



## Creation of Compost

### Fact Sheet

Create a circle of dead trees



Attach linen/cloth to the circle of dead trees to



The finished container for compost looks like this



Install a layer of dried plant material (straw/dead leaves) that is 20 to 30 cm high



Add a layer of fresh plant material "weeds", if possible without seeds



Water layer to wet them - compost pile should be kept moist for the duration of maturation



You can add a layer of bark and small pieces of wood



If you have manure, dispose of it in fairly thin layer



Interweave organic waste from your kitchen between the layers



Repeat layers to fill compost container. Keep moist for the duration of maturation!



Add a layer of straw, leaves, dry plant debris or earth, to run off too much rain.



Composition summary

-Straw, leaves & soil

} Repeat below steps

- Kitchen waste  
- Manure  
- Bark and wood  
- Fresh plant material  
- Dried plant material





## Preparation of Liquid Manure

### Fact Sheet

Collect 42 or more different types of leaves



Lay out on a screen



Grind leaves with mortar and pestle



Take fresh manure and break up with hands



Take 1 pot of ground leaves and 1 pot of the fresh manure



Mix ground leaves and fresh manure together



Put in an empty onion bag with a 1kg stone or brick to help it sink



Tie into a ball



Put in a bucket and add 20 pots of water with the same pot



Stir clockwise and anti-clockwise for 21 days



Filter with sieve after 21 days



Apply one full tea cup per plant per week at the root zone





# Crop rotation

## Instruction Sheets

(Page 1)

**!** To help control pests and diseases it is a good idea to grow families of vegetables in separate plots and move them around (rotate) them each year.

**1** Divide your crops up into groups in terms of:

### Roots

Beetroots  
Carrots  
Celery  
chard  
Parsnips  
parsley,  
Spinach  
Sweet  
potatoes



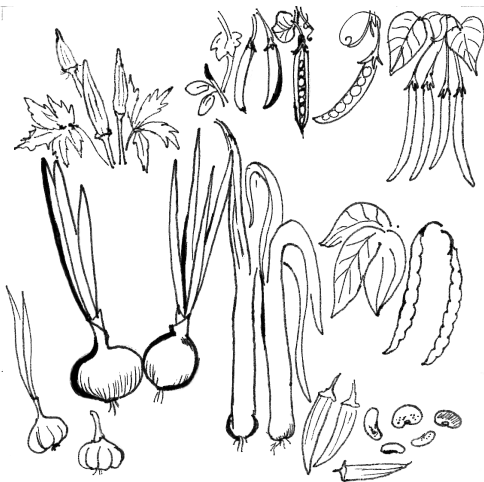
### Brassicas

Broccolis  
Brussel sprouts  
Cabbages  
Cauliflower  
Kale  
Kohl rabi  
Radish  
Pack choi  
Sweed  
Turnip



### Legumes and Onion

All kind  
of beans  
Peas  
Sugar snaps  
Mangetout  
Shallots  
Onion  
Garlic  
Leeks



### Potatoes and other Crops

Aubergines  
Cucumbers  
Courgettes  
Squash  
Melons  
Pumpkin  
Pepper  
Chillies  
Tomatoes  
Salad  
and sweet corn







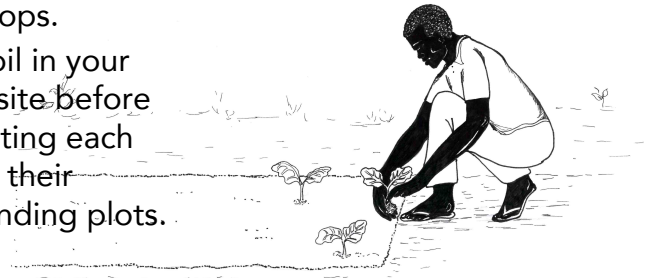
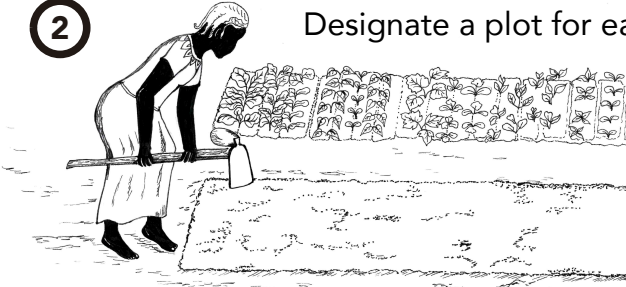
## Crop rotation

Instruction  
Sheets (Page 2)

2

Designate a plot for each family of crops.

