
*An America Rose Society Presentation ©2005*

# IPM OF ROSE PESTS

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# INTRODUCTION

- There are many different types of organisms (insects, mites, diseases) in the home garden
- Very few are pests!
- Many beneficial organisms are present
- Correct identification of the pest is essential for proper control

# INTEGRATED PEST MANAGEMENT (IPM)

IPM is an environmentally sound integration of all control methods to control pest populations below economic or damaging levels

# IPM STRATEGIES

- Prevention
- Pest & Symptom Identification
- Regular Survey for Pests (presence or symptoms)
- Establish Action Thresholds & Guidelines

# IPM METHODS

- Cultural Control
- Mechanical & Physical Control
- Biological Control
- Chemical Control

# CULTURAL CONTROL

- Growing healthy plants
- Buying pest-free plant materials
- Choosing resistant varieties
- Choosing the planting site
- Fertilization - too much or too little
- Sanitation - removal of infected plant materials
- Watering methods

# MECHANICAL & PHYSICAL

- Barriers - e.g., copper banding for snails/slugs
- Mulching - for weed control & water conservation
- Solarization - for control of weeds and diseases
- Hosing & Syringing - for control of aphids, mites, & powdery mildew
- Handpicking & Crushing - for many large insects and beetles
- Hoeing - for weed control  Trapping - e.g., pheromone traps for tobacco budworms

# BIOLOGICAL CONTROL

- Parasites (Parasitoids) - e.g., parasitic wasps & flies
- Predators - e.g., lady beetles & lacewings
- Diseases - e.g., milky spore for Japanese Beetle, beneficial nematodes, etc.

# CHEMICAL CONTROL

- Inorganic Pesticides - Derived from elemental sources: Sulfur
- Organic Pesticides - Synthetic pesticides further classified by chemical families and modes of action.
- Botanical Pesticides - Derived from plant materials: Pyrethrum, rotenone, rynia, bioneem, pepper oil, etc.
- Microbial Pesticides - Derived from microbial organisms: *Bacillus thuringienses*

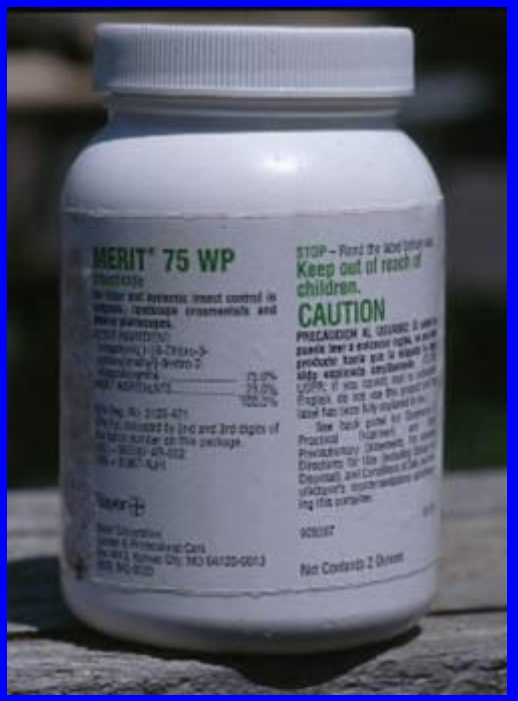
# SIGNAL WORDS

These words give information on the relative toxicity and corrosiveness of the pesticide

- POISON: Highly Toxic - Nicotine Sulfate
- DANGER: Highly Toxic - Funginex (Triforine)
  WARNING: Moderately Toxic - Roundup
- CAUTION: Slightly Toxic - many botanicals & microbial pesticides

