

Slugs and Snails:



Know Your Enemy

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Photo: Nature Publishing Group

*Slugs and
Snails –*

*What are
they good
for?*

Land Snails & Slugs of Oregon

*Natives
and
exotics*



The banana slug is a native



Forest dweller
not a garden pest



Ariolimax columbianus

The colorful European Red Slug



Comes in many colors

Note red “skirt”



Arion rufus

A cannibal - Great Gray Garden Slug



Leopard spots - tiger stripes



Limax maximus
© A.J. Silverside

Limax maximus

The bad guy - Gray Garden Slug



Smallest - very destructive



Deroceras reticulatum

Interesting - shelled slug



Testacella haliotideae



More every day! Brown Garden Snail



UC Statewide IPM Project
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Cornu aspersum
(formerly *Cantareus aspersus*, *Helix aspersa*, and *Cryptomphalus aspersus*)

Not to be mistaken for ...



Photo: Robin Rosetta



Brown Garden Snail
Cornu aspersum

Pacific Sideband
Monadenia fidelis



New ones keep coming



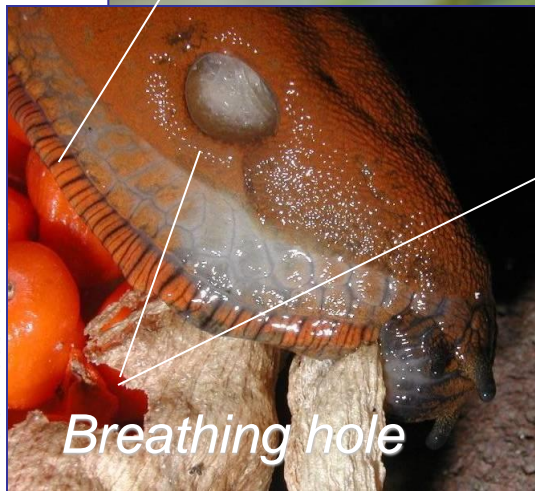
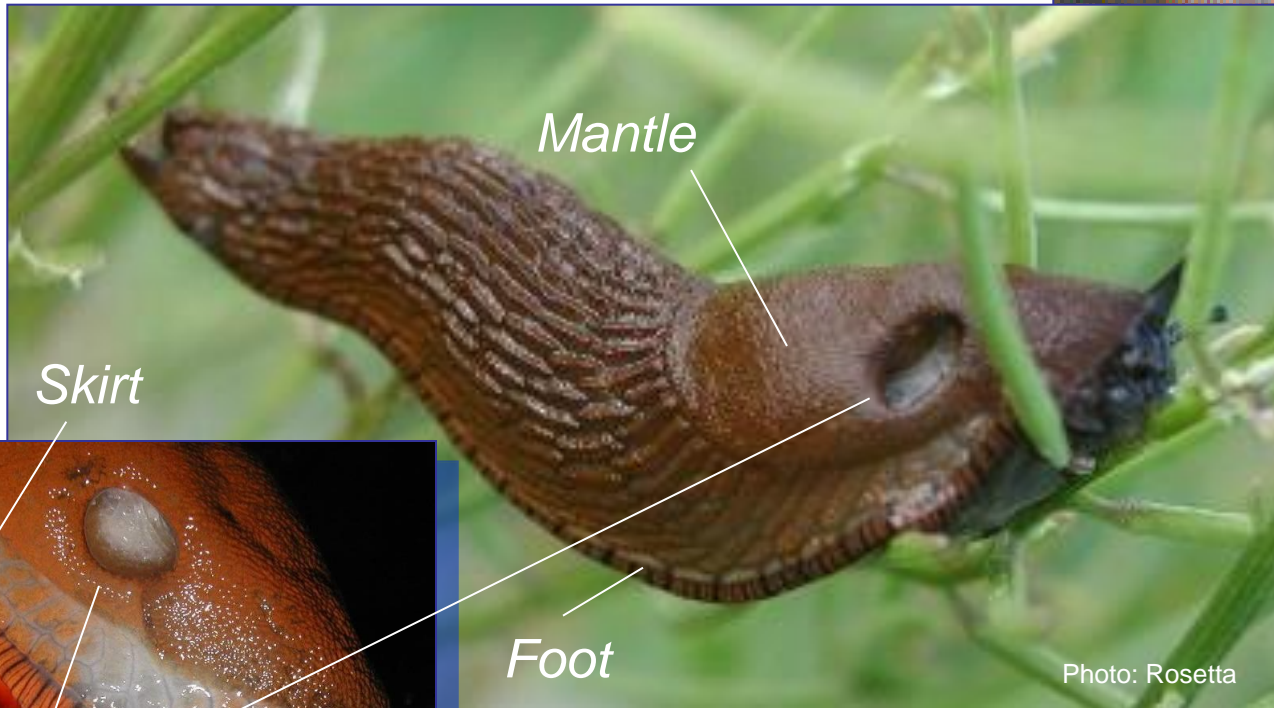
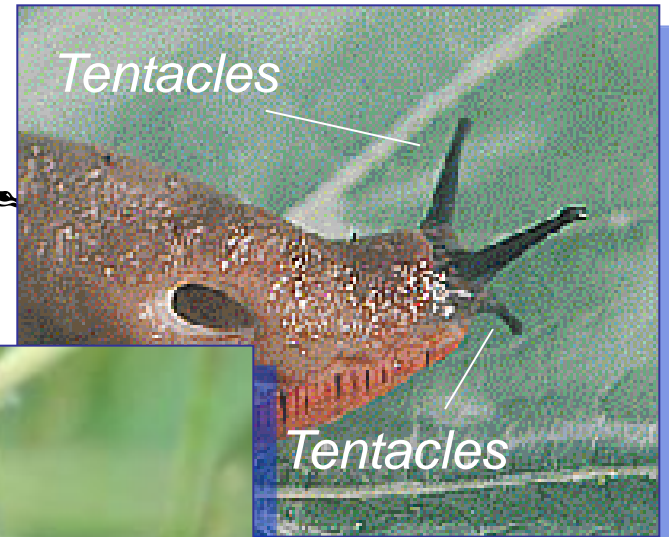
Ghost slug (Selenochlamys ysbryda)