Till the soil in your growing site before transplanting each crop into their corresponding plots.



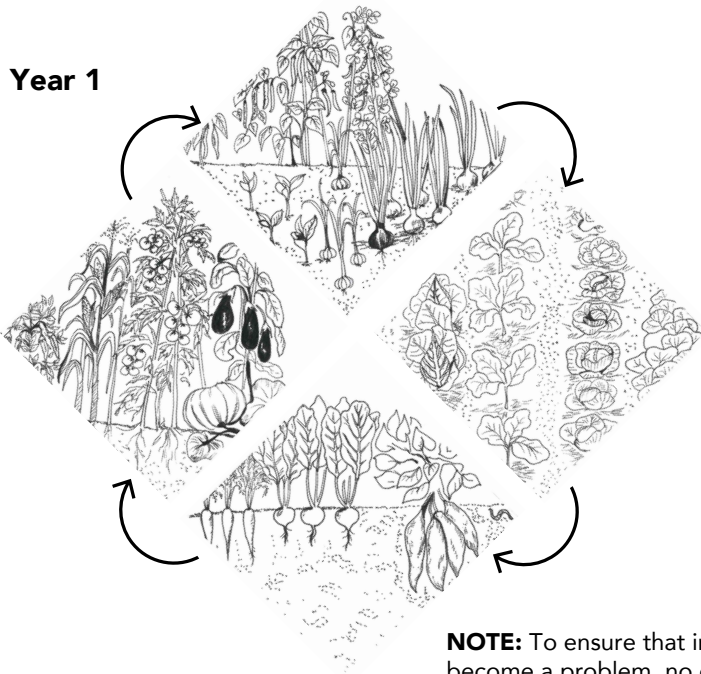
Soil needs for different crops: **Roots:** Remove any stones, weeds, if soil is heavy add grit or sharp sand for better drainage. No compost, manure or lime. **Brassicas:** cabbages family – add manure or compost before planting. If soil is acidic, add some lime at least 3 weeks before planting. **Legumes and onions:** spread a thick layer of well rotted compost or leaf mould over soil several months before planting. Mulch after planting. **Potatoes and other crops:** add lots of compost or manure several months before planting.

**NOTE:** Crop rotation can also improve soil structure and fertility by alternating deep-rooted and shallow-rooted plants.

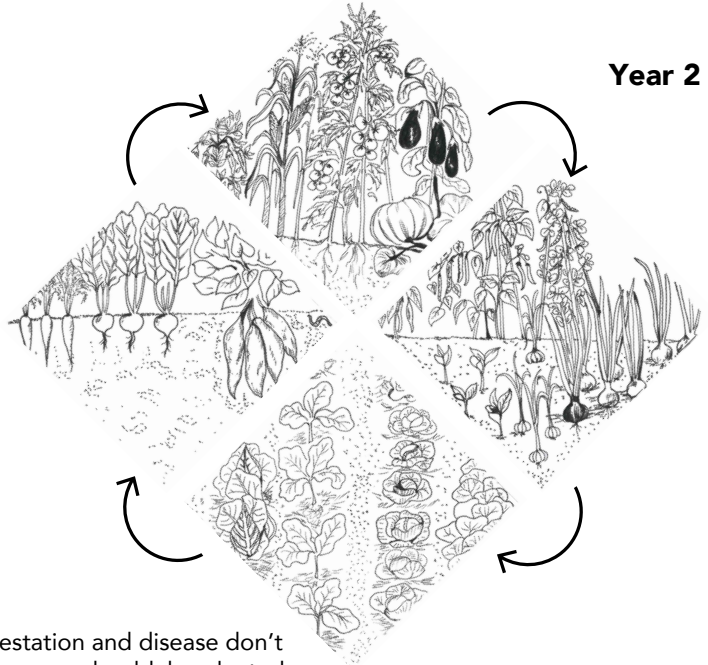
3

Harvest the crops from your first growing season. Dig up your freshly-picked plots and aerate the vacant soil thoroughly. Shift each crop over one plot for the following season.

