



*Yankton*  
*Seed Library*

# Presented by Missouri Valley Master Gardeners



# Bad Bug/Good Bug







# **Insect Pests**

**and their management**

# Gentle Intervention



- Provide habitat for predacious insects
- Keep plants healthy
- Plant varieties pests don't like
- Plant varieties that don't provide camouflage
- Use companion plants
- Plant fragrant flowers and aromatic herbs
- Pick & dispose of insects

# Aphids



- Suck plant juice
- Transmit viruses
- Strong spray of water
- Soapy water (1 tsp. dishwashing liquid/1 qt. water)
- Fruit trees—use dormant oil fall and early spring



# Cabbageworms

- Holes in leaves
- Dark green droppings
- Plant near onions
- Handpick
- Use Bt treatments weekly (Thuricide or Dipel)



# Codling moths



- Mother of apple worm
- Deform apple & ruin interior
- Use barrier bands
- Pick up & destroy fallen apples
- Molasses/water mix
- Treat with malathion or carbaryl every 10 days after petal fall



# Colorado Potato Beetle

- Feed on leaves of potatoes and eggplant
- Hand pick beetles
- Destroy eggs on leaf underside
- Thick straw mulch



# Cucumber beetles



- Carry bacterial wilt and cucumber mosaic virus
- Larva feed on roots
- Cucumbers: plant non-bitter varieties
- Companion plant: radishes
- Floating row covers



# Cutworms

- Completely fell plants
- Night hunt and destroy
- Search in soil around felled plant & destroy
- Encircle transplants with paper collar



# Earwigs



- Predator of aphids & small insect larvae
- Chew vegetable seedlings & flowers
- Trap
- Garlic spray at sundown (4-6 cloves garlic blended /1 qt. water; let stand overnight & add 3 drops of liquid soap)



# Grasshoppers

- Defoliate plants
- Lightweight floating row covers
- Sprinkle grassy areas with semaspore bait when hoppers are 1/2" or less in length
- Small areas—hand pick



# Mealybugs



- Suck plant juices
- Rubbing alcohol (low infestation) on cotton swab
- Strong spray of water followed by insecticidal soap
- Rubbing alcohol/ water spray (1:9 ratio)

# Spotted wing drosophila

- Newcomer to area
- Destroy berries
- Plant early varieties
- Prune canes
- Fine mesh netting or poly covered tunnels
- Remove all berries from plants



# Slugs or Snails



- Slime leaves
- Ruin strawberries (fruit)
- Spear & drop into salty water
- Ring plants with diatomaceous earth or sawdust
- Trap with beer





# Squash bugs

- Suck plant juices
- Rotate crops
- Hand pick adults
- Remove eggs
- Catch under a board
- torch



# Squash vine borers

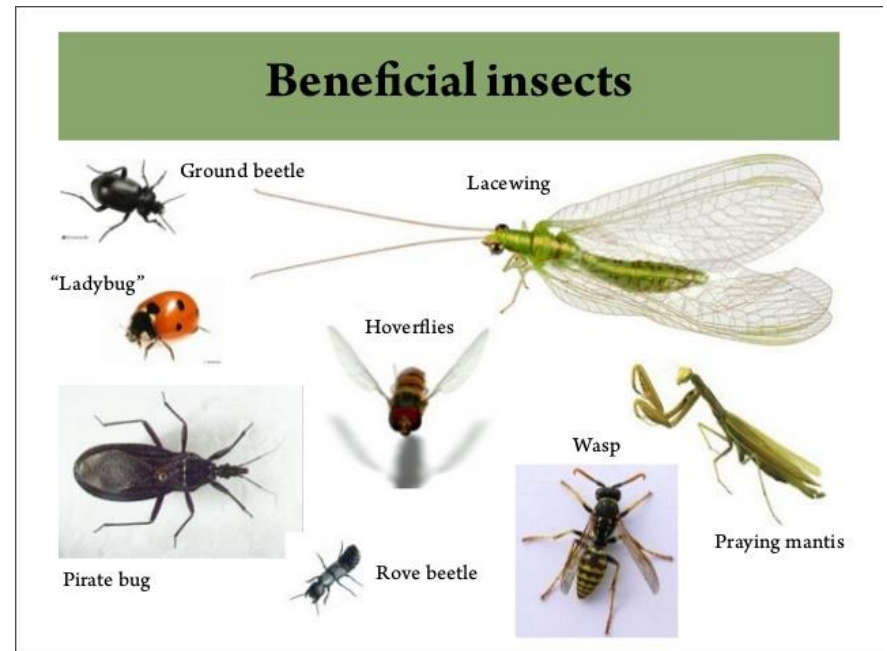


- Kill off parts of plant
- Rotate crops
- Plant late
- Cover until female flowers appear
- Surgically remove borers



