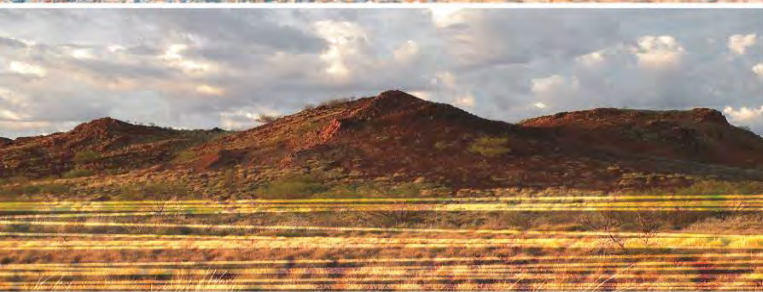


# Soil Health & Compost

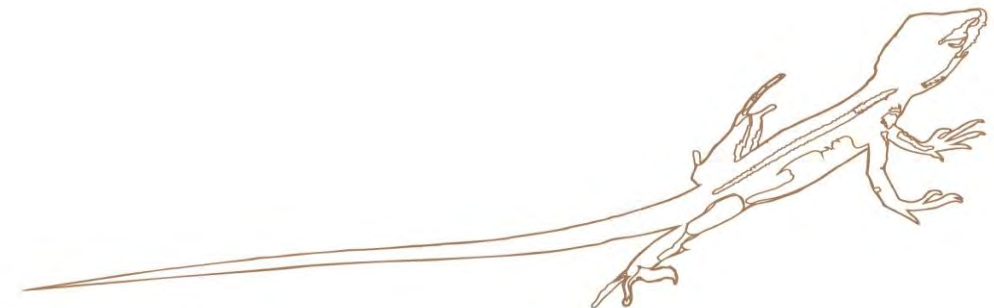
Jardine Macdonald  
Program Manager - Broome





## Purpose:

To support regeneration of natural capital in the rangelands of WA – soil, water, biodiversity – through good stewardship





