in the same way.
10. Now repeat this step every second day for 9-10 turns at least. The compost should no longer smell of ammonia. It should be dark in colour, with a crumbly texture.

the lasagne method. It could be ready in about 20 days (see method further below).

Our group was concerned about the compost being near a window because of the smell. This is a valid concern but could be a good way to tell if we are making compost correctly because a good compost heap should never smell bad.

We were introduced immediately to how bad a compost heap could smell if not made correctly when we opened the plastic bags in which grass cuttings were left for a few days. Now we will remember never again to leave grass cuttings in plastic bags longer than a day at most. The same goes for any wet or green organic material, such as kitchen waste. It goes rotten and smelly very quickly when closed off from air. To deal with this problem, we can store green organic matter in small piles, and dry matter in larger piles.

Here is a list of what we used:

- Dry grass cuttings,
- Green grass cuttings,
- Kitchen scraps (including any tea and coffee bags),
- Rough vines,
- Cow manure.

To start building our compost heap we followed these steps:

by finding out what were some of the burning questions to focus on during the few hours that we had together. The main things that came up were:

- How to know when soil is ready for planting?
- How to work with and control weeds?
- What to do about snails?

Before finding answers to these questions, we first discussed the main things to consider when positioning a garden. This is because in Permaculture Design we spend a lot of time thinking and planning before doing. This also served as a basic introduction to the way to plan and make decisions in Permaculture Design.

What to think about before starting a garden

The group said we should consider:

- Sun direction
- Wind direction
- Soil
- Water
- Security

To help understand these factors better the group participated in drawing a rough map (see steps picture on next page):

1. First, we drew an outline of the property and the buildings on the property
2. We then marked in North, South, East and West by using the compass (One can also find where North is by using a local street map of the area)
3. We then drew in the **sun path** in an arc across the map from East to West. This is useful to show areas that get morning sunlight, where the shady areas are, and what gets afternoon sunlight. The morning Eastern sunlight is soft, cool and gentle. The Western afternoon sunlight is hard, hot and baking. This is important to consider so that our vegetables get maximum morning sun and minimum afternoon sun.
4. The group had made a great decision to plant the garden on the Eastern side of the church.
5. **Wind** can be very destructive to a garden. It dries out the soil and plants and sometimes knocks the plants over. Members of the group explained that the wind mostly comes from the west or southwest. We drew arrows on our map to indicate that the wind comes from the Southwest. We could immediately see that again a good decision had been made because the church is protecting the garden from the worst of the wind.
6. We can also mark out areas on our land where the most **fertile soil** is, and decide where the compost and manure should be stored so that it is easily accessible. We must remember that we need to carry compost to the vegetable garden and also it can't be too far from the kitchen because we need to throw our kitchen waste into the compost as well.
7. We also need to think about **water**:
 - Where is the closest tap?
 - How are we going to get water to the garden?
 - Will we use a hose or watering cans?

Our group had already been collecting grass cuttings from the municipality and the church lawns. We had also found a local



source of cow manure which is very important in a good compost heap. We can also use goat or horse manure. Compost is all about making the best with what one has available.

- What types of rubbish can be used in making compost? One or two ladies thought plastic papers could be added, other members of the group disagreed. As an experiment, we decided to leave the candy wraps found in the grass cuttings in the heap to see whether it breaks down or not. It is also easier to pick the wrappers out after the compost has become dark.

Some ladies had made compost before by throwing leaves, grass and kitchen scraps in an unstructured pile, scraping finished compost from underneath after a few weeks. This is one way, but we will be learning how to prepare a compost heap using a layering method, which can be remembered as

One lady mentioned that the very orange eggs were “wrong” but as a matter of fact, the orange eggs are the healthy ones. To have healthy eggs, we need healthy chickens and like our own mixed diets, chickens need a range of things to eat, such as insects, seeds, grain, many types of green plants and kitchen scraps.

