

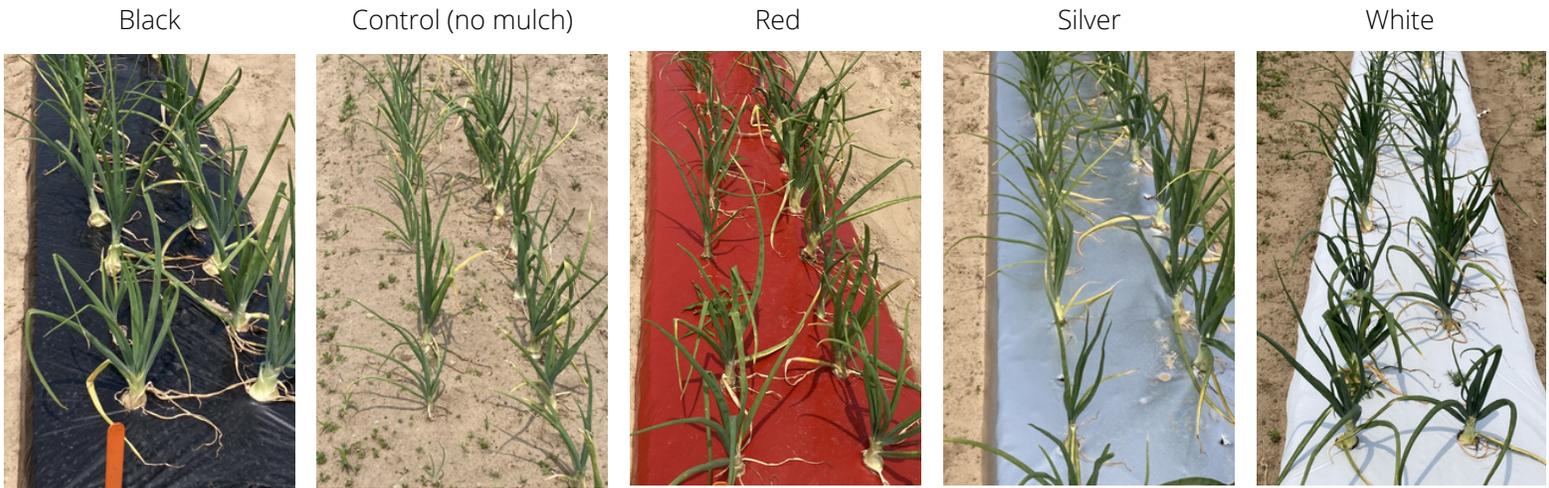
Onion thrips research 2023

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Plastic mulches and pesticides

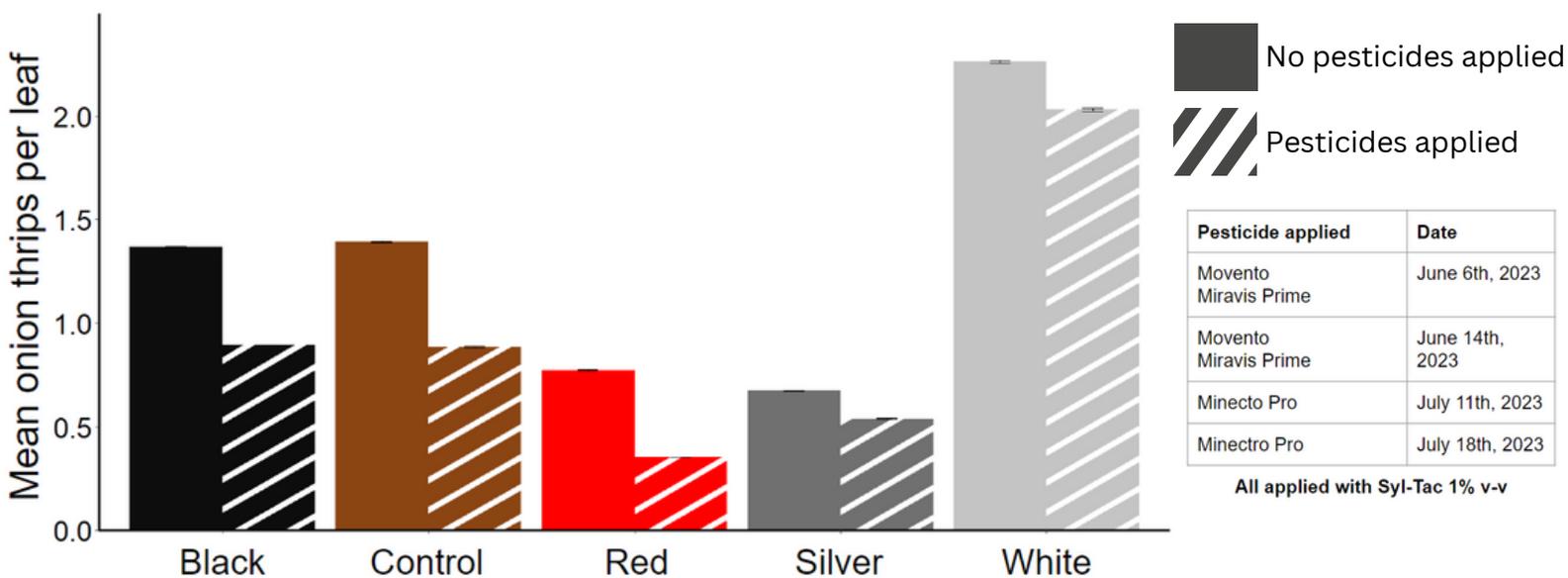
Onions were transplanted in the 3 leaf stage into 4 different colored plastic mulches and control plots. Within each plot, we sprayed half the onions with pesticides. Pesticides were applied with a backpack sprayer once thrips populations reached the action threshold. Additionally, we took plant height measurements weekly.

