Non-Target Effects of Shade Netting

Background: With growing pest pressure, there is a need for a sustainable codling moth control technique. Netting has been shown in other countries to be an effective management strategy for codling moth. Washington apple orchardists currently use shade net structures for sunburn management.

Question: How do complete shade net enclosures affect orchard insect communities?

Project Goal: Determine effects of shade net enclosures on direct and indirect apple pests, and their natural enemies.

Treatments

1. 48 apple trees enclosed in a 50 × 40 × 15 ft cage covered with 20% pearl leno shade net. (12 trees of each variety: ‘Golden Delicious’, ‘Granny Smith’, ‘Gala’, ‘Jonagold’)


Samples: 2016 - 2017

Results & Significance

- Codling moth densities were significantly lower in the caged plots, suggesting netting could provide season-long suppression.

- A. mali and earwig densities were not effected by the cage treatment, while lacewing and syrphids were excluded by the netting.

- Woolly apple aphid densities were ~100x higher in the caged plots compared to the control, likely because part of the natural enemy complex was excluded by the netting.

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