Triboniophorus aff. graeffei,



Your Basic Slug



Your Basic Snail



Shell

Tentacles

Photo: Simon Wa cc-by-2.0



Foot

Tentacles

A most destructive garden pest



- Eating
 - Rasping "tongue"
 - What?
 - How much?
 - Efficient



Could be mistaken for . . .



Black vine weevil



Photo Credit: Johnny Stark

Imported cabbageworm



Photo credit Michael Masiuk

Understanding Slugs and Snails



- Moisture
- Temperature
- Night vs. day
- Light
- Territorial
- Strength
- Speed



Mating efficiency makes more!



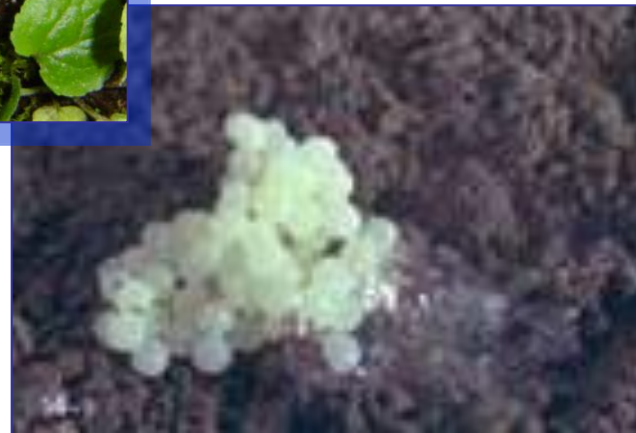
- Primarily in fall
- Hermaphrodites



Egg laying on their terms



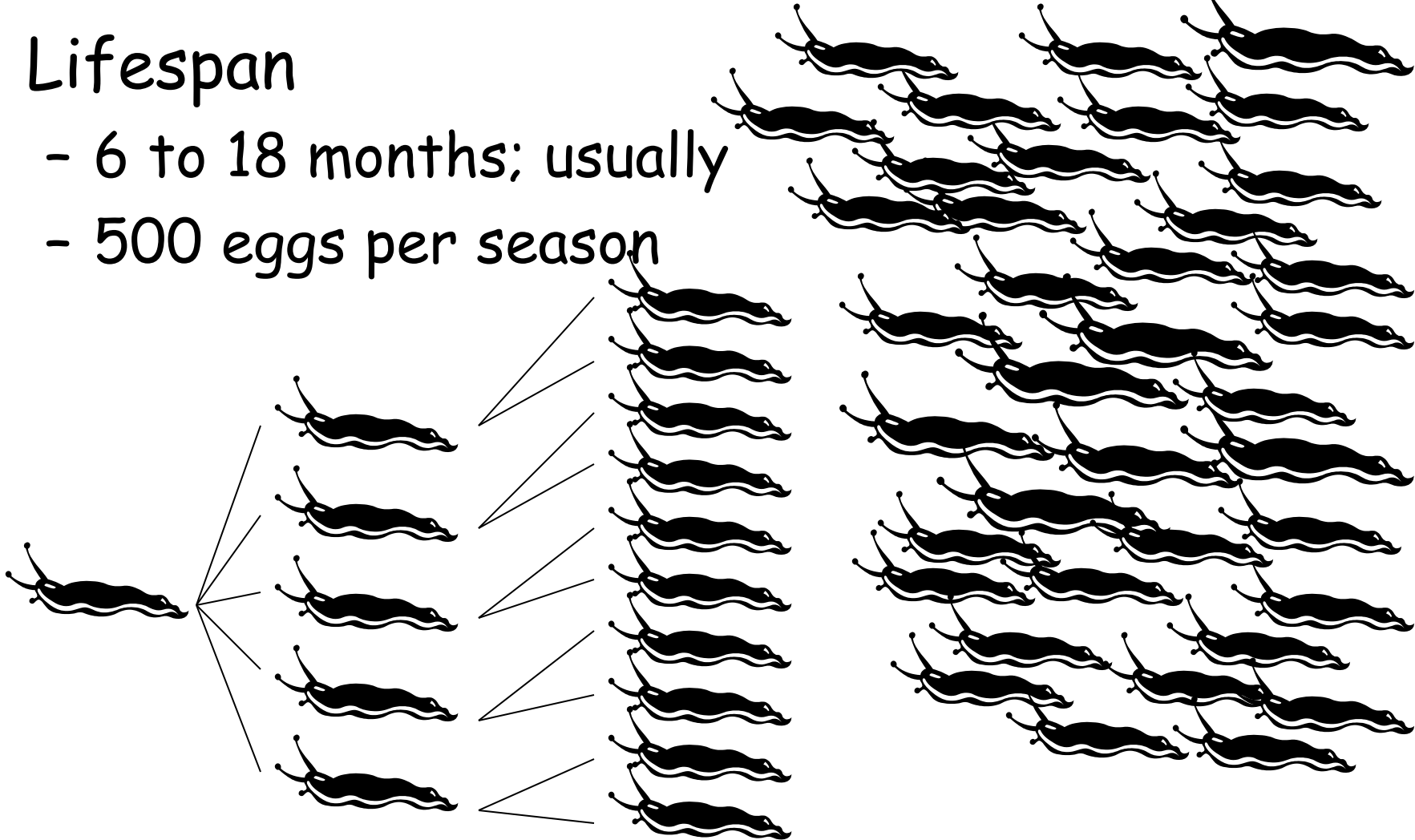
500 eggs per season !



What if all the eggs survived!!



