

Stink Bugs (Gandhi) and leaf-footed bugs

Management | Insecticides

Karatax (Lambda-Cyhalothrin)

- MoA: 3A
- Foliar; broad spectrum can target beneficial insects as well

AzaDirect (Azadirachtin)

- MoA: UN
- Only active against immatures/eggs
- Some translaminar activity

Advance 10EC (Pyriproxyfen)

- MoA: 7C
- Only active against immatures/eggs

Sevin (Carbaryl)*

- MoA: 1A
- Organophosphate; older chemistry, not good for beneficial insects

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Banana Root Borer

- Beetle
- Attacks all species of banana

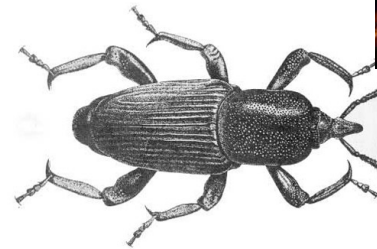


Illustration by FDACS - Division of Plant Industry.

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Banana Root Borer

Life cycle

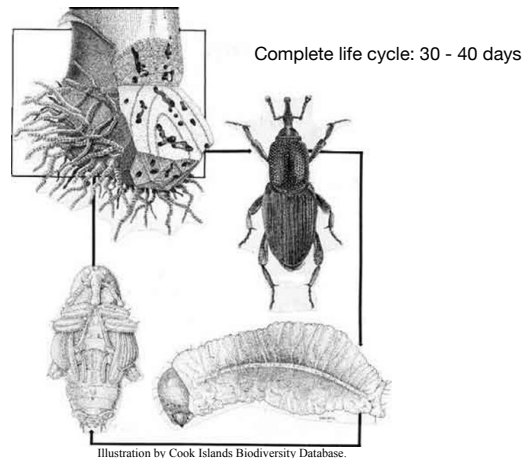


Illustration by Cook Islands Biodiversity Database.

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Whiteflies

TEXAS A&M
AGRI LIFE
EXTENSION



Q-type

Bemisia tabaci

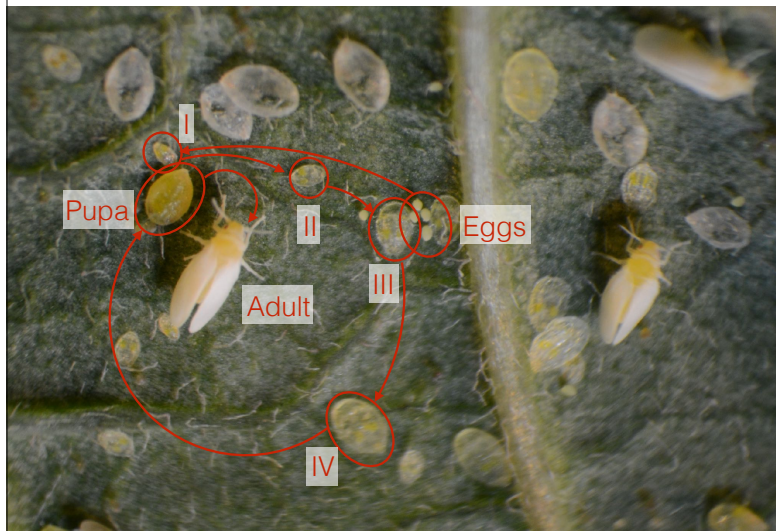
- Higher resistance to pyriproxyfen and imidacloprid than B-type

B-type

Bemisia argentifolii

- More common
- Less pesticide resistance

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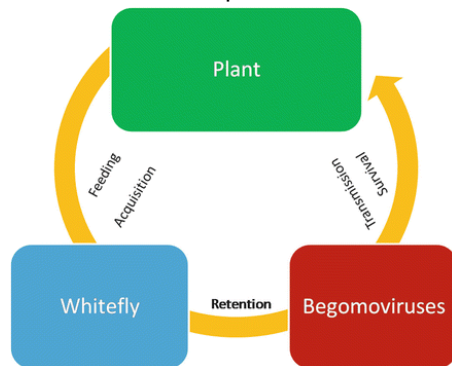
Whiteflies



86

Whiteflies

Can vector plant viruses



Varun & Saxina (2007)

87

Whiteflies

Tomato yellow leaf curl virus



88

Whiteflies

Cassava Mosaic Disease



89

Whiteflies

Monitoring



90

Whiteflies

Monitoring



91

Whiteflies

Management | Biological



92

Whiteflies

Management | Biological



93

Whiteflies

Management | Pesticide

Azadirect (Azadirachtin)