Year 1



Year 2



**NOTE:** To ensure that infestation and disease don't become a problem, no one crop should be planted in the same area more than once every three years.



**NOTE:** Keep records for what is planted in each plot each year and what results you see. Use this information when planting next year.





## Preparation of Biochar

### Fact Sheet

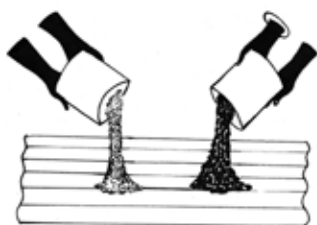
Take charcoal from the fire



Grind into a powder with a mortar and pestle



Take one pot of powder and one pot of fresh manure



Mix together



Conserve for 11 days in a bucket

**NB: do not keep in iron materials, only plastic**



Spread it at the root zone of each plant or tree





## Mulching

### Instruction Sheets



1

Remove all weeds and debris from the area where you want to put down mulch. If left in place, weeds will grow through mulch

2

Spread mulch over your weed-free soil to create a uniform thickness of 10cm



3

Cover all bare soil, but do not allow the mulch to touch the base of plants. Mulch touching plants can encourage plants to rot and other plant problems



4

Water your newly mulched area. Irrigation helps the underlying soil and the mulch material to settle



**NOTE:** Maintain the appropriate mulch thickness, checking your mulch every few months and replenishing it as needed. If you allow the mulch to decompose too much, then weeds and other problems may arise



## Preparation of Chili Pesticide

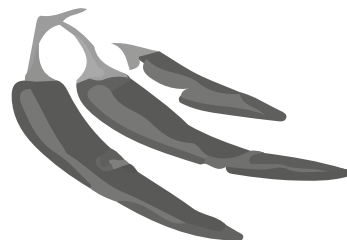
### Instruction Sheets

#### Ingredients

- Chili Pepper (Fresh or dry)
- 2 Tablespoon liquid soap / Oil
- Pestle & Mortar
- Sieve

①

Collect 1 handful of hot chili



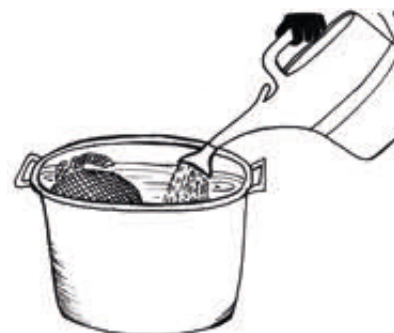
②

Take hot chili and grind with Mortar and Pestle



③

Put in a 10L bucket, add water and leave overnight or 12 hours to intensify the effect of pepper.



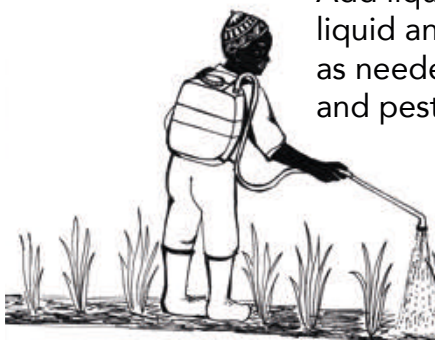
④

Filter with sieve after 12 hours



⑤

Add liquid soap to the filtered liquid and use as often as needed for preventive and pest-controlling effects.



Be careful when you are handling them because they could burn your skin. The soap is important because it helps the solution stick to the leaves and fruit of the plant. Spray the solution on your affected plants using a watering can, brush, or sprayer.