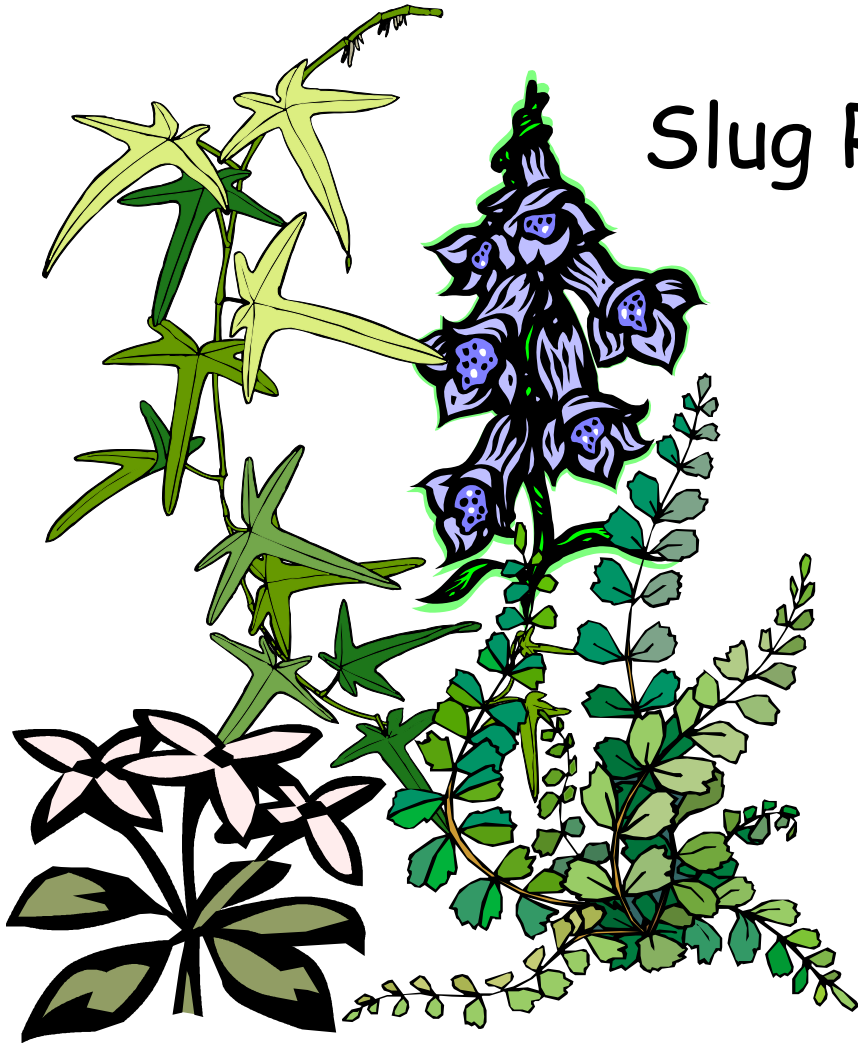
- Lifespan
 - 6 to 18 months; usually
 - 500 eggs per season



Can We Prevent Attack?



Slug Resistant Plants?



Limit problems with plant choices



- **Slugs avoid eating**

- Astilbe
- Bleeding Hearts
- Candytuft (evergreen)
- Ferns
- Foxglove
- Hens and chicks
- Impatiens
- Ivy
- Sedum
- Solomon's seal
- Sweet woodruff
- Wintergreen (teaberry)

- **Slugs love to eat**

- Daffodils
- Hosta
- Lettuce
- Lilies
- Lobelia (perennial)
- Narcissus
- Primroses
- **Strawberries**
- Trillium
- Tuberous begonias
- Wild ginger

Do you know where they are?