# Ramsar listed Roebuck Bay

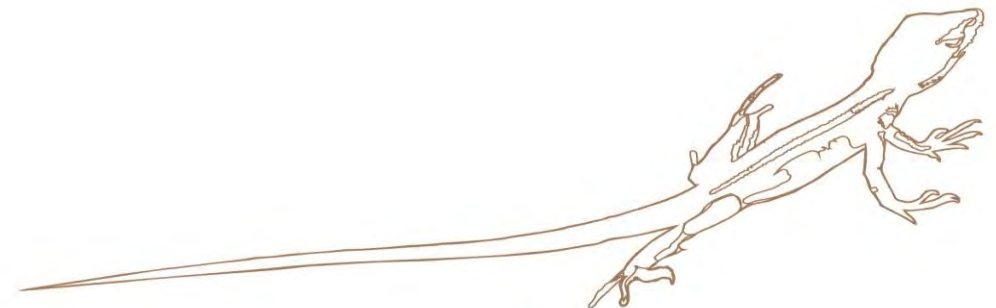




# Water connects the town to the Bay



# What has the Bay got to do with Soil Health and Compost??





# RUNOFF and NUTRIENTS

NON-EFFECTIVE  
RAINFALL

EFFECTIVE  
RAINFALL

Evaporation

Transpiration

Runoff

Water soaks into ground

Unhealthy soil

Healthy soil

Runoff carrying  
nutrients



Photo – Kandy Curran



# What is good soil health?

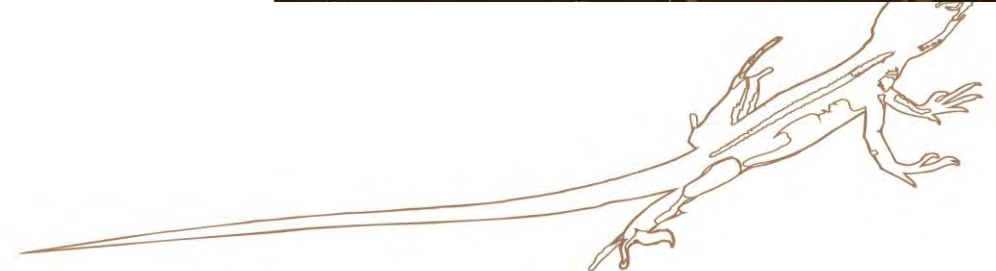
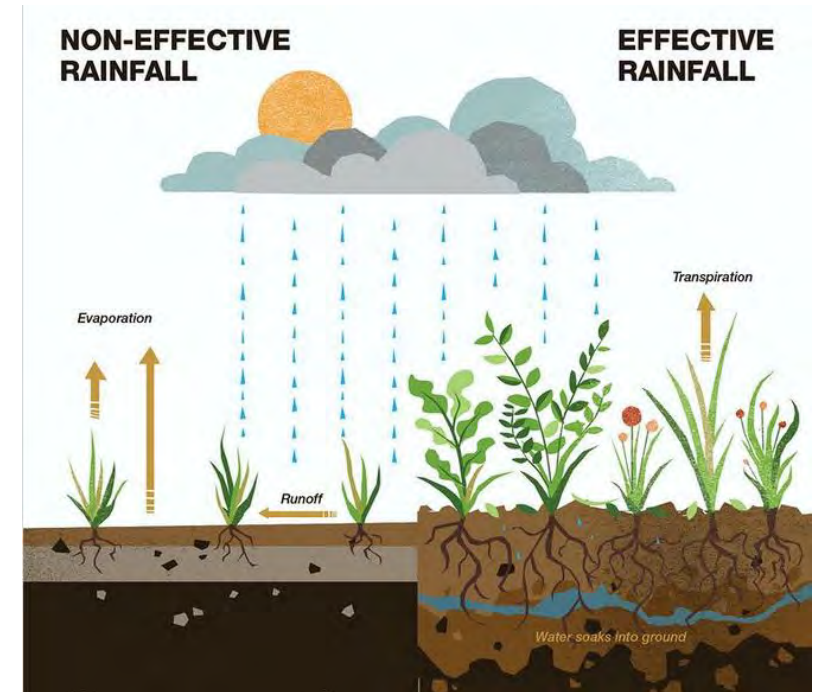
Healthy soil supports healthy plants by