## Seed Saving Tomato Seeds

### Instruction Sheets

#### Materials needed

- |                          |              |
|--------------------------|--------------|
| • Fully ripened tomatoes | • Spoon      |
| • Knife                  | • Tray/plate |
| • Jar/bowl with a lid    |              |

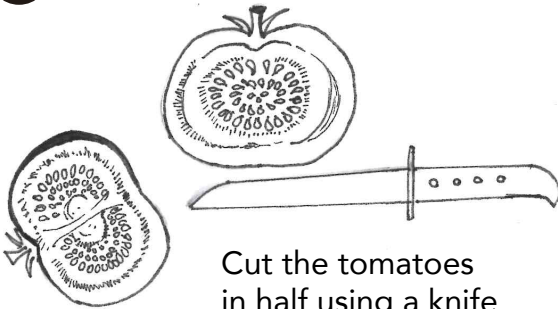
1

#### Choose seeds:

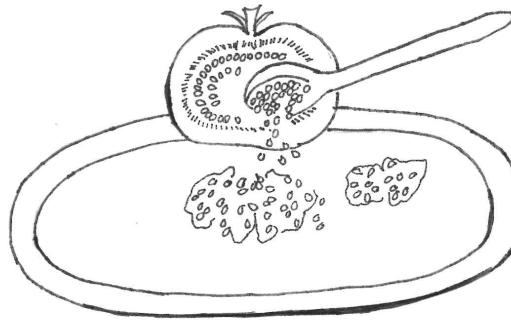
Get seeds from fresh, ripe tomatoes that have been open-pollinated.



#### 2 Collect the seeds from the tomatoes:

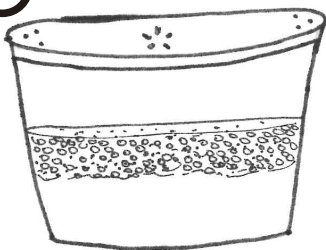


Cut the tomatoes in half using a knife and scoop the seeds...



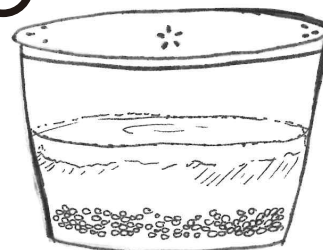
...and the pulp with a spoon or your fingers into a bowl.

3



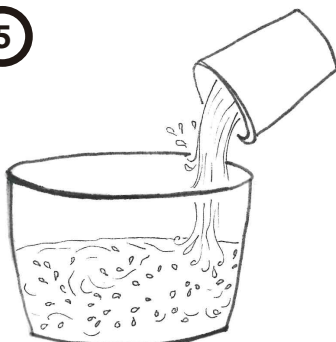
Put the seeds and pulp in a labelled container with a lid. Do not add water. Keep it in a warm place for three days, but not in direct sunlight.

4



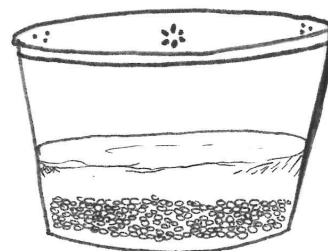
After three days, the pulp rots and ferments quickly, freeing the seeds, which sink to the bottom.

5



Add a little water, let the seeds sink to the bottom again, and carefully pour off the rotted pulp.

6



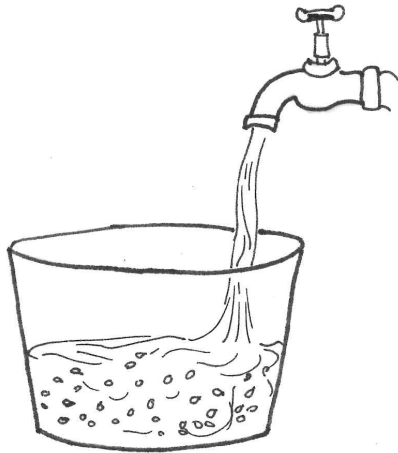
The first rinse gets the seeds nearly clean.