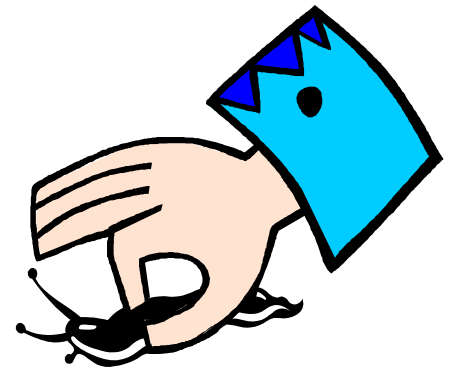
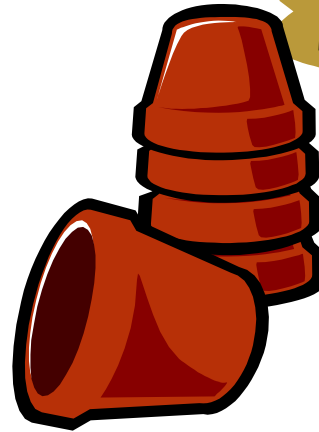
- Location
- Location
- Location



Options for control



- Cultural and Physical
 - Timing of watering
 - Sanitation
 - Mulch or no mulch?
 - Tilling/hoeing
 - Hand Picking



An ounce of protection



- Barriers
 - Copper strips/netting/sprays
 - Lime, ashes, diatomaceous earth
- Solarization of beds



Another ounce of protection



- Predators

- Encourage diversity

- Toads, salamanders, newts
 - Snakes
 - Beetles, millipedes, marsh flies
 - Foxes, porcupines, raccoons

- Frogs
 - Birds, ducks



Divert them from your plants



- Traps
 - Pit Traps
 - Purchased/homemade
 - Boards
 - Citrus/Melon
 - Pots



Give them an alternative



Baits

- Beer
- Yeast (brewer's)
- Lettuce
- Corn Meal
- Bran



Now that you have them



. . . what do you do with them?

- Soapy water??
- Ammonia
- Vinegar
- Out in the trash
- Into the freezer



Have them go somewhere else



- Repellent products
 - plant extracts
 - Neem
 - Garlic
 - Peppermint
 - Rosemary
 - Cinnamon oil
 - copper

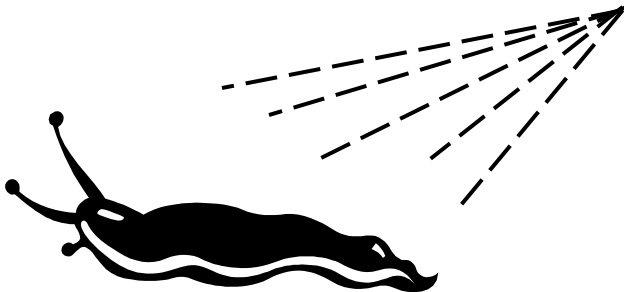


But you have to hit them



Botanicals

- Dazitol
 - Capsaicin and mustard oil
- All Natural
 - Plant extracts



Okay, you can poison them



- Commercial Baits

- Metaldehyde

- (Deadline, Ortho, Slug Fest, etc.)

- Iron phosphate

- (Whitney Farms, Sluggo, Escar-Go, etc.)

- Sodium Ferric EDTA

- (Corry's, Dr. T's Slug & Snail Killer)