1. Absorbing and holding rain
2. Holding, cycling and forming nutrients

Key difference between dirt and soil is **LIFE**

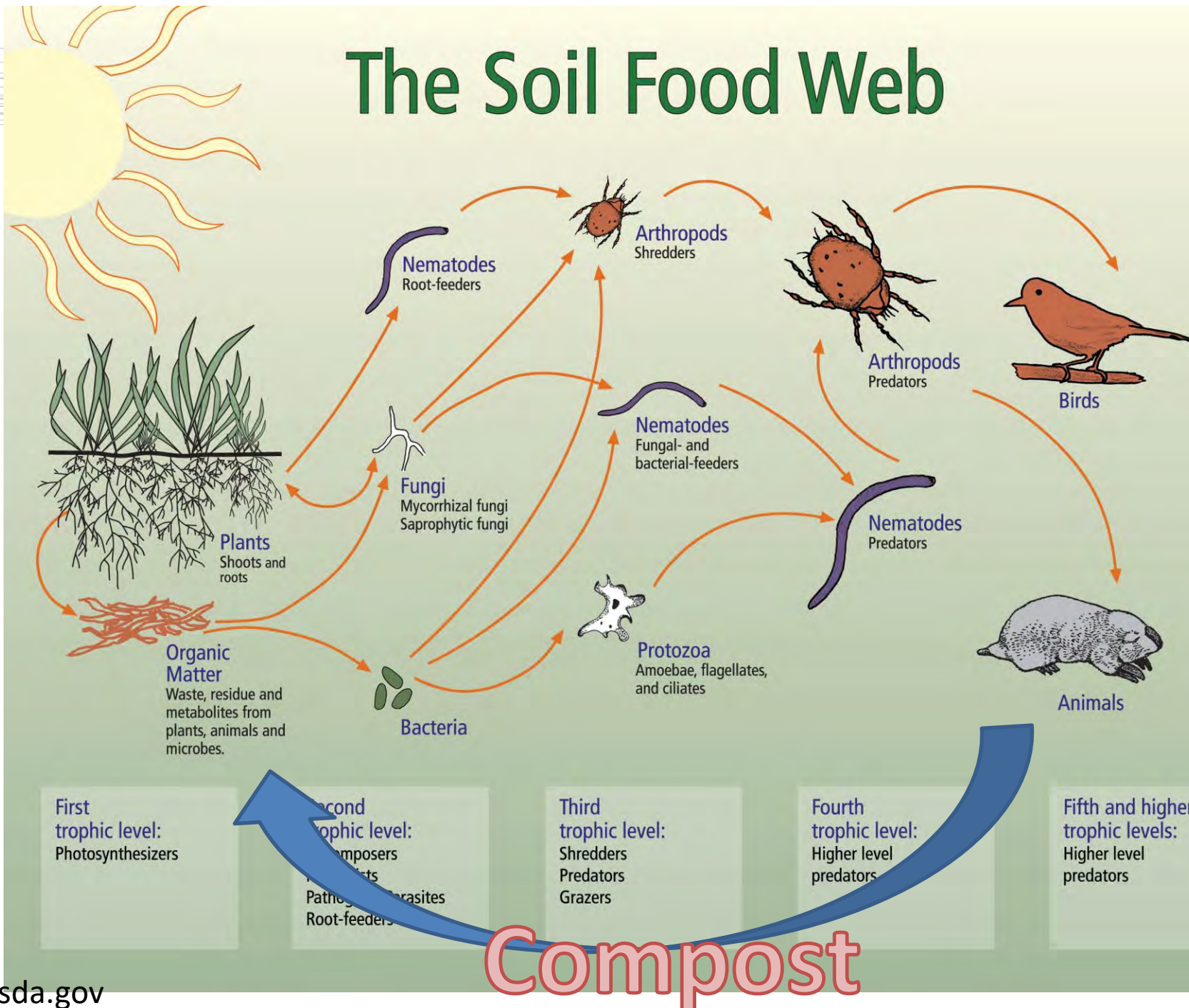
This life is called the Soil Food Web

1. Builds Structure to hold air and water
2. Cycles and forms nutrients through the **'poop loop'**





# The Soil Food Web



Compost



# Soil Structure = houses built by soil food web



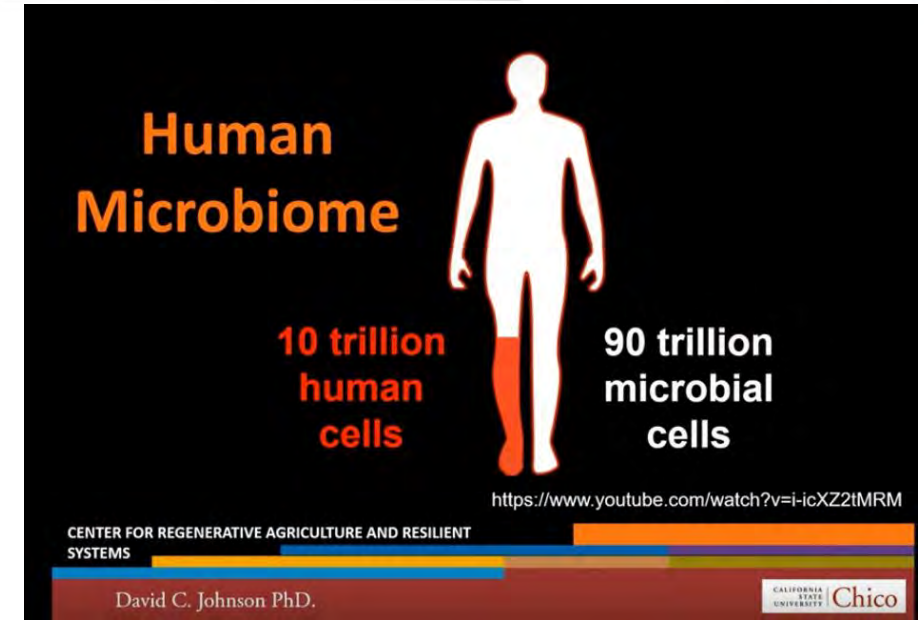
Gabe Brown Webinar 9/1/ 2020

<https://youtu.be/I2MFJ8LNJ9A>





# Soil, plant, animal and human health – we all need our good bugs!



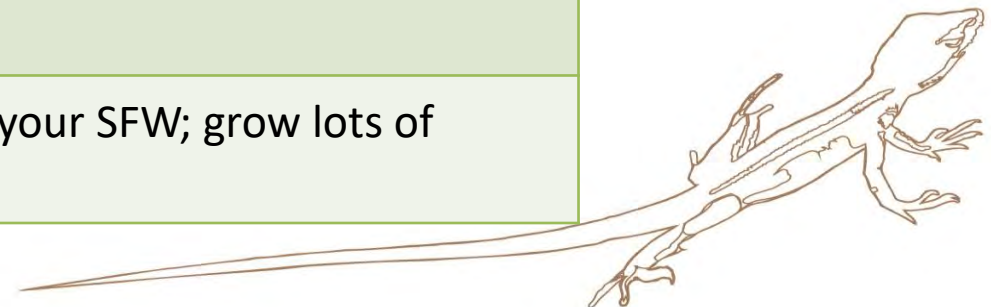
Dr David Johnson – Regenerating the Diversity of Life in Soils -  
<https://youtu.be/2az4AKy0suE>



# How do you look after your SOIL HEALTH?

5 key tenants from Gabe Brown - youtube him - <https://youtu.be/I2MFJ8LNJ9A>:

Minimise disturbance – chemical and physical	Both kill your bugs
Armor the soil	mulch / groundcover protect from rain and feed your bugs
Living root in the ground	capture sunlight; feed and protect your bugs
Integrate animals/promote biology	add to the poop loop!! This may mean some manure...
Build diversity	use compost to build your SFW; grow lots of different plants



# Compost is like a big probiotic hit for your garden

- Adds SFW to your soil!
  - build structure to hold water (and AIR!)
  - Adds, cycles and makes nutrients available for plants - poop loop
- Plants feed their good soil bugs with sugars via roots in exchange for nutrients
- Dead matter (ie leaves, wood, animals) also feeds back into the cycle
- What actually is compost??
  - Decomposed organic matter that is full of life!
  - Like to think of Lego set...