Onion thrips larvae



Photos of the plastic mulches taken on July 24th, 2023.

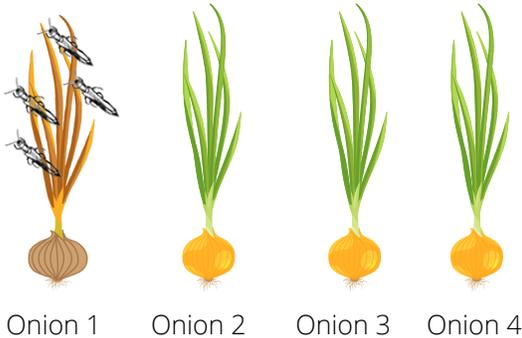
- Red and silver mulch without pesticides (solid red and gray bars) reduced thrips populations as much as pesticides in the control treatment (brown stripes)
- Red mulch with pesticides (red stripes) reduced thrips populations the most
- White mulch (light gray bars) had the most thrips regardless of pesticide application



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Onion thrips and anthracnose spread

In a lab experiment, 5 or 25 thrips were exposed to an onion with anthracnose. We measured how thrips and disease moved between onions. Additionally, we exposed thrips to different heat treatments to see how they spread disease under varying environmental conditions.



Experimental design:

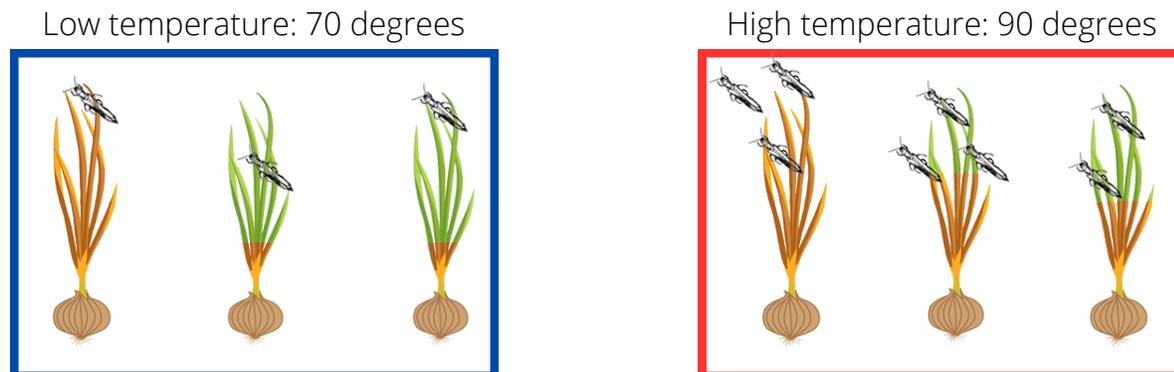
- 3 or 4 onions were placed in a row
- 1 onion was inoculated with anthracnose
- Thrips were released on the inoculated onion
- Thrips movement and disease spread were recorded

Increased thrips populations resulted in increased onion thrips dispersal and disease spread



- When 25 thrips were added, 60% of onions in the second position were infected (0% infected with 5 thrips)
- When 25 thrips were added, more thrips moved away from the 1st plant than when 5 thrips were added

At higher temperatures, there were more thrips present at the end of the experiment, and disease spread increased



- Onion thrips numbers tripled in the high temperature treatment
- 2nd plant: 30% of onions were infected in low temps, 60% were infected in the high temp
- 3rd plant: 30% of onions were infected in low temps, 50% were infected in the high temp