# Beneficial Bugs

- Predators
  - Move about and seek prey
- Pathogens
  - Produce a lethal disease
- Parasites
  - Seek hosts for their young



# Lady Beetles

## 200 Species



- Adults eat aphids, mites, and mealy bugs
  - Larvae feed on soft bodies small insects
  - Plant coreopsis, dill, fennel, and yarrow to attract them.
  - To maintain in yard have pollen, nectar and honeydew present
- (sticky liquid secreted by insects)

Little eggs by Rene Mense (2014) <https://www.flickr.com/photos/renemense/1399038614/>

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# Ground Beetles



- The nocturnal predator of slugs, snails, cutworms, cabbage maggots, and pests that live in your garden's soil
- One beetle larva can eat more than 50 caterpillars
- Perennials provide stable habitats, or white clover

# Soldier Beetles



- Feeds on aphids, mealy bugs and caterpillars
- Larvae feed on root maggot larvae
- Plant catnip, goldenrod, and hydrangea.

# Fireflies

- Predator of slugs, snails, and worms
- Adults may feed on scale crawlers, aphids and soft bodies insects



# Green Lacewings



- Eat aphids, caterpillars, mealybugs, scales, thrips, and whiteflies as both adult and larva
- Angelica, coreopsis, cosmos, and sweet alyssum attract



# Tachinid Fly



- Larvae burrow their way into many caterpillars, destroying pests from the inside
- Plant dill, parsley, sweet clover, and other herbs to attract adult flies.

# Aphid Midge



- Feed on more than 60 species of aphids
- Paralyze their prey with toxic saliva
- Pollen plants will bring to your garden

# Damsel Bugs



- Feed on aphids, small caterpillars, leafhoppers, thrips
- Collect damsel bugs from alfalfa fields using a sweep net, and then release them in and around your vegetables

# Mantids

The best-known good bug is probably the praying mantis.



- Found nearly anywhere in home landscapes including on trees, shrubs and garden annual and perennials
- Extreme generalists that will feed on just about anything they can catch including both pests and other beneficial arthropods such as bees and spiders



# Spiders



- 202 varieties in South Dakota



# Braconid Wasps



- The adult female of this species injects its eggs into host insects
- Caterpillars, moths, beetle larvae, and aphids.
- The larvae then feed inside their hosts, and the host dies once the larvae have completed development
- Nectar plants with small flowers, such as dill, parsley, wild carrot, and yarrow

# Tachinid Flies



- Larvae are maggots that feed inside host insects
- Caterpillar(including cabbage worms and Gypsy moth), Colorado potato beetles, corn ear worms, cucumber beetles, cutworms, earwigs, four lined plant bugs, Japanese beetles, Mexican bean beetles, sawfly larvae, squash bugs, and tobacco budworms
- Feed on dill family, Aster family, cilantro, dill, fennel, parsley, Queen Ann's Lace, chamomile, feverfew, ox-eye daisy, Shasta daisy, sweet clover and wild carrot

# Pathogens

- **Viruses**
  - NPV(Nuclear Polyhedrosis viruses)
  - Causes wilt diseases
- **Fungi**
  - Entomophaga maimaiga
    - Gypsy moth
- **Bacteria**
  - Bt (Bacillus thuringiensis)
  - Attack digestive system
- **Nematodes**
  - They always carry a bacteria that is released when they penetrate the body



# Why You Should Attract Bats



- single bat can eat more than 600 mosquitoes per hour
- populations are declining due to pesticide use and habitat loss.

# Where do you find Bats



- hang out in old trees and large shrubs
- nest in abandoned buildings, hollow trees, under a building's eaves, in loose tree bark, and in bat houses
- water features, such as ponds, where insects may congregate