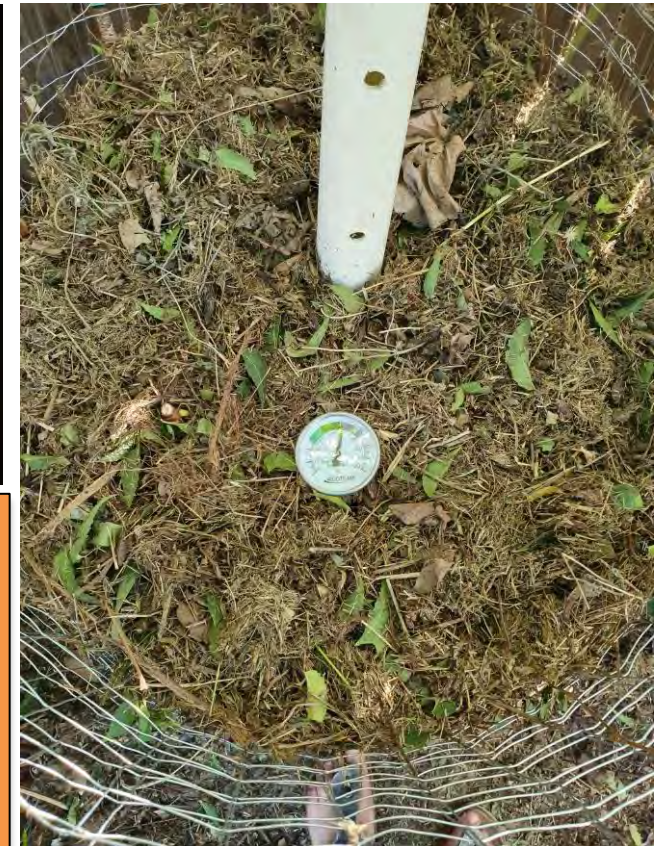
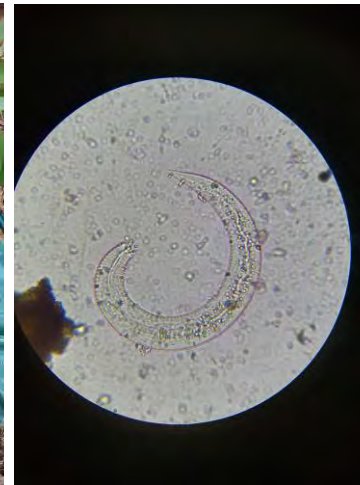
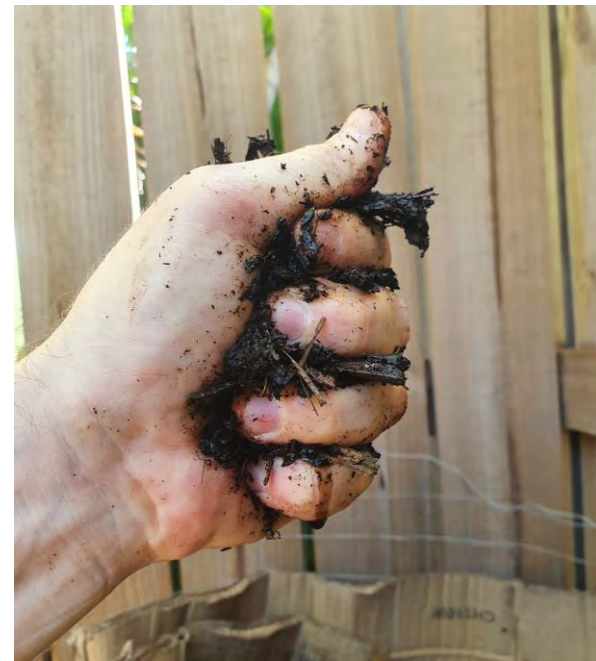


# Compost Vs Putrefied Organic Matter





# Goldilocks principles to compost



## Keys:

- ✓ Aerobic
- ✓ Moisture
- ✓ Materials
- ✓ Microbes
- ✓ Monitoring





# Compost Vs Putrefied Organic Matter

Valuable Resource

## Compost

- Aerobic
- No weed seed or pathogens
- Plant nutrient and soil improver
- CO2 only

## Putrefied OM

- Anaerobic
- Pathogens
- Alcohols, putric acids; harmful to plants
- Strong GHGs (methane)

Environmental Cost

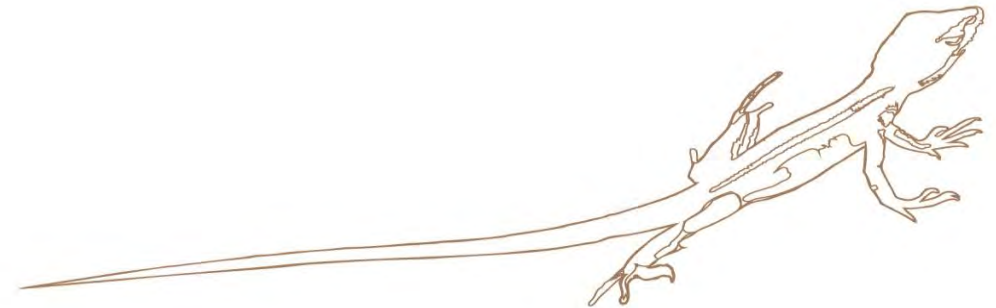
## Keys:

