

Odonata

Dragonflies and damselflies

From the Greek, meaning tooth



Damselfly

Dragonfly





Naiad

Orthoptera

Grasshoppers, crickets,
& katydids

Ortho = straight; ptera = wings

Orthoptera

Grasshoppers, crickets, & katydids

- Straight wings
- 2 pair of wings (sometimes wingless)
 - 1st pair leathery
 - 2nd pair membranous
- Jumping legs
- Chewing mouthparts
- Incomplete metamorphosis
- Pests or neutral

Grasshopper



Cricket nymph



Jerusalem cricket or potato bug



Isoptera

Termites

Iso = equal; ptera = wings

Isoptera

Termites

- Equal wings
- 0 - 2 pair of wings
 - membranous and equal size
- Bead-like antennae
- Chewing mouthparts
- Incomplete metamorphosis
- Pests or recyclers



Winged reproductives

Soldiers



Homoptera

Aphids, cicadas, hoppers, psyllids,
scale insects, whiteflies,
& mealybugs

homo = same; ptera = wings

Homoptera

Aphids, cicadas, hoppers, psyllids, scale insects, whiteflies,
& mealybugs

- Same wings
- 2 pair of wings
 - texture & shape vary
- Piercing sucking mouthparts
- Incomplete metamorphosis
- Pests