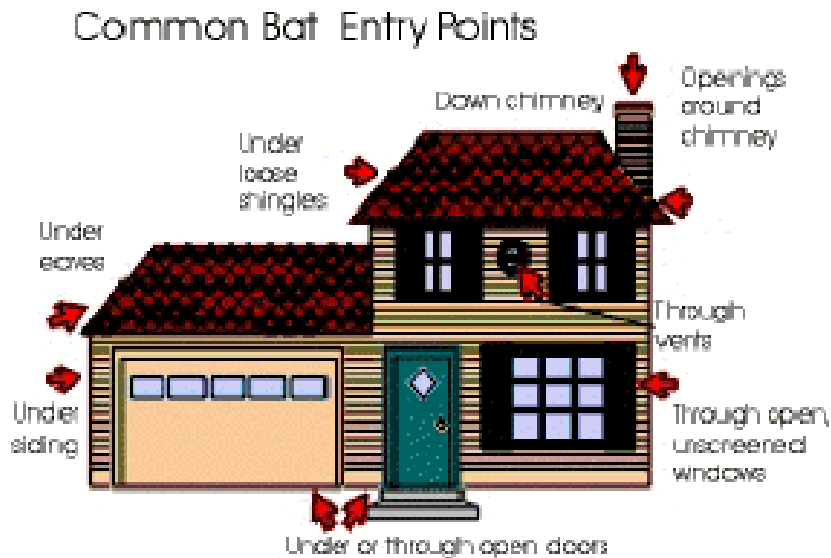
# Plants to attract Bats



- Planting night-blooming flowers will help attract bats (and give your yard another level of beauty). Some great night-bloomers include datura, moonflower, four-o'clock, yucca, evening primrose, night-blooming water lily, night-blooming jessamine, cleome, and nicotiana

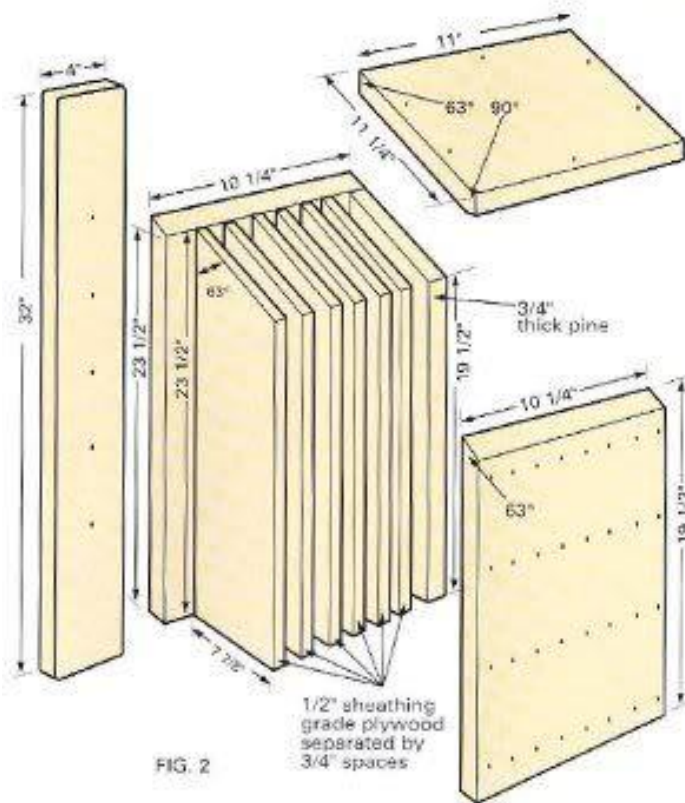
# Bat Myths

- Bats can catch rabies not as likely to catch the disease as many other animals never handle a bat or any other wild animal in your yard
- Not inclined to chew holes in your home's attic
- Will find openings and nest in attics if they can
- A few bat species are even important pollinators and feed off the pollen and nectar of flowers.





# Bat Houses



- Use rough, nontoxic wood (such as plywood or cedar) to make your box.
- The rough surface will make it easier for bats to climb in and out of the house.
- Keep the roughest side of the wood to the inside of the house.
- Bat houses work best if they're at least 2 feet tall, 1 foot wide, and 3 inches deep.

# Links on Building Bat Houses



- <http://www.nwf.org/Garden-For-Wildlife/Cover/Build-a-Bat-House.aspx>
- <http://www.diynetwork.com/how-to/outdoors/gardening/how-to-build-a-bat-house>
- <https://www.thisoldhouse.com/how-to/fun-family-project-how-to-build-bat-house>
- <http://www.batcon.org/resources/getting-involved/bat-houses>
- <https://morningchores.com/bat-house-plans/>

# Where to put a Bat House



- Hang them 10 to 15 feet above the ground and place them in a sunny spot where they can absorb lots of heat during the day. (Painting the boxes black is helpful.)
- Mount bat houses on poles, buildings, or other structures

# 10th Annual Tour of Lawns and Gardens

Saturday, June 24, 2017

Tickets and Luncheon at Ability Building Services  
Tickets sold from 8:30 to 11am DAY of Tour at Ability Building  
Services 909 W 23rd St Yards close at NOON  
\$10 Donation includes lunch



Plant Sale at Luncheon Site Questions call 605-263-3332  
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