- ✓ Aerobic
- ✓ Moisture
- ✓ Materials
- ✓ Microbes
- ✓ Monitoring



# How do you compost??

- Hot compost
- Worm compost
- Fermentative compost – bokashi
- Johnson-Su





# Hot Compost or Rapid Compost

- Check out Dr Elaine Ingham's Soil Food Web - <https://www.soilfoodweb.com/>
- Geoff Lawton – Zaytuna Permaculture Farm – Awesome 6 minute video called “18 Day Fast Compost” [https://youtu.be/1Tk\\_melmv14](https://youtu.be/1Tk_melmv14)



- AEROBIC
- MATERIALS
- MOISTURE
- MONITORING





# Worms (Vermicompost)

Lots of Worm Farms

- The Worm Shed – Kevin Smith (Chittering WA) - <https://www.wormshed.com.au/>
- Worms Down Under [www.wormsdownunder.com.au](http://www.wormsdownunder.com.au)
- Nutrisoil [nutrisoil.com.au/](http://nutrisoil.com.au/)
- Rodale Institute – [www.rodaleinstitute.org/](http://www.rodaleinstitute.org/) and see “simple Guide to Vermicomposting”
- TEMPERATURE and MOISTURE
- Materials
- 3 day rule



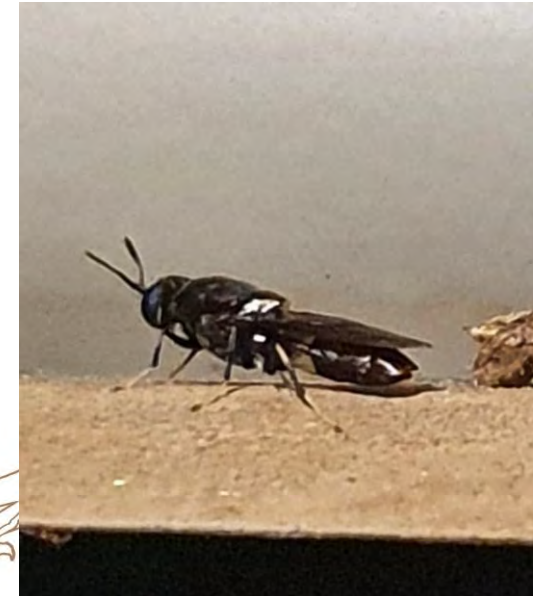


# Black Soldier Fly and BSF larvae

Check out our very own Lauren Bell's  
[www.wastenotfoodrecycling.com.au](http://www.wastenotfoodrecycling.com.au)

Tougher than worms but a different product  
Can room share with worms – both love bokashi scraps  
Will eat meat dairy etc!?  
Great feed for chooks / fish etc!