- MoA: UN
- Some translaminar; Insect Growth Regulator

Advance 10EC (Pyriproxfen)

- MoA: 7C
- Insect Growth Regulator

Abamectin 18C (Abamectin)

- MoA: 6

Pronto (Imidacloprid)

- MoA: 4A
- Systemic activity

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Nematodes

- Infect plant roots
- Prevent uptake of water and nutrients
- Plant wilting, reduced yields, and ultimately plant mortality

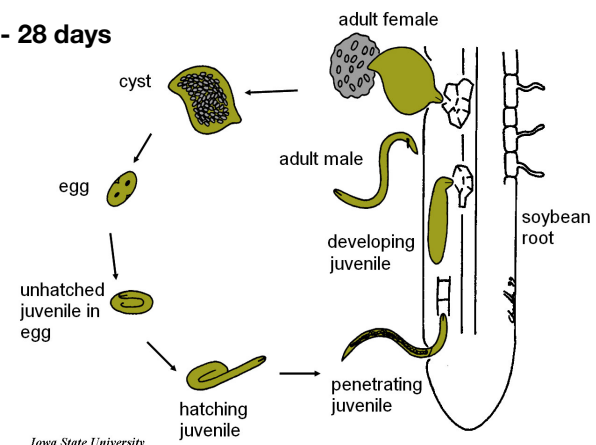


Jonathan D. Eisenback, Virginia Polytechnic
Institute and State University, Bugwood.org

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Root-knot nematodes

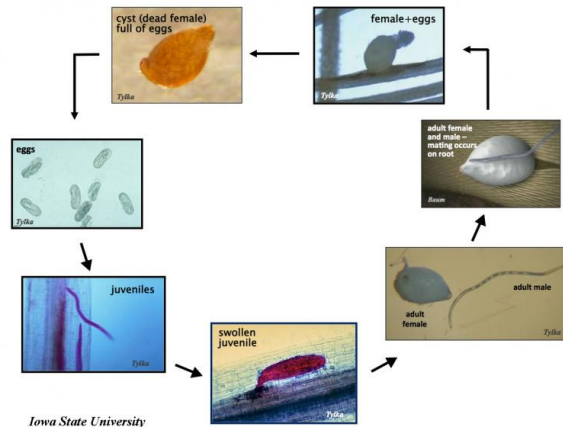
21 - 28 days



Iowa State University

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Nematodes



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Nematodes



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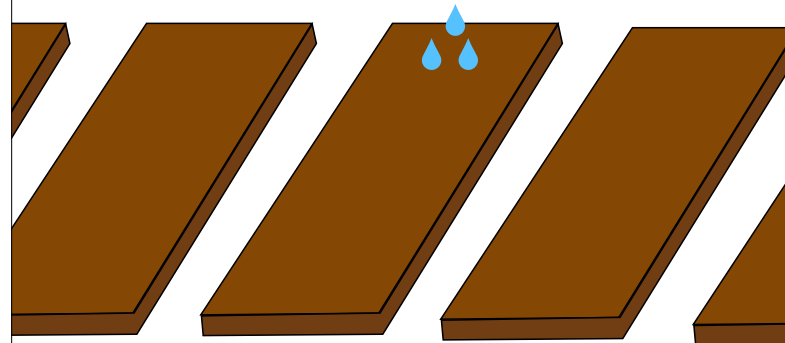
Root-knot nematodes



