



**COMPOSTING WITH WORMS:
VERMICOMPOSTING**

Brandon Merchant

- Owner of Southwest Victory Gardens
- Pima County Certified Master Gardener
- SmartScape Certified
- Former President of Tucson Organic Gardeners





WWW.SOUTHWESTVICTORYGARDENS.COM/DOCUMENTS

Our Philosophy

- Healthy soil encourages healthy plants
- Healthy plants require fewer pesticides and fertilizers (inputs)
- Garden with our climate not against it
- Reduce water usage
- Limit external inputs
- Encourage a natural ecosystem



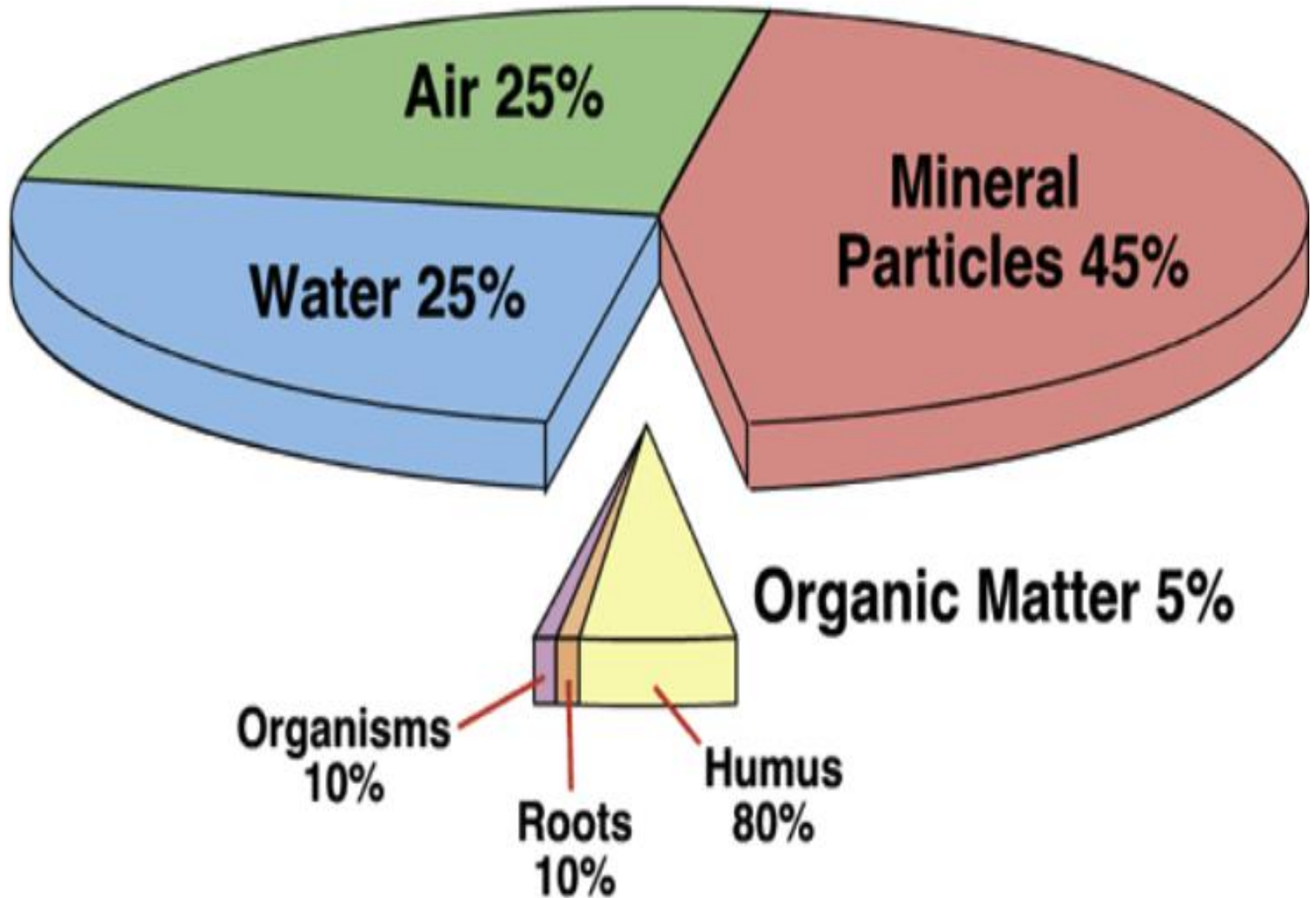
Why Healthy Soil?



