

Mites in Caneberries

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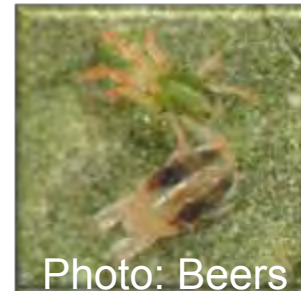
North American Raspberry & Blackberry Conference
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Spider Mite Damage of Raspberries in High Tunnel



Spider Mite Species

- Twospotted: oval, yellow body, 2 spots; round, white-cream eggs
- McDaniel: oval, yellow body, 6 spots; round, white-cream eggs, forms dense webbing on leaves – prevents spray penetration and control
- Carmine: oval, red body with 4 spots; round, yellow-amber eggs



Spider Mites

- Biology: by May, mites begin to buildup on lower cane leaves and gradually move up cane to younger leaves
- Damage: suck chlorophyll from leaf cells = white stippling which reduces yield / flavor, eventually kills leaves and canes
- Monitor: by May, begin weekly jarring of mites off white, stippled leaves onto white plate (see moving mites) or use 16X lens to count mites on underside of leaves



Monitoring Mites

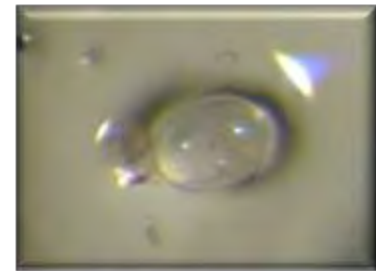
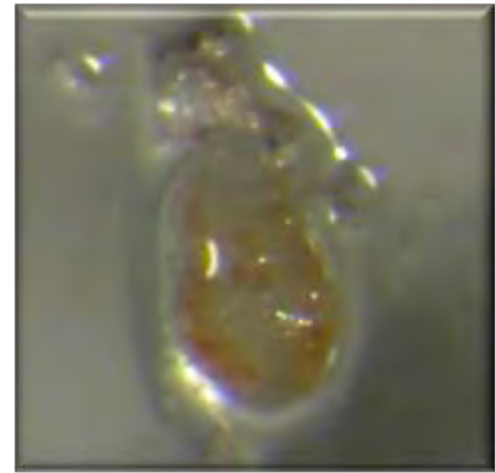


Jeweler Loupe 30mm 16X LED lens magnifier (\$5) and LED headband magnifier MG81007-A with jewelers loop 14X (\$12)

Predatory Mite

- Adults are:
 - ✓ Tear or pear-shaped
 - ✓ Clear to orange depending on spider mite color
 - ✓ Feed on spider mites

- Eggs: clear-silver, football-shaped



Mite Management

Treatments:

- ✓ If < 2 spider mites / leaflet, release 1,000 (\$50) predatory mites (*N. californicus*) at mite hot spots weekly for 2 to 3 weeks until biological control is achieved – this mite survives on pollen, in warm (50° - 105°F) and humid (40-80% RH) conditions; also attack broad mites



- ✓ If > 2 mites / leaflet, miticides, like predators, work best when mites densities are at low levels:
 - Acramite (PHI=1; 30 day spray interval)
 - Savey (PHI=3) and Zeal (PHI=0) - restricted to 1 spray/season
 - 1-1½ % JMS Stylet Oil or 1-2% M-Pede (apply to wet not runoff)