# Garden Insecticides - Systemics



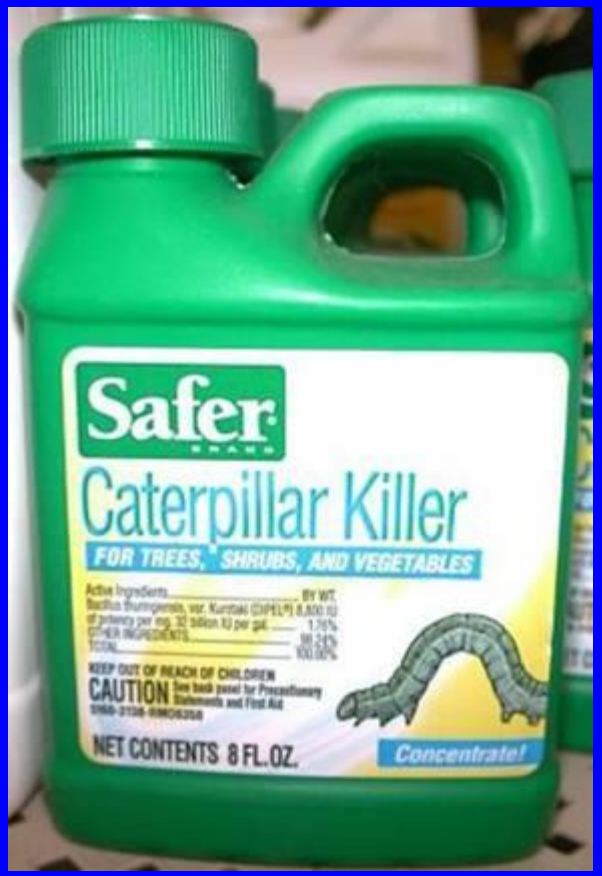
# Insecticides – Contact - Residual



# Insecticides – Contact – No Residue



# Insecticides - Microbal


# Aphids

# Aphid Natural Enemies



# More Aphid Natural Enemies


Cecidomyiid Midge Larva


Cecidomyiid Midge Adult


Lacewing Adult


Lacewing Eggs