- 2nd Largest Carbon Reservoir on the Planet.
- Holds 4x More Carbon than Trees and Plants.
- In last 40 years, 1/3rd of World's Farm Land has been Destroyed
- 40% of World's Soils are Classed as "Degraded" or "Seriously Degraded"



What is Soil?



Characteristics of Soil

Desert Soil

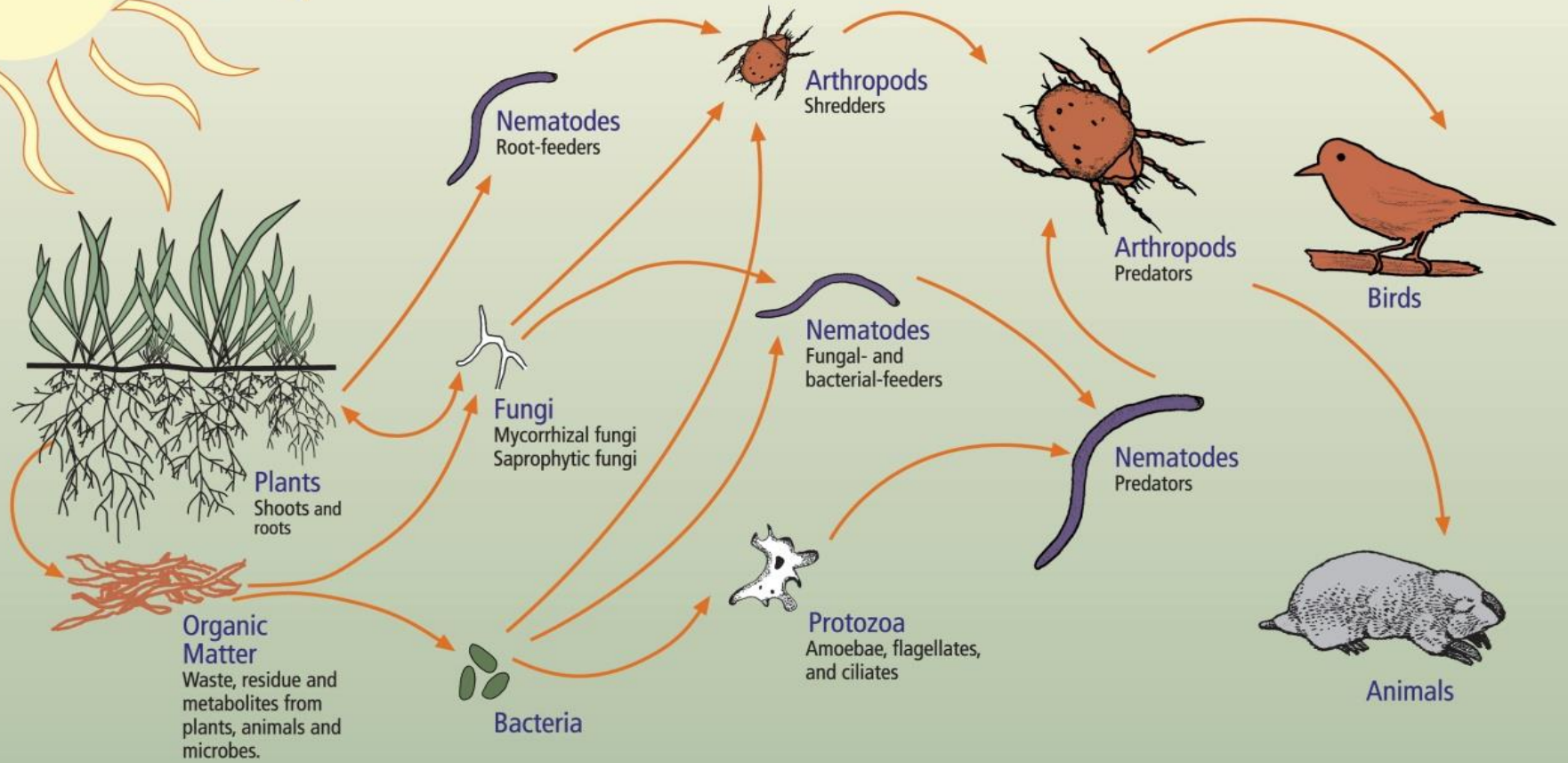
- Low Populations of Micro-Organisms
- Low in Organic Matter
- Lacks Nutrients
- Compacted
- High Ph