99

Root-knot nematodes

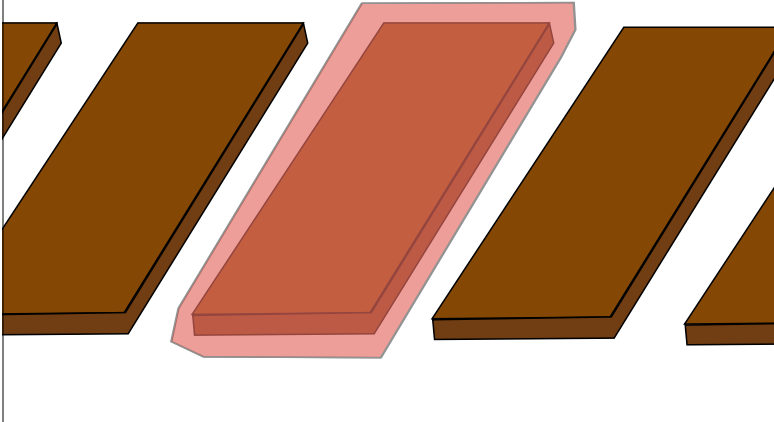
Management | Solarization



100

Root-knot nematodes

Management | Solarization



101

Root-knot nematodes

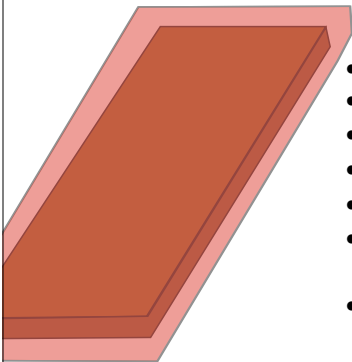
Management | Solarization



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Root-knot nematodes

Management | Solarization

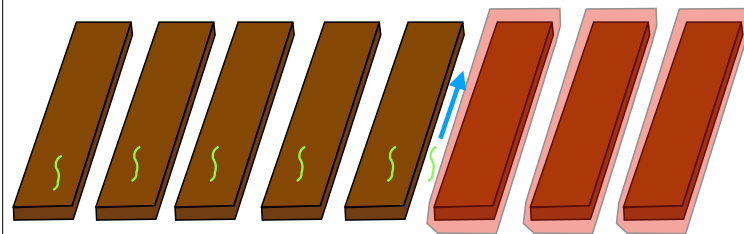


- Leave for 4 weeks
- Clear plastic
- Bury the sides
- Less effective in sandy soils
- Need to form steam daily
- Soil temp: 130F (55°C) for 5 minutes to kill nematodes
- Kills weeds & nematodes top 12 inches of soil

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Root-knot nematodes

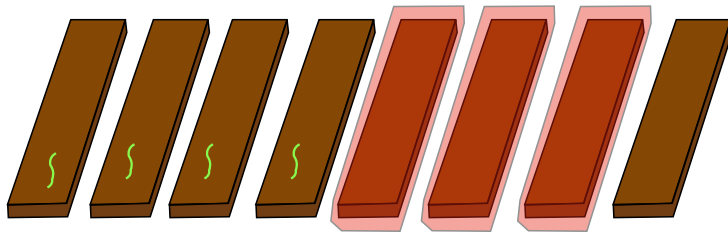
Management | Solarization



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Root-knot nematodes

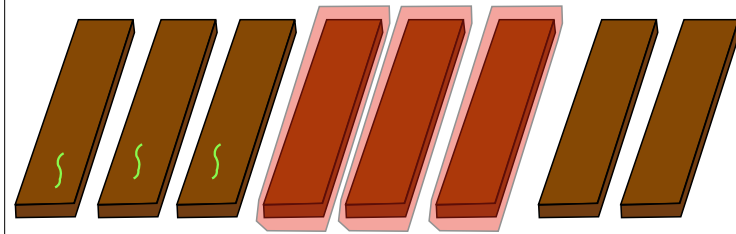
Management | Solarization



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Root-knot nematodes

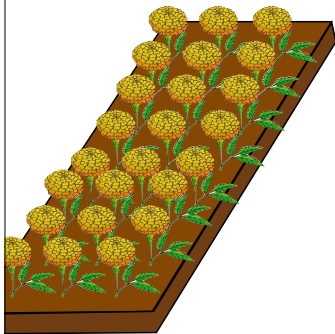
Management | Solarization



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Root-knot nematodes

Management | Marigolds



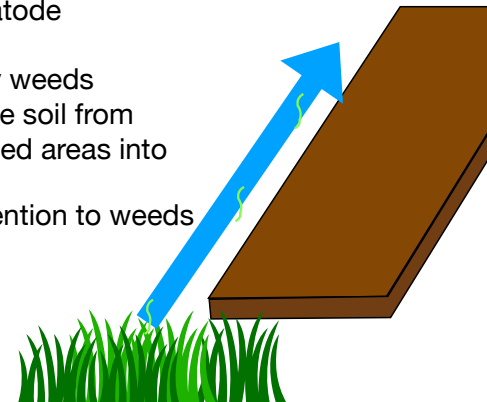
- French marigolds, i.e. varieties include Nemagold, Petite Blanc, Queen Sophia, and Tangerine
- Avoid: signet marigolds, *T. signata* or *tenuifolia*
- Avoid 'intercropping'; not as effective for nematode suppression

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Root-knot nematodes

Management | Weed Management

- Source of nematode reproduction
- Remove nearby weeds
- Do not introduce soil from nearby soils/weed areas into garden
- Pay special attention to weeds 'upstream'



