



Efficacy of PROUD 3® and TRIPLE PLAY™ When Applied as Direct Spray

Research Report

Objective:

Test the efficacy of the products **PROUD 3®** and **TRIPLE PLAY™** in controlling (1) pea aphids (*Acyrtosiphon pisum*), (2) silverleaf whiteflies (*Bemisia argentifolii*), (3) cabbage loopers (*Trichoplusia ni*), and (4) two-spotted spider mites (*Tetranychus urticae*).

Methods:

- Alive insects were placed into test arenas (10 insects/arena, 4 arenas/treatment).
- Treatments were diluted 1:100 and included **PROUD 3®**, **TRIPLE PLAY™**, and a control.
- Each replicate was sprayed with 2 trigger pulls using a “mist” setting from approximately 12 inches (30.48 cm) distance.
- The number of insects that were alive, knocked down, or dead was recorded at 30 min, 1 hr, 2 hr, 4 hr, and 24 hr intervals based on the following criteria:
 - **Alive:** Insects exhibited normal motion.
 - **Knocked down:** Insects exhibited some movement but could not crawl.
 - **Dead:** Insects exhibited no movement, even when stimulated.

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Figure 1. Photograph of insects in treatment arenas

1 – Pea Aphids Results and Conclusion:

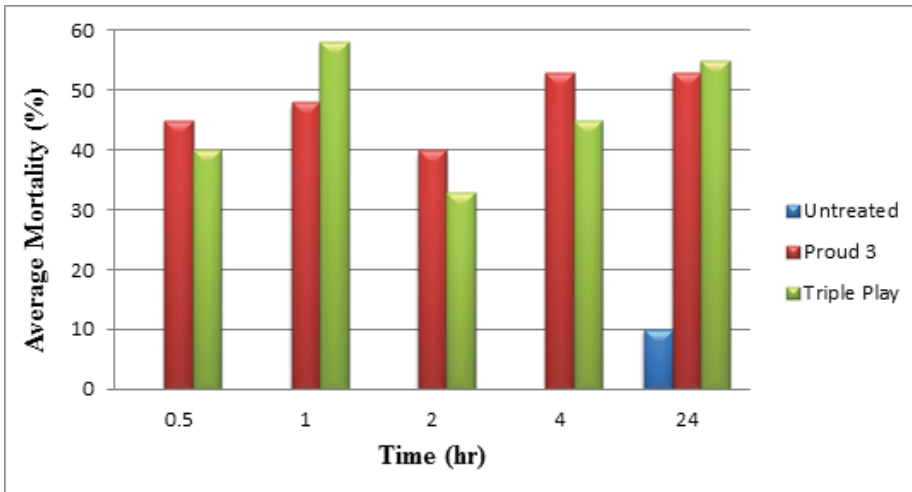


Figure 2. Pea aphids: mortality as function of time and treatment

- OMRI-listed **PROUD 3®** resulted in 5.3 times greater mortality of pea aphids than the control at 24 hr after treatment.
- **TRIPLE PLAY™** resulted in 5.5 times greater mortality of pea aphids than the control at 24 hr after treatment.

2 – Silverleaf Whiteflies Results and Conclusion:

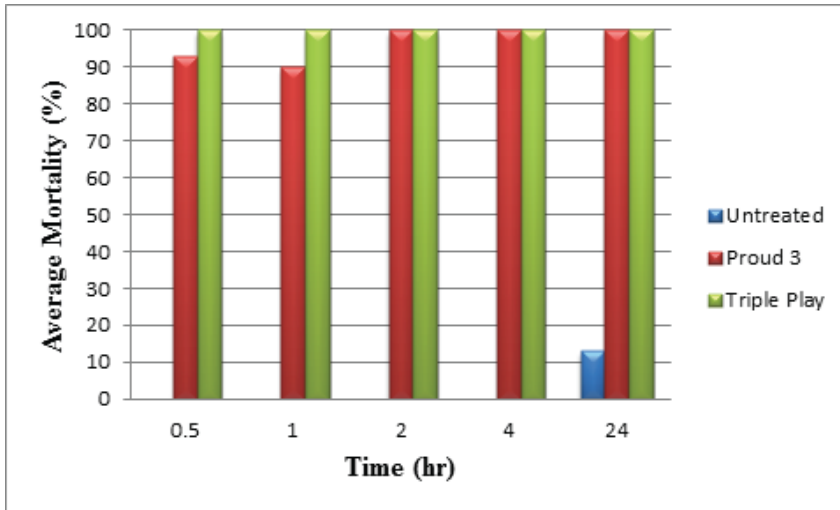


Figure 3. Silverleaf whiteflies: mortality as function of time and treatment

- OMRI-listed **PROUD 3®** and **TRIPLE PLAY™** resulted in mortality of silverleaf whiteflies of 93% and 100%, respectively, at 30 min after treatment.
- OMRI-listed **PROUD 3®** and **TRIPLE PLAY™** resulted in 7.7 times greater mortality of silverleaf whiteflies than the control at 24 hr after treatment.