Healthy Soil

- High Population of Micro-Organisms
- High in Organic Matter
- No Toxins/Pesticides
- Balanced Nutrients/Ph
- Porous
- Good Tilth/Structure



The Soil Food Web



First trophic level:
Photosynthesizers

Second trophic level:
Decomposers
Mutualists
Pathogens, Parasites
Root-feeders

Third trophic level:
Shredders
Predators
Grazers

Fourth trophic level:
Higher level predators

Fifth and higher trophic levels:
Higher level predators

How to Build Healthy Soils

- Eliminate Synthetic Pesticides/Fertilizers
- Encourage the Soil Food Web
- Use Compost and Compost Teas
- No Till or Low Till
- Use Supplements if Needed
- Grow Roots Not Plants



Build the Soil – Mulch and Cover Crop



- Mulch, Mulch, Mulch
- Wood Chips for Trees and Shrubs
- Alfalfa Hay for Vegetable Gardens
- Avoid Straw
- Biologic not Geologic

Build the Soil – Compost

- Adds Soil Life
- Improves Tilth and Water Holding Capacity
- Balances Ph
- Eliminates Food Waste
- For New Gardens, Replace 50% of Native Soil with Compost.



Build the Soil – Compost



Be A “Microbe” Manager

- Traditional Composting
- Worm Composting
- Fermentation Methods

Build the Soil – Compost

Traditional Composting

- Bins, Heaps, Piles
- Hot or Cold
- Mixed Ratio of “Greens and Browns”
- Must be turned, and sifted
- Keep moist for best results