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Leaf Miner



eg. *Liriomyza trifolii*



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Leaf Miner

Monitor | Yellow sticky cards



111

Leaf Miner

Monitor | Yellow bowl with soapy water

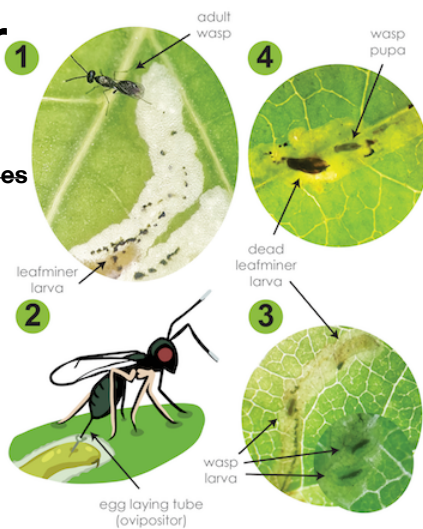


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Leaf Miner

Management | Biological Control

- Parasitic wasps
- Broad-spectrum insecticides



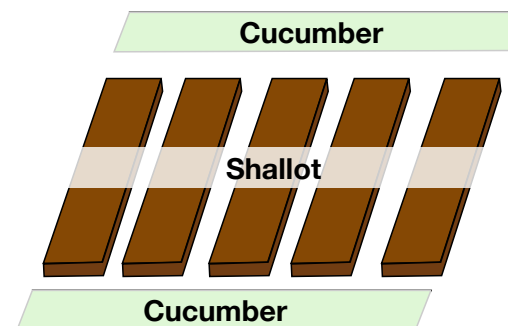
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Leaf Miner

Management | Biological Control

Trap crop

Cucumber around the border or within crop - showed higher attractiveness in some studies



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Leaf Miner

Management | Mechanical

Remove infested plant matter; bury deep or place in plastic bag & solarize



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Leaf Miner

Management | Insecticides

Acetamiprid - Caprid 20 SL

- MoA: 4A
- Systemic; several weeks of control

Azadirachtin - AzaDirect

- MoA: UN
- Translaminar

Cyromazine - LeafGuard

- MoA: 17
- Translaminar

Lambda-Cyhalothrin - Karatax

- MoA: 3A

Abamectin - Abamectin 18C

- MoA: 6

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Leaf Miner

Management | Market Threshold

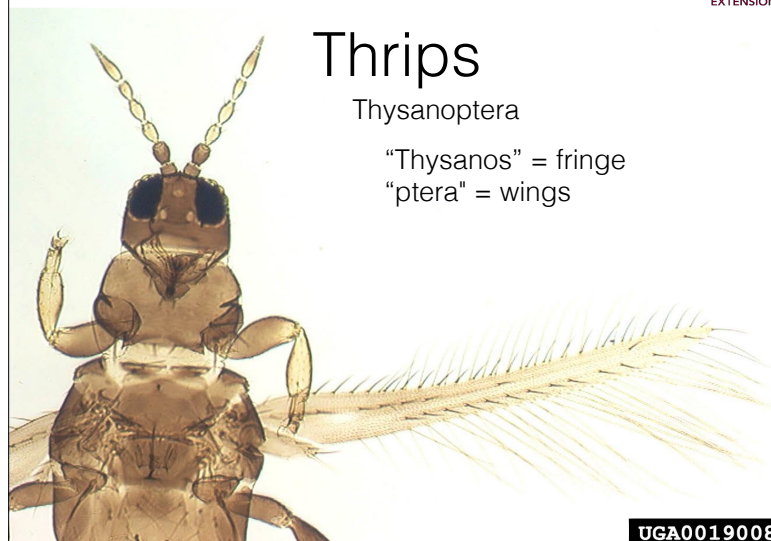


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Thrips

Thysanoptera

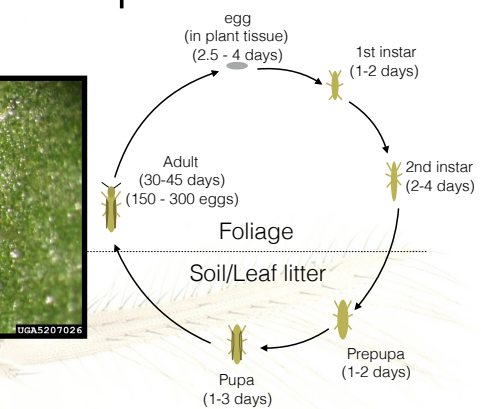
"Thysanos" = fringe
"ptera" = wings



UGA0019008

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Thrips



UGA0019008

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Thrips



UGA1327079

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