Releasing Predatory Mites

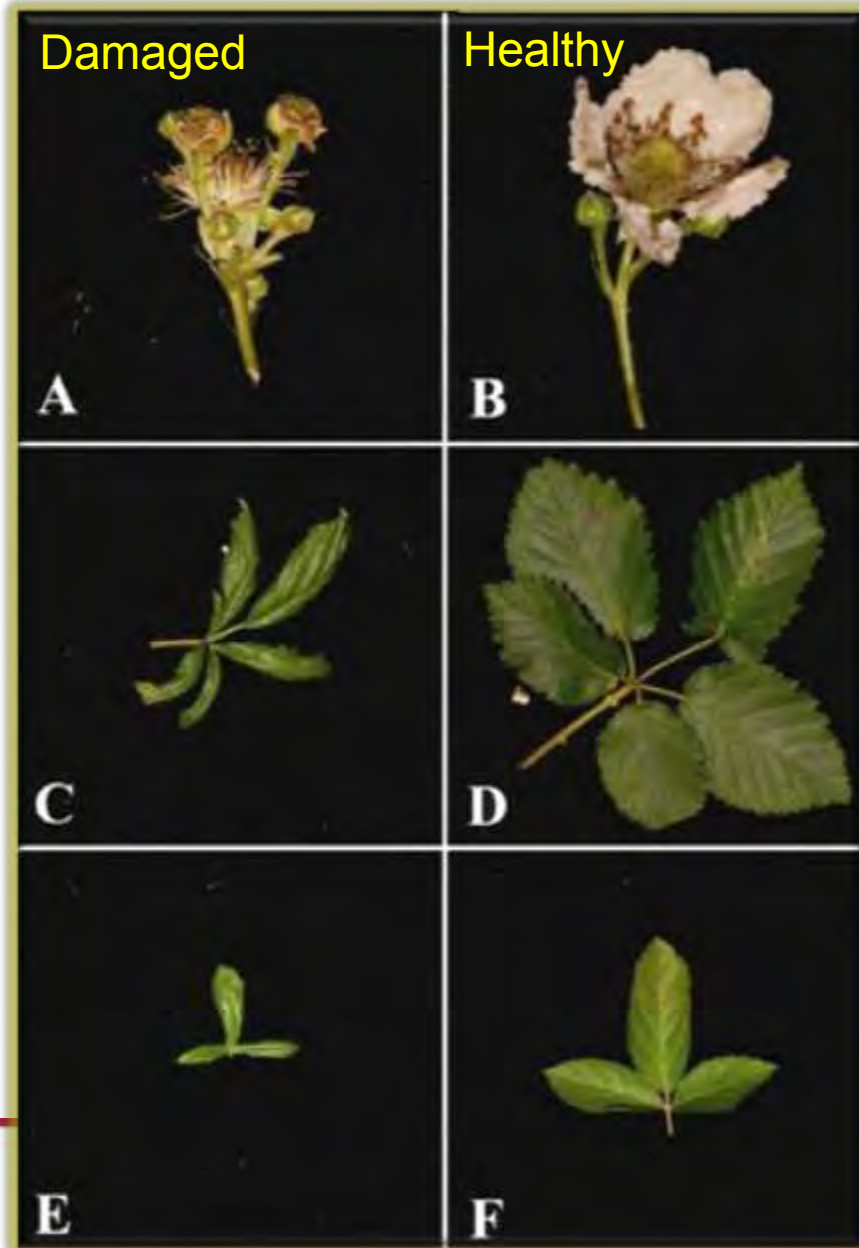
Sources: Arbico Organics, Biobest, Garden Warriors, Koppert, Rincon-Vitova



Broad Mite

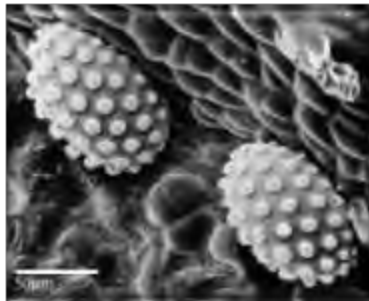
1st Broad Mite Damage

- East of Rockies: September 2007, found small, cupped leaves on terminals of primocane-fruiting APF-46 blackberry that reduced yields in field and high tunnel (Vincent et al. 2008)
- 2013-14, broad mites reduced terminal leaf size, caused leaf cupping and reduced yield in 3 fields in Arkansas (June to November)

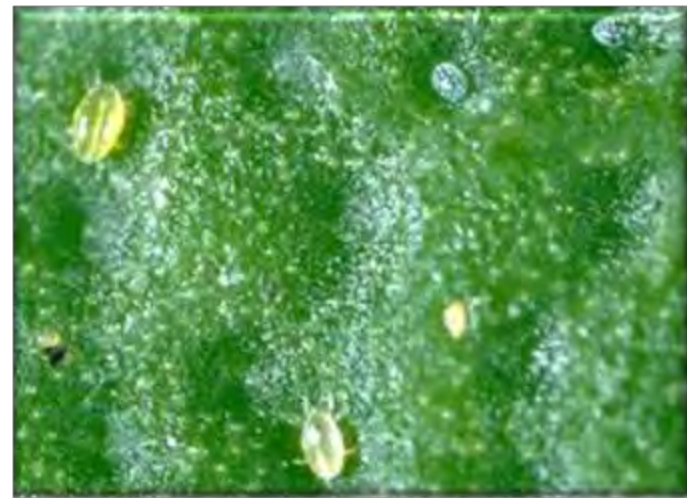


Broad Mite Identity

- Use 20X hand lens to see on leaflet
- Adult mites @ 0.1 mm long
- Female is white, diamond-shaped
- Male is smaller, oblong, white to amber
 - ✓ may carry female on its back for dispersal to new plants and for mating
- Egg:
 - ✓ Football-shaped
 - ✓ Clear
 - ✓ Many white bumps



(Photo: BARC-USDA)



Watch for Broad Mite Symptoms on Blackberry

July - Symptoms

Upward
cupping

Healthy



Healthy

Downward cupping



October - Symptoms



Efficacy of Miticides Against Broad Mite in blackberries in Clarksville, AR (2014)

Formulation	No. broad mites/blackberry leaflet	
	0 DAT (Oct. 22)	7 DAT (Oct. 29)
Agri-Mek	0.5a	0.07b
Oberon	6.2a	0.0b
Zeal	10.9a	0.0b
Untreated control	8.8a	4.5a
<i>P</i> =	0.07	0.008

2015 Funding from Small Fruit Consortium & IR-4 Project

Broad mite biology and management on blackberry

Objectives:

1. Describe seasonal changes in broad mite density on blackberry terminals
2. Determine efficacy of several miticides (collaborate with The IR-4 Project)
3. Optimize control of broad mite using a combination of cultural controls as well as miticide application timing

Acknowledgements



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