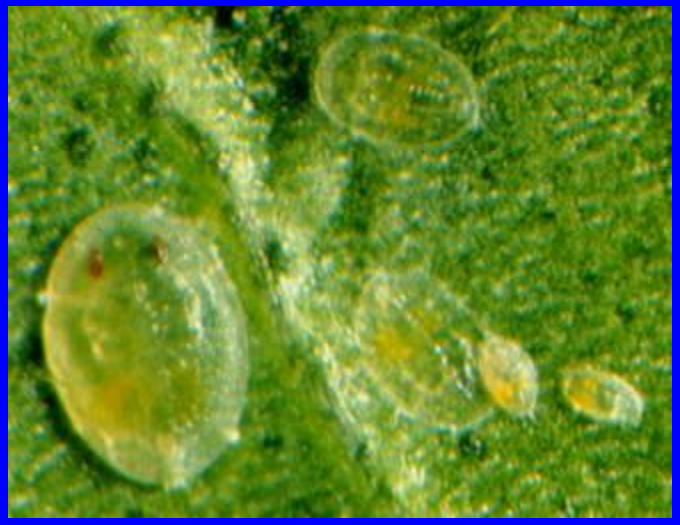

Lacewing Larva

# Sooty Mold – usually grows on top of honeydew produced by sucking insects

# Ants – commonly found on honeydew produced by sucking insects

# Mealybugs

# Whiteflies



# Rose Scale – common on berry bushes

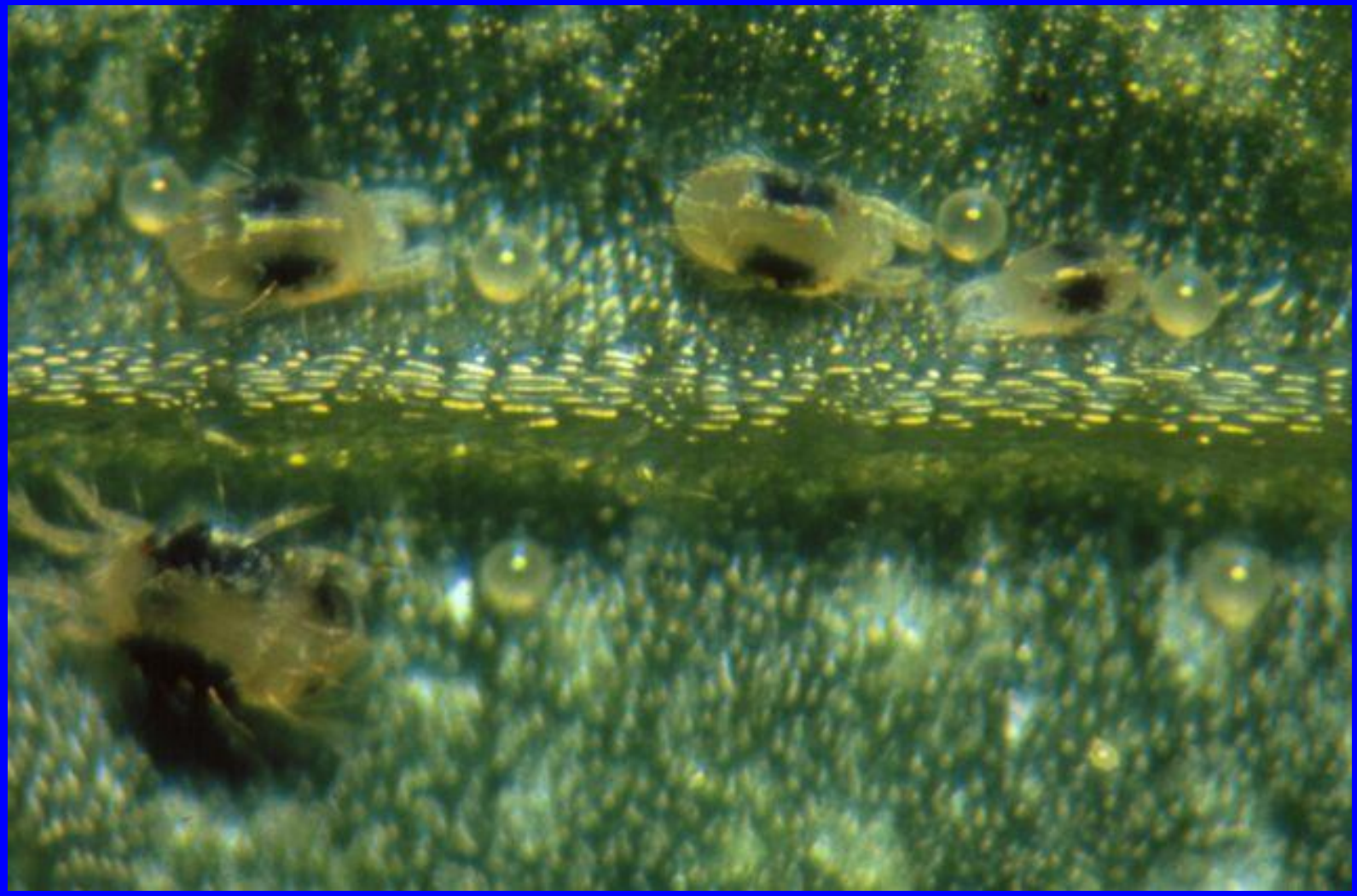
# San Jose Scale – common on fruit trees