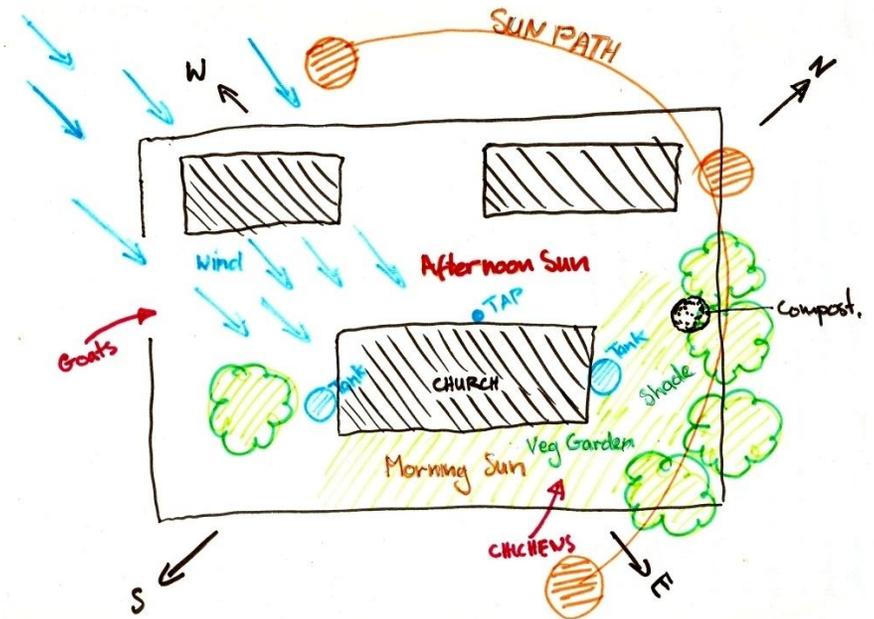
What do chickens give us?

- Eggs and meat that we eat.
- Feathers and manure that are good for the soil.
- They are alarm clocks.
- The chickens also help us by scratching the manure and feathers into the soil while they eat seeds and weeds.

After two weeks we can move the cage, leaving behind a nicely prepared patch for us to plant our seedlings straight into. Leaving it longer than two weeks may cause problems with acidic manure.

Compost (Mgquba) Making

It is interesting to note, that the isiXhosa word, Mgquba, is the same for both compost and manure. This must not create confusion, as we use manure to make compost.



We also looked at what we should think about when positioning water tanks. We learnt that we should have at least three reasons to place a tank in a particular place. Two ladies suggested two different positions, both suggestions were right.

Position 1: Generally, our water tanks are placed on the south side of the building, it is protected from the sun, and in this case, close to the garden and roof, giving us three good reasons for our choice.

Position 2: Usually the north side of the building is avoided because it gets direct sunlight, in this case, however, the tank would be nicely shaded by the trees on the northern edge of

the property. It would also be close to the garden and the roof. Tanks can also be protected by growing vines over them, such as grapes and guavadillas. Sometime tanks can positioned so as also to be useful as a wind break.

We briefly touched on how to work with water on a slope. We learnt how level trenches can help to slow down water flows by capturing and spreading the water, giving it time to soak in. This prevents the loss of water from the garden. We will hopefully look at this in more detail at a later stage, including how to measure out and dig level trenches.

Chickens and snails

This next section spoke to the problem of chickens (scratching up a garden) and snails, and at the same time introduced us to another way of controlling weeds. It was mentioned that snails come and eat the crops and that people kill the snails with sprinkles of salt. They bubble and froth until they die. The ladies felt bad about this method where the snails just get thrown away and go to waste. We discussed solving problems by putting two problems together – the problem of destructive chickens and the problem of snails.

A chicken tractor is a very useful way to:

- Contain our chickens.
- Fertilise the soil.
- Help with the problems of pests (snails) and weeds.

A chicken tractor is a mobile cage with an open bottom, the same size and shape of the bed you wish to cultivate. The chickens live in this cage, so they will need:

- Water and some extra food, such as grain and kitchen scraps,
- Shelter on the one side for windy and rainy weather,
- A perch to sleep on,
- A nesting box to lay their eggs.

