

# Integrated Pest Management

Plus Pathogen Suppression.

Accepting Our  
Role In The  
“Grand Alliance”







# Principles of IPM

- 1) Allowing nature to control nature. Forethought = Prevention.
- 2) Observation/ The language of plants = Monitoring plant health.
- 3) Its all about balance. The “good” and the not so “good”.
- 4) A Plant Positive Approach = Being proactive.
- 5) Start with least harmful method of control.
- 6) “Tolerance” a practice not action.
- 7) Finally understanding we are not in control and most bugs are good if not essential to our survival.



# Careful Observation

- Taking time to communicate with the plants: standing back to study the landscape is crucial in evaluating a true sense of plant health.
- Close up critical investigation of plants especially underside of leaves, at base of plants and the roots.
- Plants don't lie. If something is askew plants will show it. We just need to listen to them.
- Seek out answers: send photos and take pest and plant samples to people with knowledge.



# Balancing the “Good” and the “Not So Good”

- Invite the (good guys) beneficial microbes & beneficial insects. The good bugs keep the bad bugs in check.
- 1) Create a favorable environment for the “beneficials” and you will be amazed of the diversity that shows up.
- 2) Import or purchase (good guys) beneficials insects, decollate snails, mycorrhizal fungi, predatory nematodes and worm tea.



# Prevention is The Best Cure...

- “The sooner we make peace with the landlords... the bugs... the sooner we’ll all do a lot better”
- Most bugs and microbes are beneficial and often essential:  
Ex. pollination, bacteria, fungus...oh and yeast!
- We are not in control. We can spray and spray and the more we spray the more they adapt: Why?  
Ex. antibiotics.
- Nature can only keep up with nature. Here’s where we can offer some assistance.



# Creating Habitat For The Beneficials

- Increasing Biodiversity is key to the health of any garden ecosystem. Plant Positive strategy: weeds, cover crops, polyculture instead of monoculture.
- Many native plants attract beneficials:  
Ex. buckwheat, sage, grasses and wild places.
- Small flowered plants: Ex. fennel, alyssum, rosemary, cilantro, lavender, clover, daisies and many varieties of herbs.
- Native wildflowers and cutting flowers also act as insectary plants to draw in predator species of insects.





# Creating Habitat For Beneficials In The Soil

- Mulching when done correctly can encourage a multitude of beneficials from insects, microbes, fungus, reptiles to amphibians.
- Compost used often feeds the soil food-web that acts as the immune system of the soil.
- Worm castings stimulate plants to produce higher levels of chitinase an enzyme that repels insect pests.
- Feeding the soil with a complete organic fertilizer (COF).



# Controlling Infestations

- When pests are found the best action sometimes is non-action. They may be isolated or are harmless or very short lived.
- Discard infected plant or parts.
- If control is necessary start with least harmful method.
- If chemicals (synthetic or natural) are last resort use carefully and correctly.

# Control Methods

- Prevention! Give your plants what they need.
- Spray off with water, then add soap.
- Spray with neem, garlic, chili pepper, nicotine, compost/worm teas.
- Barriers like: plastic rings, copper rings, ashes, diatomaceous earth, tangle foot.
- BT = *Bacillus thuringiensis* for caterpillars



Okay?  
So What About  
Those Furry  
Pests?

# Four Legged Pests

- Gophers: trapping and or anti-coagulant baits, exclusion wire around roots (pre-planting).
- Rats: traps, exclusion from trees, baits.
- Squirrel: trapping (Squirrel-inator), anti-coagulant baits.
- Rabbits: exclusion fencing, sustainable harvesting. Create nesting and roosting sites for birds of prey (barn owl boxes, bird of prey poles)
- Deer: Fencing is a must, 8 foot minimum, (urine doesn't work)
- Raccoons and Opossums: Relocation traps, or?



# The Good Guys

- Spiders: they just show up (if we like them or not).
- Ladybugs esp. the larva: please don't purchase.
- Wasps: (no kidding) Yellow Jackets, Predatory and Parasitic.
- Flies: (Yes Flies! I'm Totally Serious ) Syrphid Flies, Hover Flies, Tachinid Flies.
- Praying Mantises: buying them is okay. Dragon Flies: they are predators on the wing.

Feathered Foe?

# Crop Eating Birds

- Exclusion, Exclusion, Exclusion!



Maybe We Could  
Just Eat The  
Bugs?

Or Maybe We Could  
Employ Bug-Eating  
Plants?

















The End