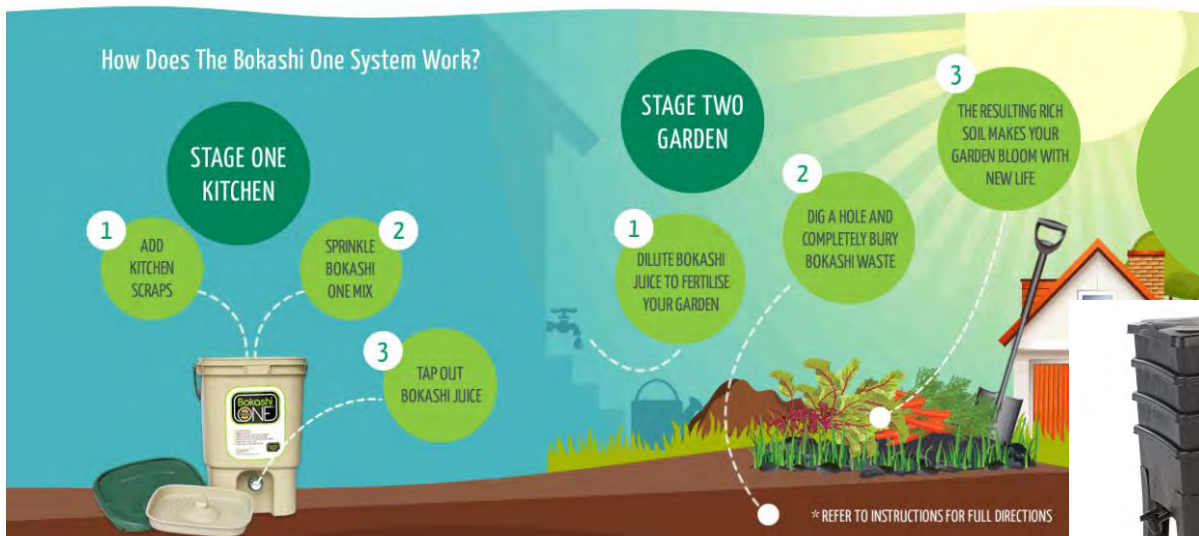
Diversity in your worm bin!?





# Fermentative and Bokashi

- MICROBES
- Check out the SPICE method guides and recipe - <https://www.gerrygillespie.net/latest-news.html>
- Soil Land Food [www.soilandfood.com.au](http://www.soilandfood.com.au)
- Integrity Soils <https://www.integritysoils.co.nz/> - LAB recipe



OR  
Worm  
Farm



<https://www.bokashi.com.au/>



# Johnson-Su Bioreactor

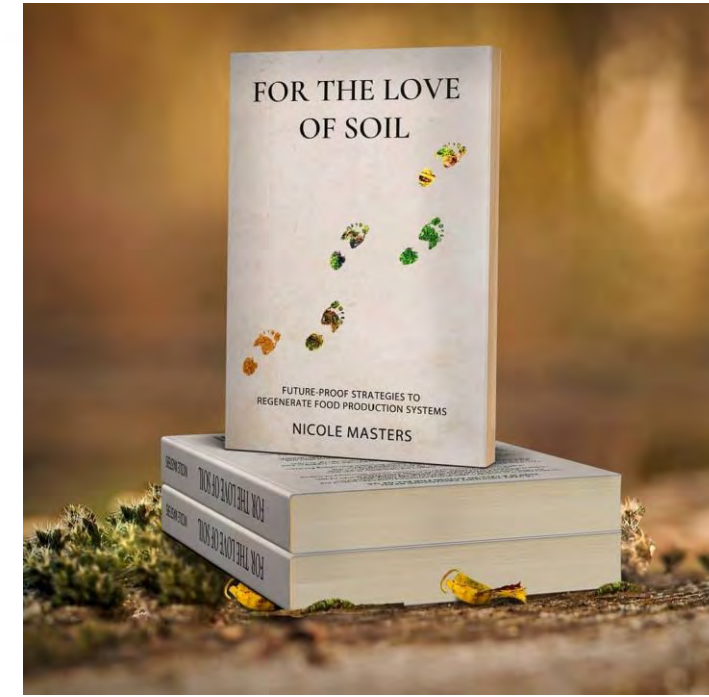
- Check Out Dr David Johnson on Youtube – watch the first 20mins of this recent talk <https://youtu.be/2az4AKy0suE>
- Fungal dominant, no turning, add worms after hot stage





# Help your garden and help the Bay

- Look after your SOIL FOOD WEB
- 5 tenants of soil health – Armor and groundcover!
- ✓ COMPOST
- ⬡ Chemical fertilizer and biocides
- Grow plants!
- Seagrass Monitoring with EK – Late July and Early Nov
- Keep our Bay Clean😊



Awesome book on soil  
and land stewardship







Huge thanks to sponsors  
and supporters!