Okay, you can poison them



- Commercial Baits

- Placement

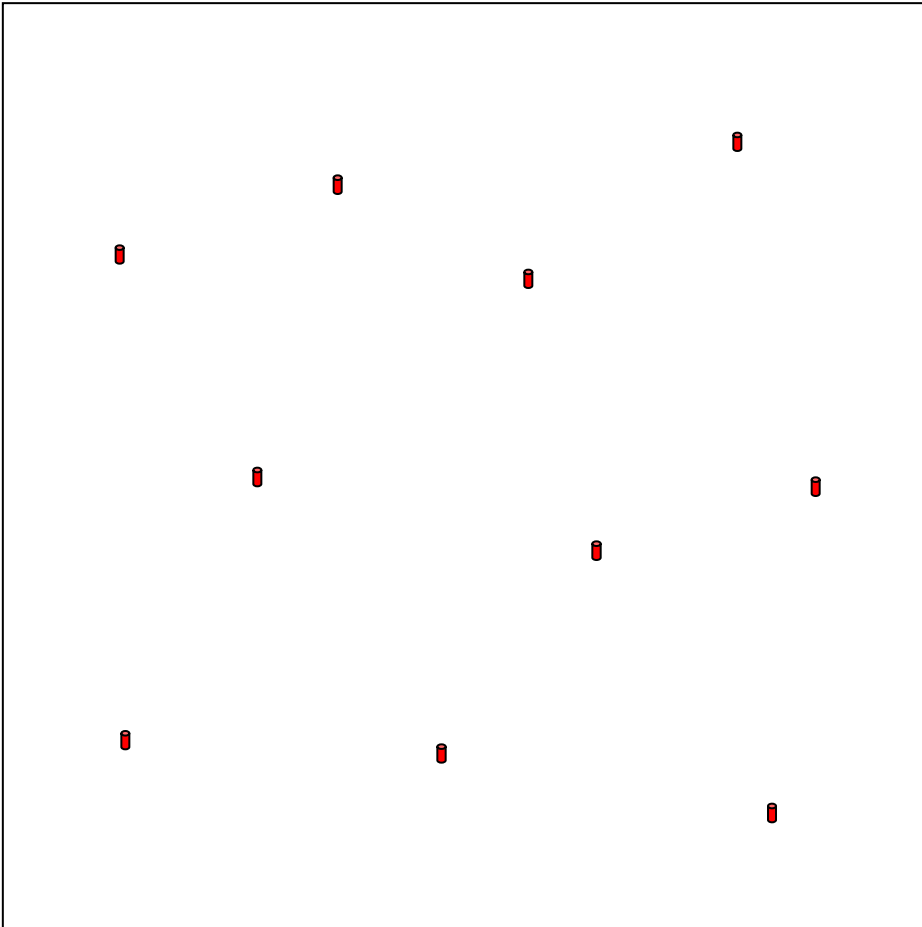
- location, location, location

- Timing

- Fall, Spring, Summer, if irrigating



Using the correct amount



- As the label suggests
- Not in piles

For example, Sluggo

Poor control is not always your fault



- Bait thieves



William Gavin
Oregon State University



The future



Anti-feedents extracts

carrot family, beet family
artemisia (mugwort), caraway
neem plants, cinnamon



Photo: Washington.edu

Attractants improved



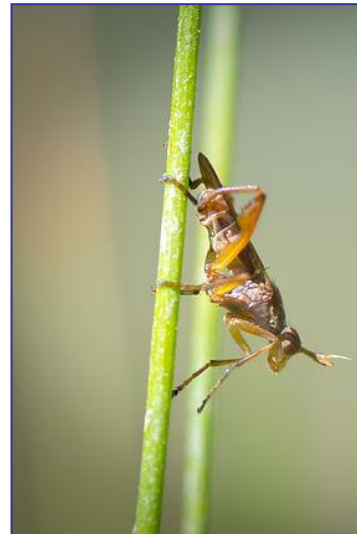
Photo: bexar-tx.tamu.edu

Photo: Anneli Salo cca-sa 3.0

The future



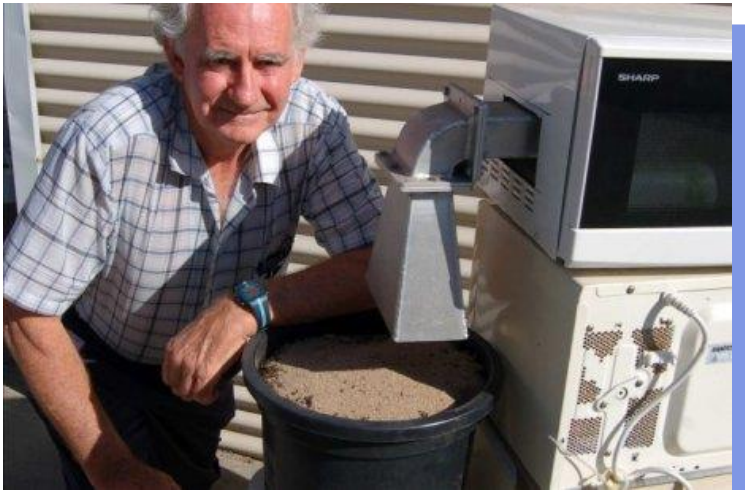
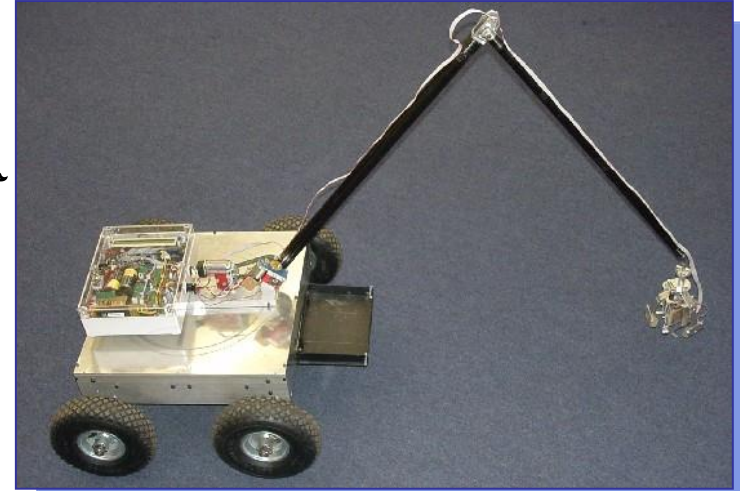
- Killer nematodes
 - *Phasmarhabditis hermaphrodita*
 - Available in the UK
 - Found in the US
- Marsh fly
 - *Sciomyzidae*



On the edge . . .



- Slugbot
 - Artificial intelligence?



- Modified microwave
 - Heating



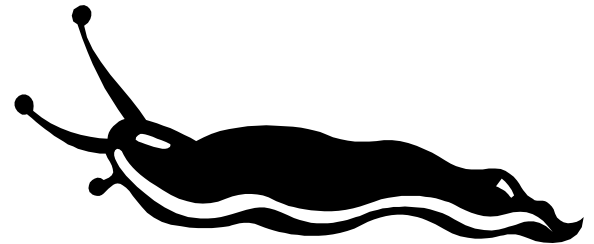
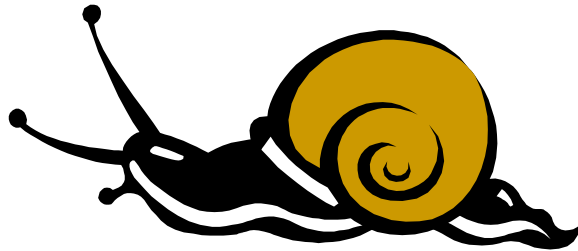
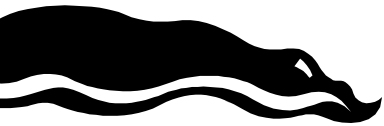
- Caffeine
 - Coffee is 0.1% - 0.4% (espresso, anyone?)

Slug and Snail Control Strategy



- Reduce - not eradicate
- Combine and customize methods
 - Fall is the most effective time
 - Prevent egg-laying
 - Throughout the season
 - Barriers, baits, traps
 - Till, when appropriate
 - Sanitation always
 - Extra measures for favored plants

*...keep on following
that slime trail!*



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Trying the non-synthetic way



- Repellent products

- plant extracts
- cinnamon oil
- copper

- Botanicals

- Dazitol
 - capsaicin and mustard oil



Okay, you can poison them



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- Types

- Metaldehyde

- (Deadline, Corry's, Ortho, etc.)

- Iron phosphate

- (Whitney Farms, Sluggo, Escar-Go, etc.)



- Placement

- location, location, location

- Timing

- Fall, Spring, Summer, if irrigating

Okay, you can poison them



- Commercial Baits

- Placement

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Can they be stopped???



