Managing Major Pests of Central Coast Lettuce and Cole Crops

Dylan Beal, UC IPM Entomology Advisor, Monterey, Santa Cruz, and San Benito Counties

Outline

- Managing Key Central Coast Pests
  - Aphids
  - Thrips
  - Maggots
- Diamondback Moth
  - Biology
  - Management
    - Crop Rotation
    - Pheromones/Mating Disruption
    - Natural Enemies
    - *Bacillus thuringiensis* (Xentari)
    - Chemical Control
    - Bug Vacs

Aphid Pests of the Central Coast

Management

- Remove and destroy infested plants
- Destroy crop remnants after harvest
- Remove alternative host plants

Cabbage Aphid

Green Peach Aphid

Lettuce Aphid

Biological Control of Aphids

Aphidius matricariae

Diaertiella rapae

Syrphid Fly Larva

Aphelinus semiflavus

Lady Beetle

Green Lacewing Larva

Western Flower Thrips

Management

- Remove weedy hosts of thrips and Impatiens Necrotic Spot Virus
- Plow down or remove plant residues from harvested lettuce fields
- Biological Control

Predatory Mites

Minute Pirate Bug

Syrphid Fly Larva

Supporting Natural Enemies

Conservation Biological Control

Common Coriander

Sweet Alyssum

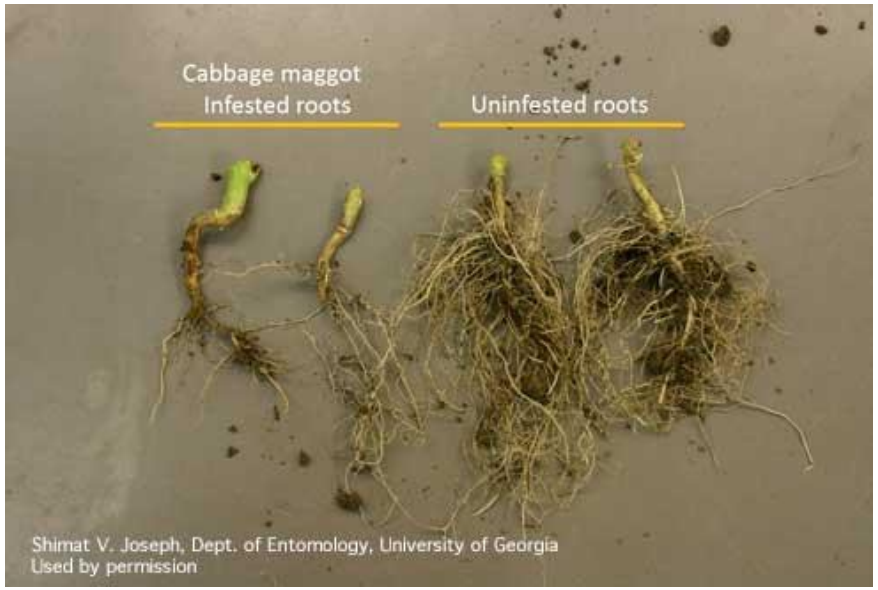
Persian Clover

Inundative Biological Control

Cabbage Root Maggot

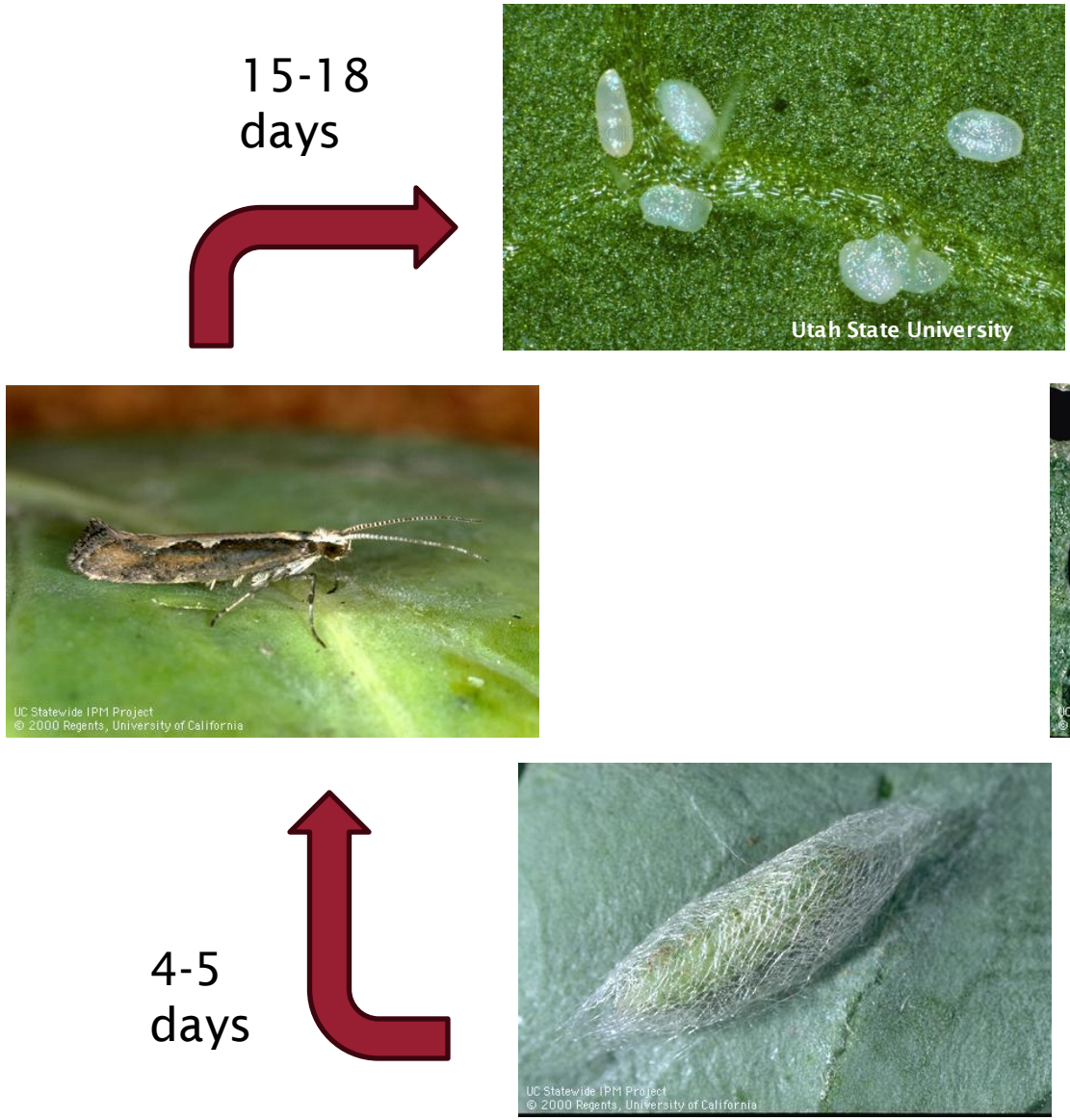
Management

- Avoid successive plantings of Brassica crops
- Disc crop residues after harvest
- Pyganic
- Entomopathogenic nematodes



Diamondback Moth (DBM) Biology

- *Plutella xylostella*
- Feeds exclusively on Brassicas and Crucifers
- ~ 10-12 generations per year in California
- Notorious for Insecticide Resistance

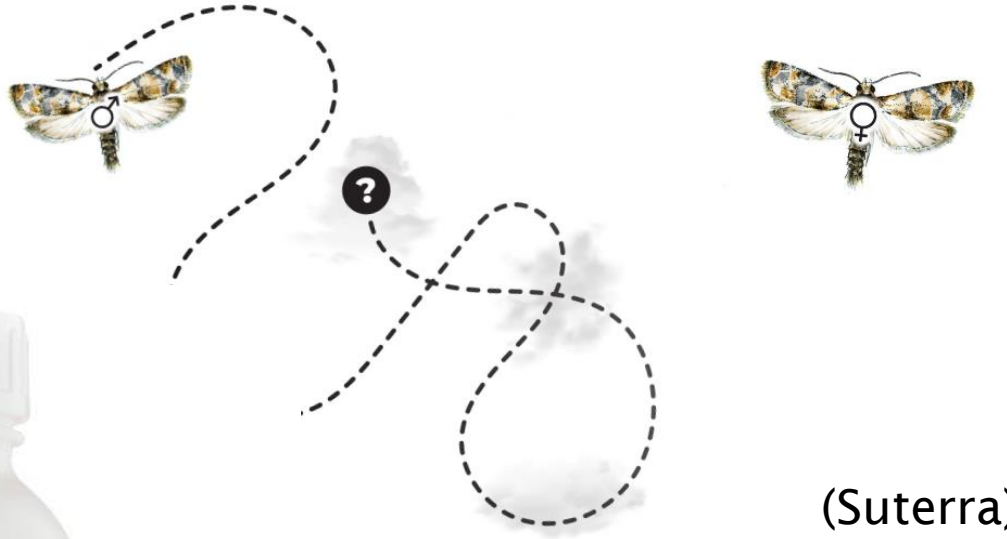


(Adapted from Dara 2021)

