Mites and Insects Affecting Tree Establishment

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Pistachio Acreage, Statewide

<table>
<thead>
<tr>
<th>Year</th>
<th>Bearing</th>
<th>Non-bearing</th>
<th>New plantings</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>137,102</td>
<td>78,334</td>
<td>6,730</td>
<td>4,270</td>
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<tr>
<td>2011</td>
<td>132,944</td>
<td>73,392</td>
<td>12,000</td>
<td>4,270</td>
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<tr>
<td>2012</td>
<td>137,738</td>
<td>82,338</td>
<td>10,710</td>
<td>2,710</td>
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<tr>
<td>2013</td>
<td>202,997</td>
<td>68,068</td>
<td>24,500</td>
<td>10,790</td>
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<tr>
<td>2014</td>
<td>220,527</td>
<td>75,940</td>
<td>18,000</td>
<td>6,500</td>
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<tr>
<td>2015</td>
<td>232,855</td>
<td>69,312</td>
<td>24,500</td>
<td>(10,500)</td>
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<tr>
<td>2016</td>
<td>239,385</td>
<td>72,582</td>
<td>10,000</td>
<td>2,500</td>
</tr>
<tr>
<td>2017</td>
<td>256,385</td>
<td>79,582</td>
<td>10,000</td>
<td>8,000</td>
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<tr>
<td>2018</td>
<td>264,095</td>
<td>90,000</td>
<td>30,000</td>
<td>12,000</td>
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<td>2019</td>
<td>288,595</td>
<td>105,000</td>
<td>35,000</td>
<td>5,000</td>
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</tbody>
</table>

Sources: CPC, ACP, NASS

Principles of IPM
Using Pesticides

• Disclaimer: Labels often change and reflect the law how pesticide can be legally applied. The following information in this presentation is for the purpose of general education only and does not constitute an endorsement or recommendation for use.

Arthropod Pests on Pistachio

• Species that can affect establishment of trees
  – Hemipterans, soft scale and aphids
    2. Black scale, Saissetia oleae.
    3. Frosted scale, Parthenolecanium pruinorum.
    4. European fruit, lecanum, P. corni.
    5. Cotton aphid, Aphis gossypii

Arthropod Pests on Pistachio

Black scale

• Description (adult)
  – “1/8” in length
  – Dark brown to black w/H-shape on dorsum.

• Damage
  – Honeydew in spring
    • Black sooty mold.
    • Reduction of photosynthesis.
    • Reduce shoot growth.
Arthropod Pests on Pistachio

Black scale
• Monitoring
  – Early to mid-January
    • Examine one-year-old fruiting wood for live and parasitized scale.
    • Examine several 12” dormant shoots throughout orchard.
      – In Feb., moderate population = 1 to 5 live scale/inch.
      – Heavy population = 10 or greater per inch.

Arthropod Pests on Pistachio

Black scale
• Management
  – Biological: usually keep populations under economic levels.
  – Chemical: Narrow range oil (caution), IGRs.
    • Avoid pyrethroids if possible.

Arthropod Pests on Pistachio

Cotton aphid
• Description
  – Adult “2/16” in length and yellowish green to greenish black.
  – Develop on underside of leaves in colonies (winged and wingless forms occur)
Arthropod Pests on Pistachio

Cotton aphid

• Damage
  – Honeydew in spring
    • Black sooty mold – Reduction of photosynthesis.
    • Large populations can reduce shoot growth.

• Monitoring
  – In spring, examine newly-budded trees.
    • No threshold developed.

Arthropod Pests on Pistachio

Cotton aphid

• Management
  – Biological: Convergent lady beetle, *Aphelinus* spp. lacewing, and syrphid flies
  – Cultural: Control weedy hosts, reduce dust, avoid applying excess nitrogen.
  – Chemical: Neonicotinoids, pyrethroids, spirotetramat, narrow-range oil.

Arthropod Pests on Pistachio

False chinch bug

• Description
  – Small light-brown bug “1/8” long, similar in appearance to a lygus bug.

• Damage
  – In spring, feeding on young trees can cause trees to wilt and die.
  – Feeding on older trees can result in severe leaf-drop.
Arthropod Pests on Pistachio

**False chinch bug**

- **Management**
  - Cultural: mow ground cover before bloom in spring.
  - Chemical: primarily broad-spectrum insecticides
    - Apply morning or early evening.
    - More effective if trunk guards removed.

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**Darkling beetles**

- **Description**
  - Adults: 1/8 to 1/2" long and black to bluish-black.
  - Larvae: light yellow that inhabit soil.

- **Damage**
  - Feeds on 3-4 wk-old Kerman bud of newly-grafted trees.
  - Also can feed on Kerman shoots following first dormant period.

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**Darkling beetles**

- **Management**
  - Cultural: avoid disking weeds in or outside of orchard at time of budding.
  - Chemical: after assessing population/damage, can treat with broad-spectrum insecticide – carbamate.
Arthropod Pests on Pistachio

**Ants:** southern fire ant, *Solenopsis xyloni.*

- Direct damage
  - Directly feeds on emerging buds 3 – 4 weeks post grafting.
  - Girdle base of bud.
- Indirect damage
  - Tend honeydew-producing hemipterans. Disruption natural enemies.

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Arthropod Pests on Pistachio

- Fire ant, Southern
- Pavement ant
- Fire ant, Thief

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Arthropod Pests on Pistachio

- Pyramid ant
- Native gray ant
Arthropod Pests on Pistachio

**Ants: Management**
- Granular baits very effective
  - Insect growth regulators
    - Pyriproxyfen Esteem
    - Methoprene Extinguish
  - Stomach poisons
    - Abamectin Clinch

**Leaffooted bug**
- Damage (direct)
  - Early-season feeding results in nut drop
  - Later-season feeding results in kernel necrosis.
- Damage (indirect)
  - Associated with Botryosphaeria, panicle and shoot blight.

**Management**
- Cultural: avoid interplanting with pomegranate and/or planting pomegranate hedgerows.
- Pesticides: pyrethroids only class with residual activity.
Arthropod Pests on Pistachio

Web-spinning mites

• Description
  – 1/20” long early nymph stage with 6 legs, later stages with 8. Overwinter as reddish-orange females.
  –

• Damage
  – Appears as small areas of dead plant material, or stippling. 3 to 4 mites per leaf sufficient to cause defoliation.

• Management
  – Cultural: minimize dust, well-watered trees, avoid pyrethroids.
  – Biological: sixspotted thrips, and spider mite destroyer...
  – Chemical: several available products.

Contact Information

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Any Questions?