## Seed Saving Tomato Seeds

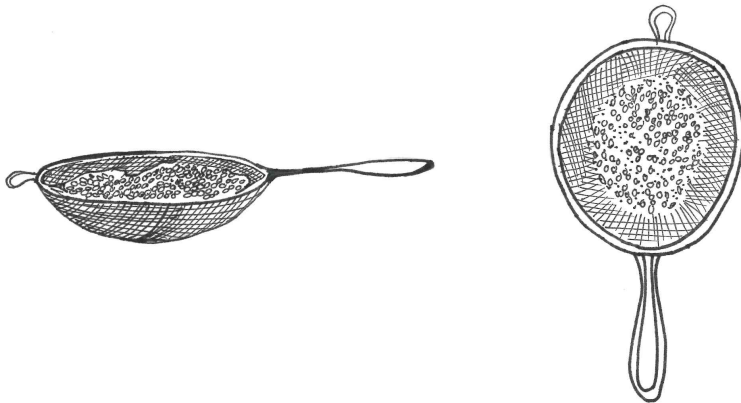
### Instruction Sheets

7



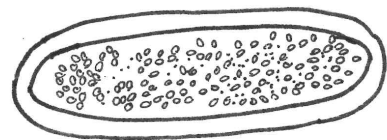
Refill the container with fresh water, let the seeds sink, and carefully pour off as much water and floating pulp and seeds as you can.

- 8 Dump the clean seeds into a strainer/sieve with mesh fine enough to catch them and drain the water.



Spread the seeds out on a plate or tray to dry.  
Do not dry in direct sunlight.

9



10



When the seeds are fully dry, store them in an airtight container. Label the bag/container so that you remember when the seeds were harvested. If you keep them dry, tomato seeds should last at least five years.



# ZYCALA!

## Ifyakupekanya Ifyakuchingilila utushishi ukubomfya impilipili

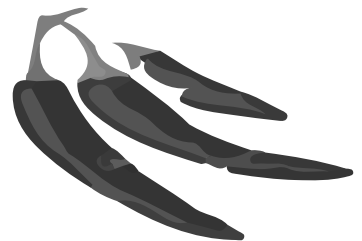
### Instruction Sheets

#### Ifyakubomfya

- Impilipili (isha fresh nangu ishauma)
- Ama spoon ayakamba yabili aya sopo iya menshi
- Ibende no mwinshi
- Sefa

①

Bekapamo impilipili ishalinga bwino bwino



②

Bula impilipili ishakali bika mwibende, utwenokutwa



③

Bika muli ka baketi kali nama liters ikumi, bikamo amenshi nokuyaleka yakala ubushiku bonse nangula ama hours ikumi na tubili.



④

Sumpula na sef ngayapita ba hour ikumi natubili



⑤

Bikako tu sopo twamenshi kuli aya menshi usefele elo bonfya imiku ishilefwaika pakuti uchingilile noku chefanyako utushishi



Bauwachengela sana paku bomfya pantu kuti waocha inkanda yobe. Sopo ikankala sana pant ilafwa umuti watushishi ukwikata kuma bula na kufisabo fya fimuti. Sansa uyu muti kufilimwa ifyo balile kutushishi ukubomfya icha kwitililako amenshi, brush namgu sprayer.





# ZYCALA!

## Ifyakupekanya umufundo wamenshi

Bemba  
version

Ukolonganye amabula  
aya pusana pusana,  
amakumi yane-nayabili (42)



Salanganya amabula  
wachisala pabwelu



Bika amabula mwibende  
nokuyatwa



Senda umufundo  
wang'ombe nangu Imbushi  
noku ushonaula namaboko



Senda amabula ayatwiwa uyabike  
munongo nomufundo wang'ombe  
nangulmbushi munongo yaiko,  
ichipimo chimochine



Ukusankanya umufundo  
wamabula na umufundo  
wang'ombe nangula uwa Mbushi



Bika ifyo usankenye mukasaka  
ka kanyense nokubikamo ilibwe  
ilyafina kg umo, pakutila akasaka  
kebile mumenshi



Ukapombe akasaka  
ka kanyense ngomupila



Elo mwakalonga mumbeketi  
mwaitilamo amenshi ukubofya  
ichipimeno icho  
wachibofesha  
ukupima  
manyuwa  
amakumi-yabili (20)



Kumbaula kukulyo na kukuso  
pamilungu shitatu



Sumununa amenshi nasefa  
mpapula yamilungu shitatu



Tapilisha ne chipimo chakapu  
umo pachilimwa chimo  
mumulungu  
umo panshi  
yachilimwa  
chimo  
kumishila