# Scale Insect Natural Enemies

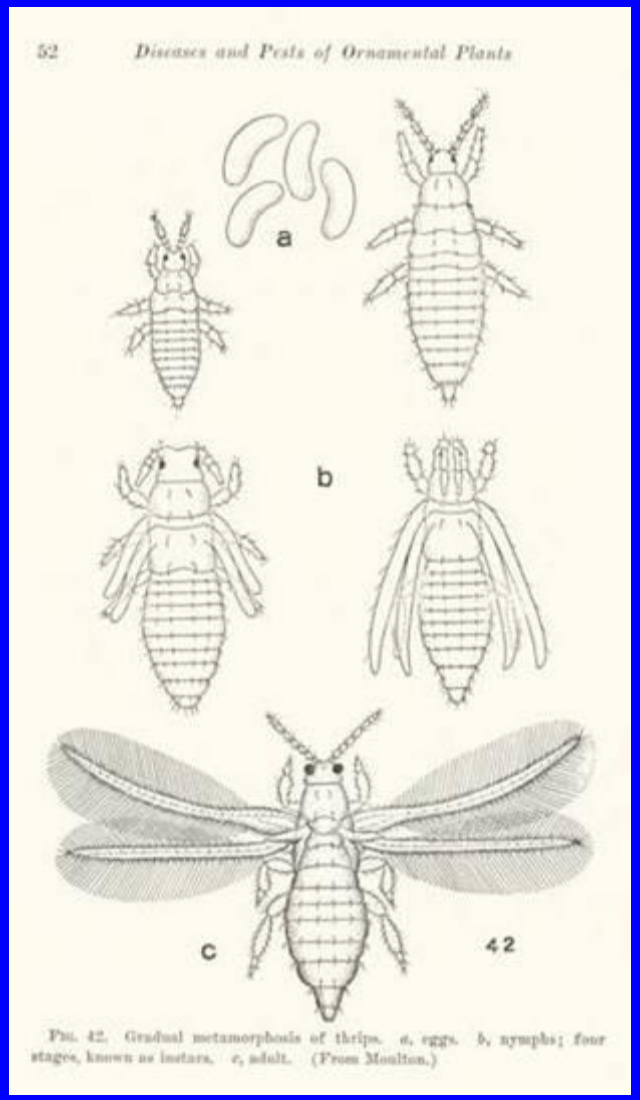

# Spittlebugs – unsightly “spit” or foam

# Spider Mites – suck individual cells dry

# Two-Spotted Spider Mites



# Flower Thrips – very tiny insects!
# Commonly found causing damage to rose petals



# Western Flower Thrips

# Rose Midge – tiny mosquito like flies, feeds on the apical buds of roses

# Katydids – long horned grasshoppers

# Snails & Slugs – leave a silvery slime trail behind

# Control Measures For Snails







# Diabrotica or Cucumber Beetles

# Rose Curculios – feeds on early flower buds

# Rose Curculio – damage to buds

# Other Beetles: Hoplia, Japanese beetles, Stem girdlers, etc.


# Fruit Tree Leafroller Caterpillars

# Tobacco Budworms - commonly migrate from companion plantings

# Marmara Cambium Miners

# Rose Stem Sawfly Damage on Rose

# Rose Stem Boring Sawfly
# Aka – Raspberry Stem Boring Sawfly

# Cane Boring Insects

Predatory aphid wasp

Most cane boring insects are predaceous on other insects and use rose stems for nesting

# Leafcutter Bees – do not eat leaves; they use them for lining nests

# Learn To Recognize The Good Bugs Of The Garden

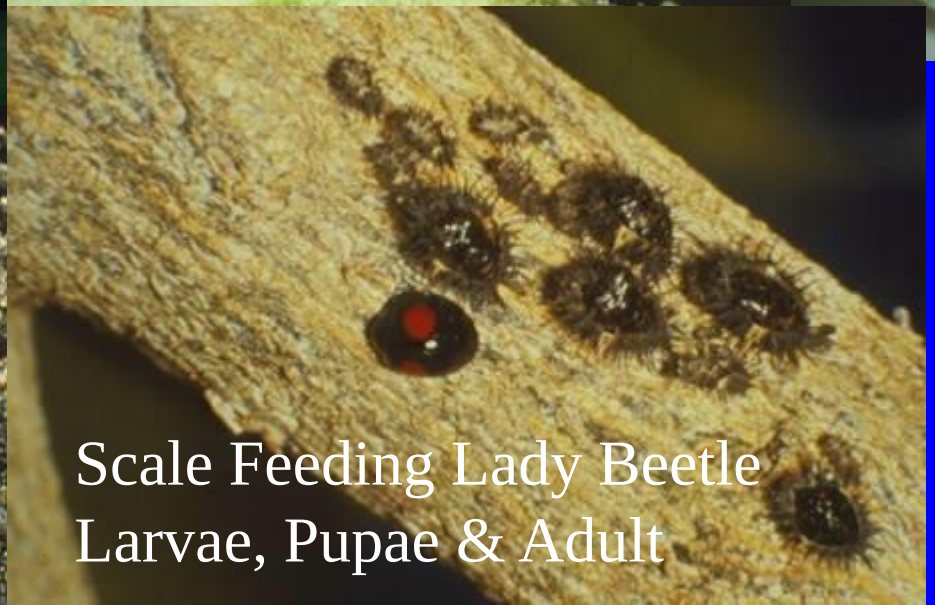
Leatherwinged Beetle

Lady Beetle Larva

Parasitized Aphid – A "Mummy"

Lady Beetle Pupae

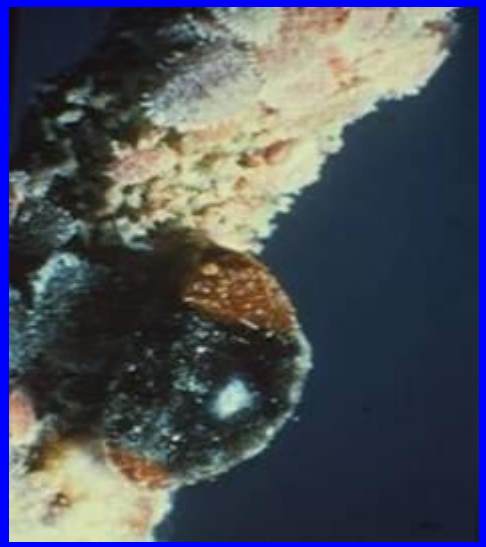
Ground Beetle



Scale Feeding Lady Beetle Larvae, Pupae & Adult

Mealybug Destroyer Lady Beetle Larvae

# Watch out for the Lady Beetles!



# IPM IN THE HOME GARDEN

- Establish damage levels for your own garden
- Make observations and record them
- Correctly identify the pest
- Take the appropriate action; sometimes the appropriate action is no action

# The End