Build the Soil – Compost

Fermentation Composting

- Bokashi
- KNF
- Takakura



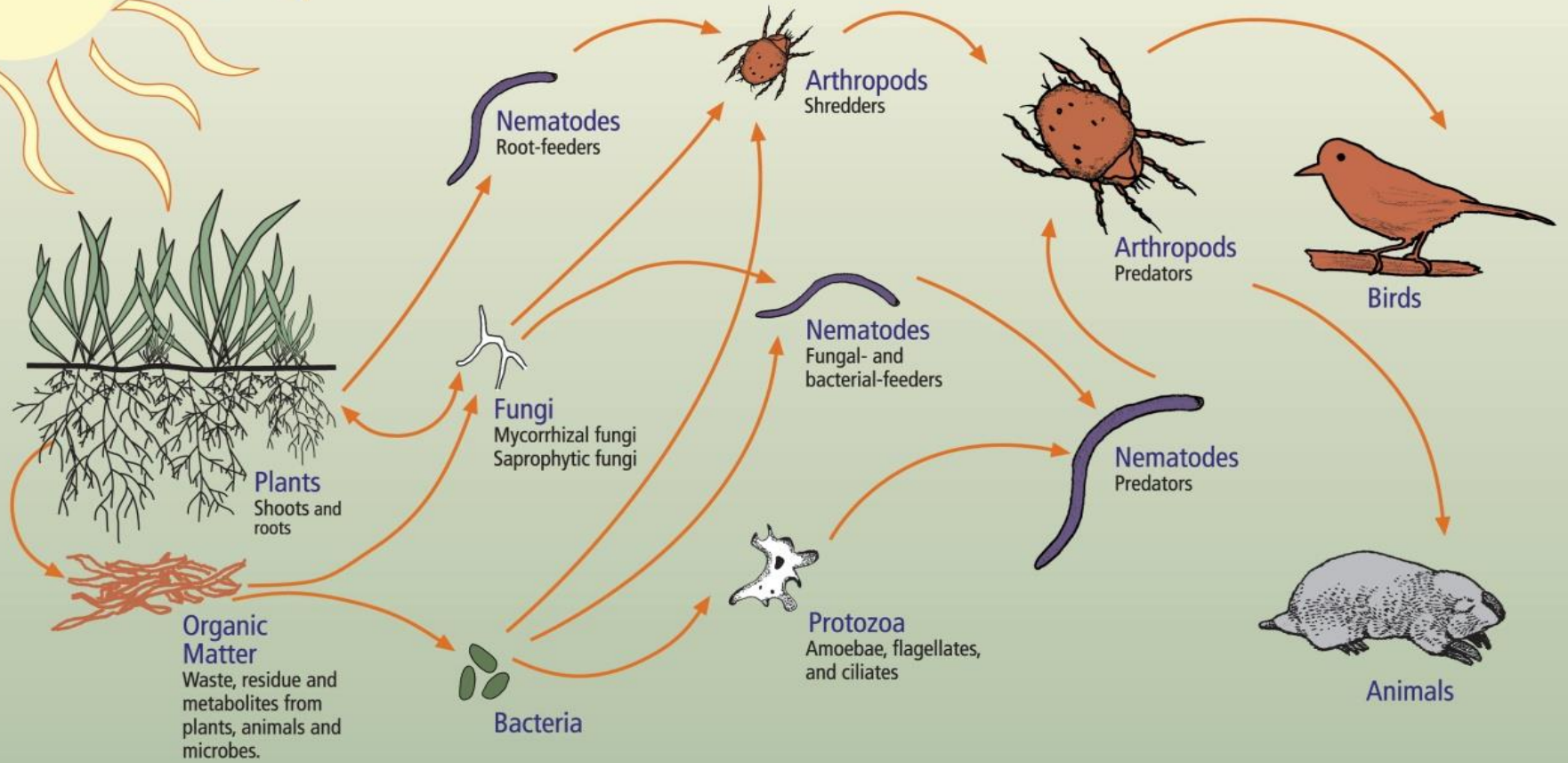
Build the Soil – Compost



Worm Bin Composting

- Nutrient Dense Fertilizer
- Indoors or Outdoors
- Can be Very Efficient

The Soil Food Web



First trophic level:
Photosynthesizers

Second trophic level:
Decomposers
Mutualists
Pathogens, Parasites
Root-feeders

Third trophic level:
Shredders
Predators
Grazers

Fourth trophic level:
Higher level predators

Fifth and higher trophic levels:
Higher level predators

Worm Bin Location

- 55° - 85°
- Always Shaded
- Indoors Ok



Build or Buy?