DBM Management- Crop Rotation

DBM Management- Pheromones

- Mating Disruption confuses male DBM
- Conventional: Checkmate DBM-F
- Organic alternatives are under development

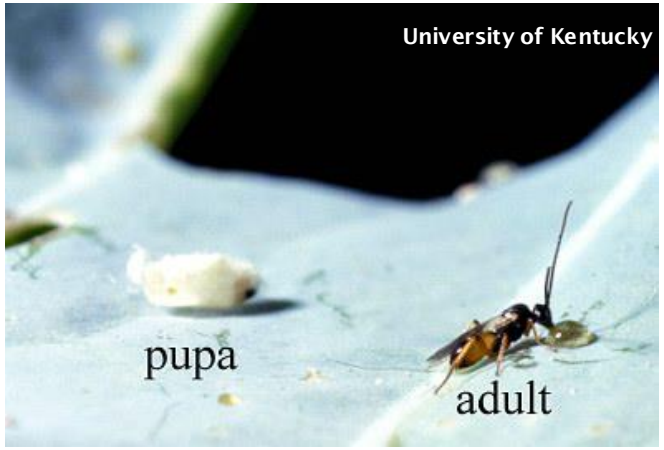


(Suterra)

DBM Management- Natural Enemies

Parasitoids

Diadegma insulare



Cotesia plutellae

Trichogramma spp.

Generalist Natural Enemies

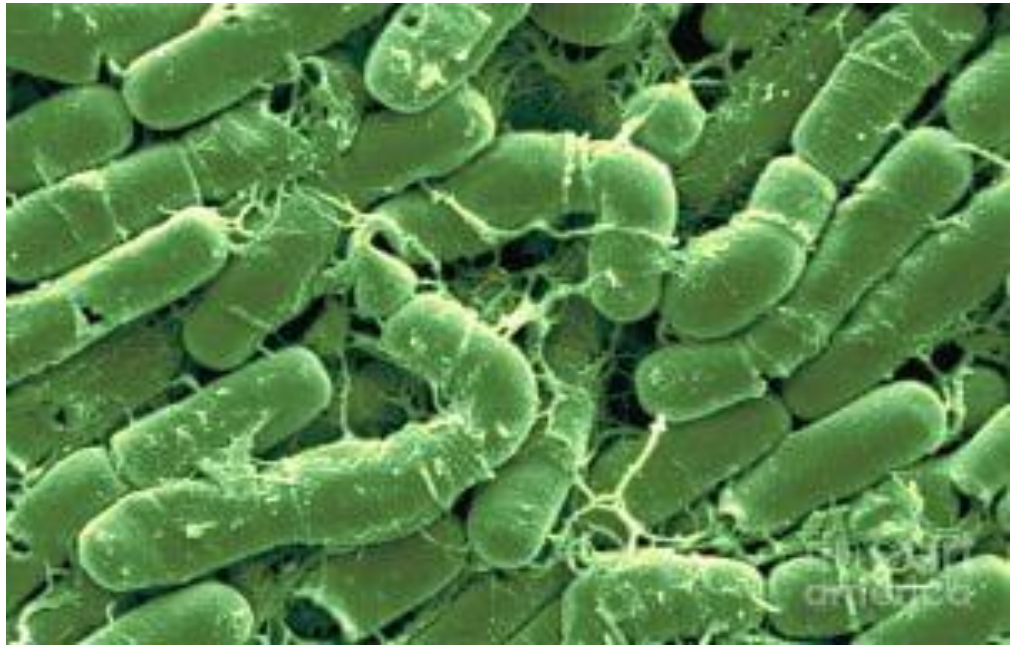
Predatory Ground Beetle Larva

Syrphid Fly Larva

Spider

DBM Management- Bt

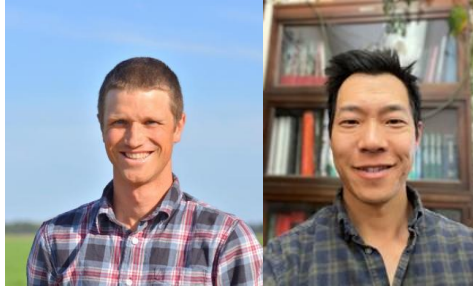
- Xentari biologicial insecticide
- *Bacillus thuringiensis* subspecies *aizawai*



DBM Management- Chemical Control

- Entrust SC
  - Active Ingredient:
    Spinosad
- Debug Optimo
  - Active Ingredients:
    Neem Oil
    Azadirachtin

DBM Management- Bug Vacs




Thank you for your time!