Potato leaf hopper adult



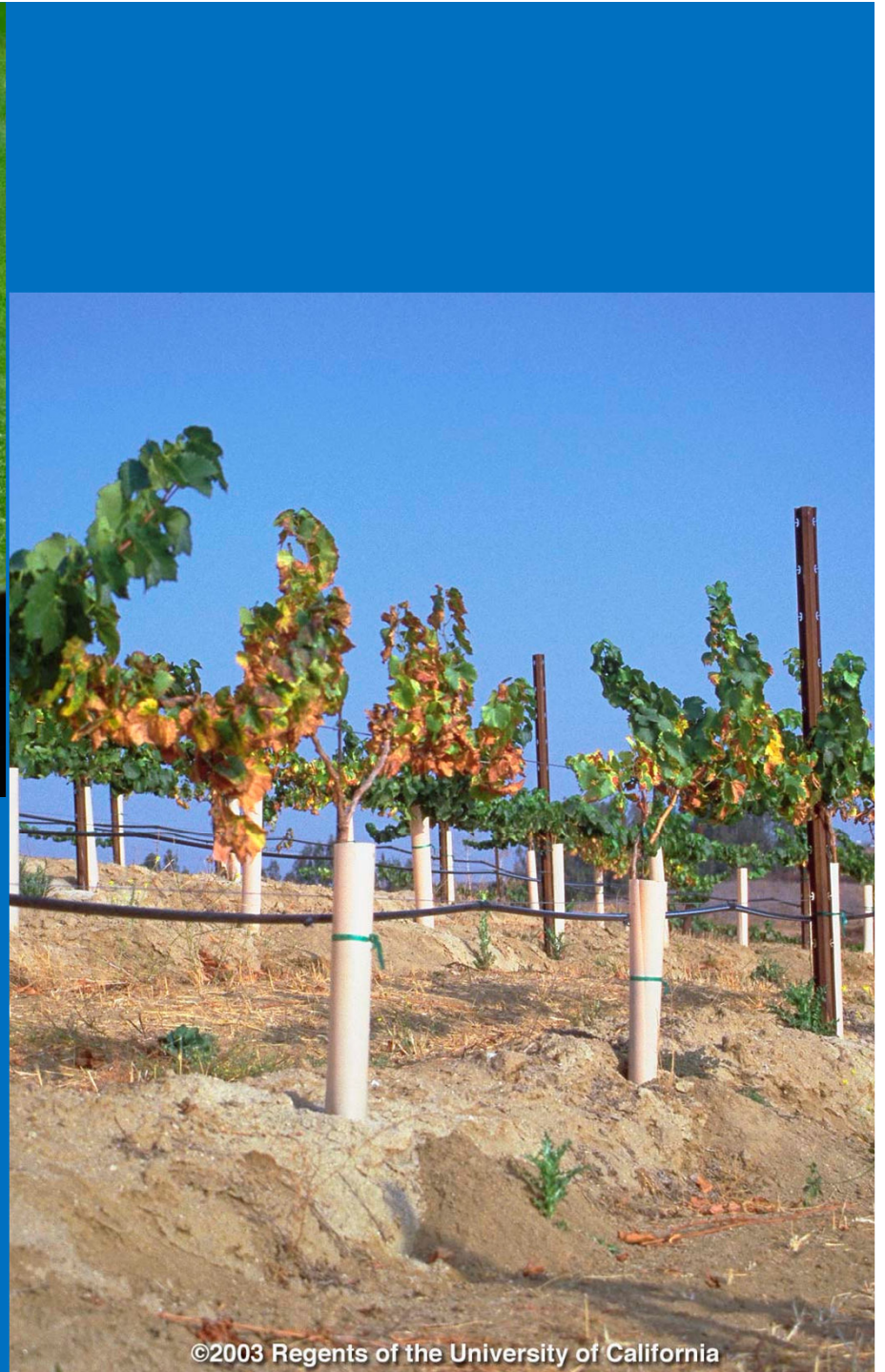
Spittlebugs





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Glassy-winged sharpshooter



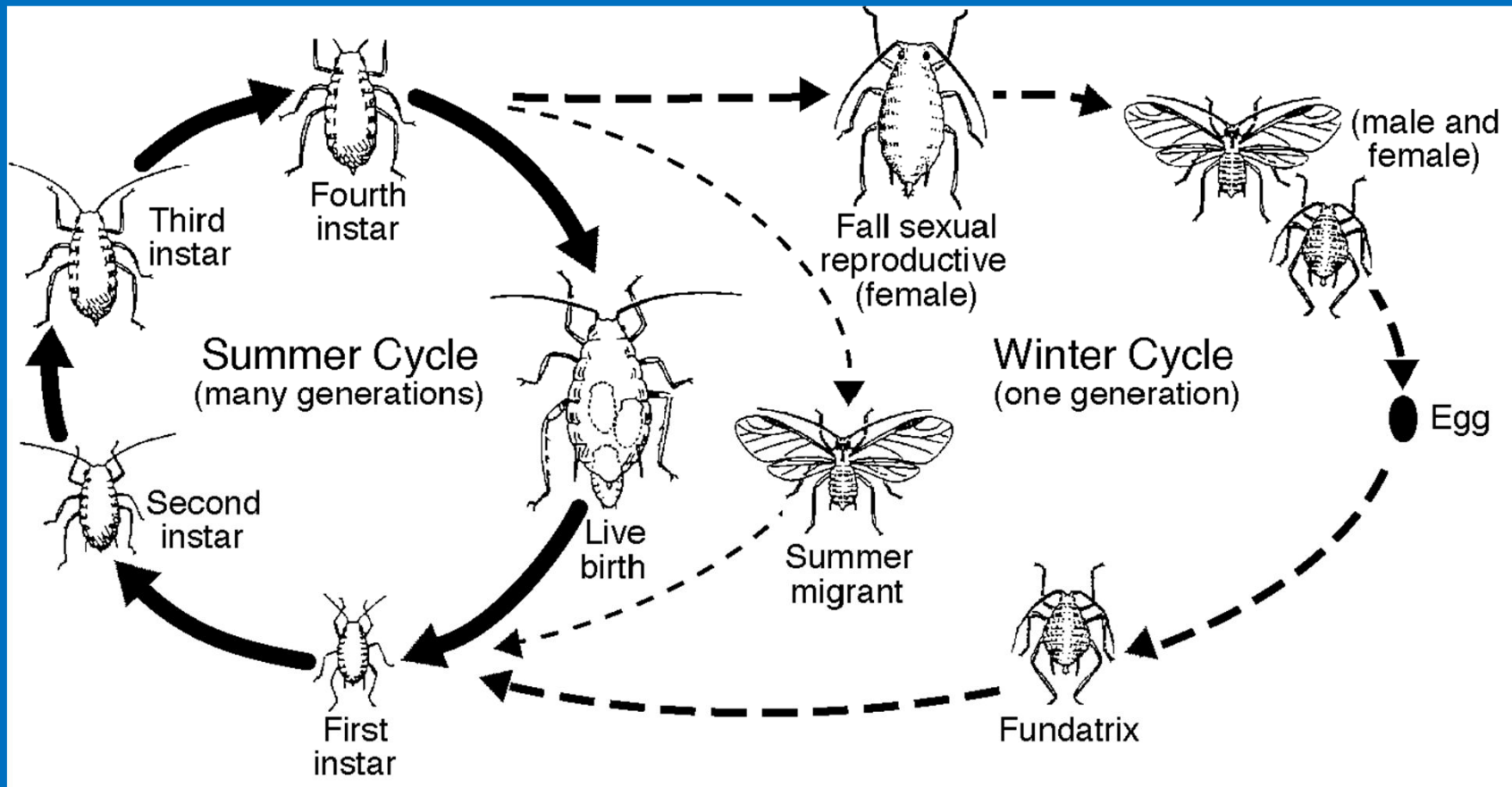
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Aphids

- Suck plant fluids
- Many species – identification difficult
- Many generations per year
- Cornicles
- Winged forms when populations are high
- Asexual reproduction common



Aphids



Green peach aphid adult and nymphs



Green peach aphid adult - winged



Rosy apple aphid colony on apple leaf



Apple leaves distorted by rosy apple aphid feeding



Sooty mold on apple fruit and leaves



Woolly apple aphid



Aphid damage

- Curling
- Yellowing
- Stunting
- Honeydew –sooty mold fungus
- Virus transmission

Aphid management

- Natural enemies important
- Recognize mummies and predators
- Pruning
- Ants
- Knock them off with water
- Insecticidal soap, oils
- Insecticides – will kill natural enemies and may develop resistance