- Different Styles
- Most Work OK
- Can be Basic or Fancy

Bedding Materials

- 50/50 Aged Manure Compost
- Shredded Paper
- Coco Coir

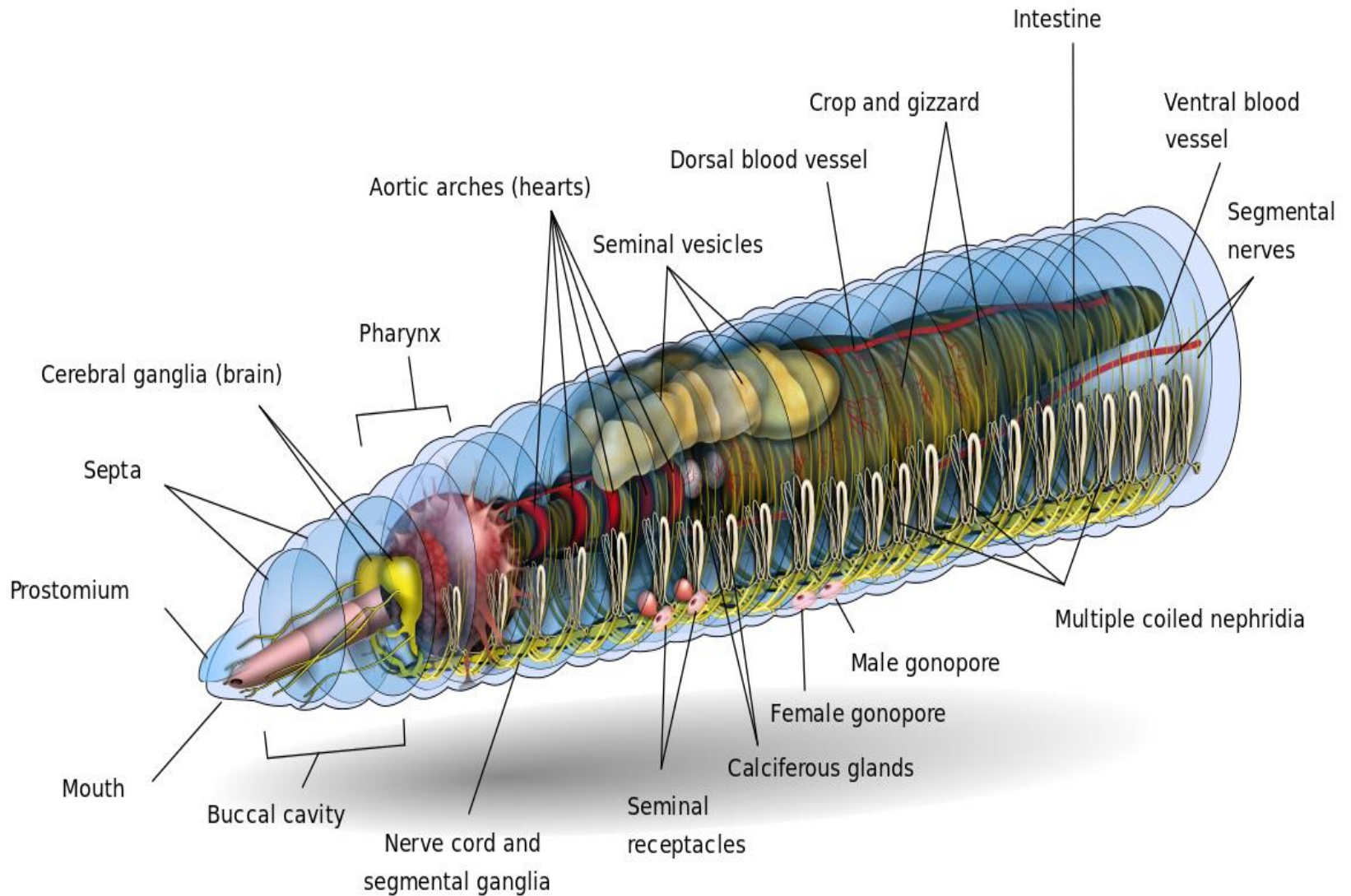


Choosing the Right Worms



- *Eisenia fetida*
- Red Wigglers
- Buy Online

Worm Anatomy



Setting up Worm Bin



- Weigh Food
- $\frac{1}{4}$ – $\frac{1}{3}$ Moist Bedding
- Add Worms
- Feed

Feeding Worms

- Feed on as needed basis
- ½ body weight a day
- Blend food whenever possible
- Avoid processed foods
- Feed on top don't mix in



Care and Maintenance



- Keep Moist
- Keep Cool
- Other Critters
- Molds and Fungus

Harvesting Castings

- Many Harvesting Methods
- Sift or Don't
- Won't look like store bought





WWW.SOUTHWESTVICTORYGARDENS.COM/DOCUMENTS

RESOURCES

- Tanks Green Stuff
- EcoGro
- Reading List
- Gardening Clubs
- Local Businesses
- Friends and Family





THANK YOU!
(520) 576-7085