Prevention

Cultural controls

Physical controls

Biological controls

Chemical controls

Least toxic first

Modified microwave

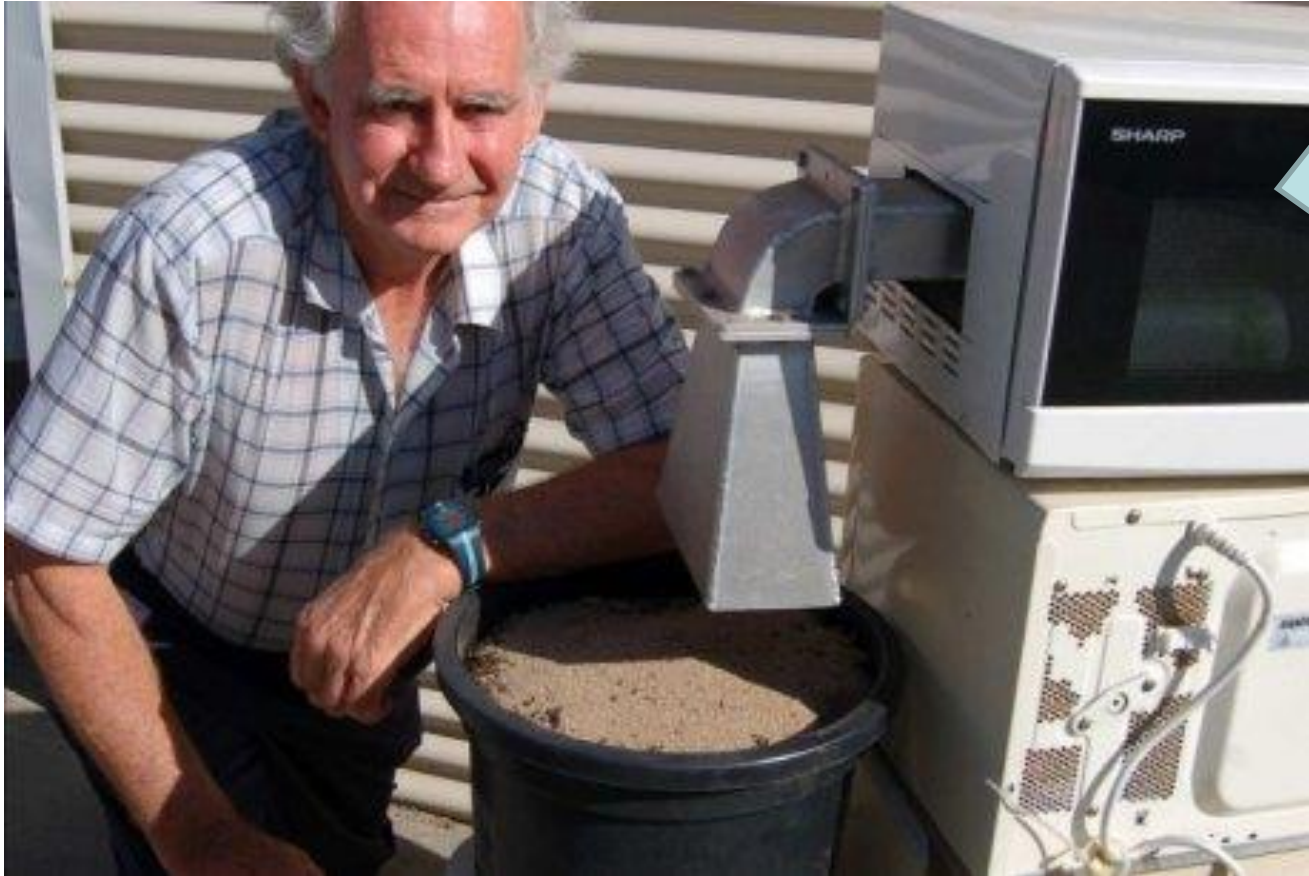


Photo credit: DAFWA

John Moore , Australian researcher