3 – Cabbage Loopers Results and Conclusion:

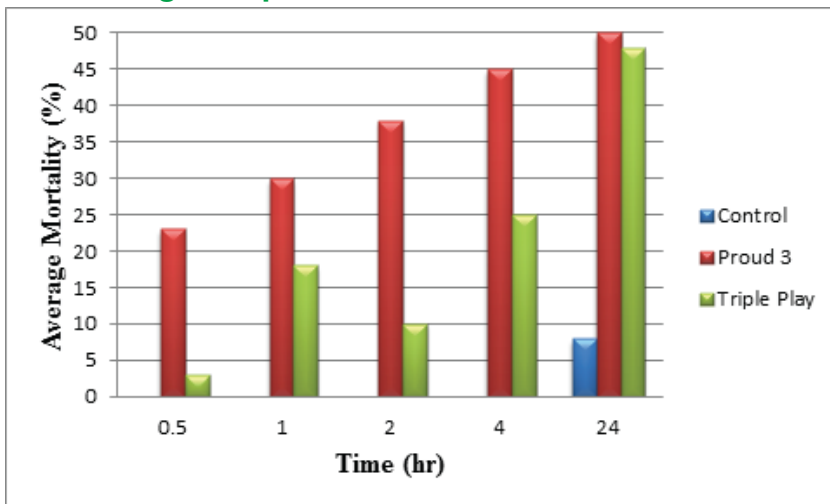


Figure 4. Cabbage loopers: mortality as function of time and treatment

- OMRI-listed **PROUD 3®** resulted in 6.2 times greater mortality of cabbage loopers than the control at 24 hr after treatment.
- **TRIPLE PLAY™** resulted in 6 times greater mortality of cabbage loopers than the control at 24 hr after treatment.

4 – Two-Spotted Spider Mites Results and Conclusion:

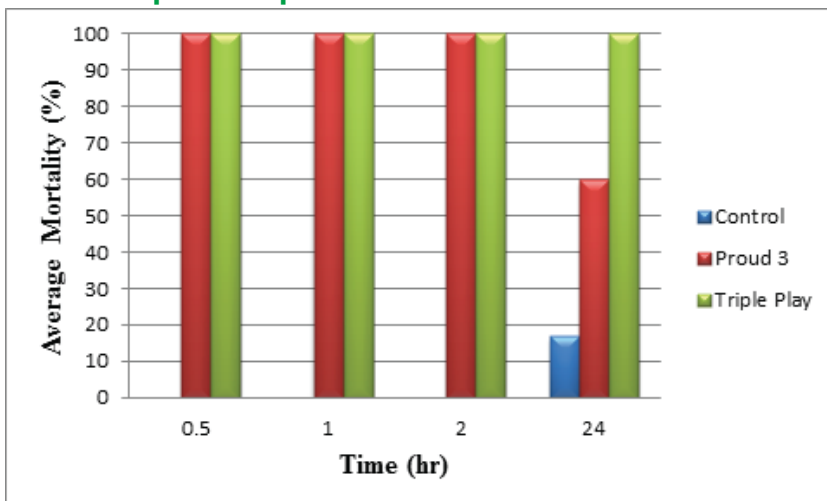


Figure 5. Two-spotted spider mites: mortality as function of time and treatment

- OMRI-listed **PROUD 3®** and **TRIPLE PLAY™** resulted in two-spotted spider mites mortality of 100% at 0.5, 1, and 2 hr after treatment.
- OMRI-listed **PROUD 3®** resulted in 3.5 times greater mortality of two-spotted spider mites than the control at 24 hr after treatment.
- **TRIPLE PLAY™** resulted in 5.9 times greater mortality of two-spotted spider mites than the control at 24 hr after treatment.

Full research report available upon request.