Assessing quality control methods of commercially reared *Phytoseiulus persimilis* for biological control

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From 2024-2026, we evaluated the quality of commercial *Phytoseiulus persimilis*, a key predatory mite used to manage twospotted spider mites (*Tetranychus urticae*) in California strawberries. Three evaluation methods were tested: the lab's original "Old Method," which uses a heated lamp to drive mites down onto sticky cards through a sieve; the International Organization for Biological Control's (IOBC) subsampling method to estimate live and dead mites; and a reverse Berlese method that uses light to draw mites upward (Fig. 1). Eighty bottles were assessed to compare mite recovery rates of the counting methods. In bottles labeled as containing 2,000 mites (2k bottles), IOBC and reverse Berlese both recovered approximately 102% of the labeled mite count, compared to 76% for the Old Method. In 4k bottles, IOBC estimated 94% of the labeled count, reverse Berlese recovered 83%, and the Old Method recovered 74% (Fig. 2). For both bottle sizes, reverse Berlese recovered more mites than the Old Method and produced estimates comparable to the industry-standard IOBC method. In addition to providing a quantitative estimate, reverse Berlese allows for qualitative assessment of mite condition and quality, making it a promising tool for predatory mite quality control. Additional testing and statistical analyses are ongoing.

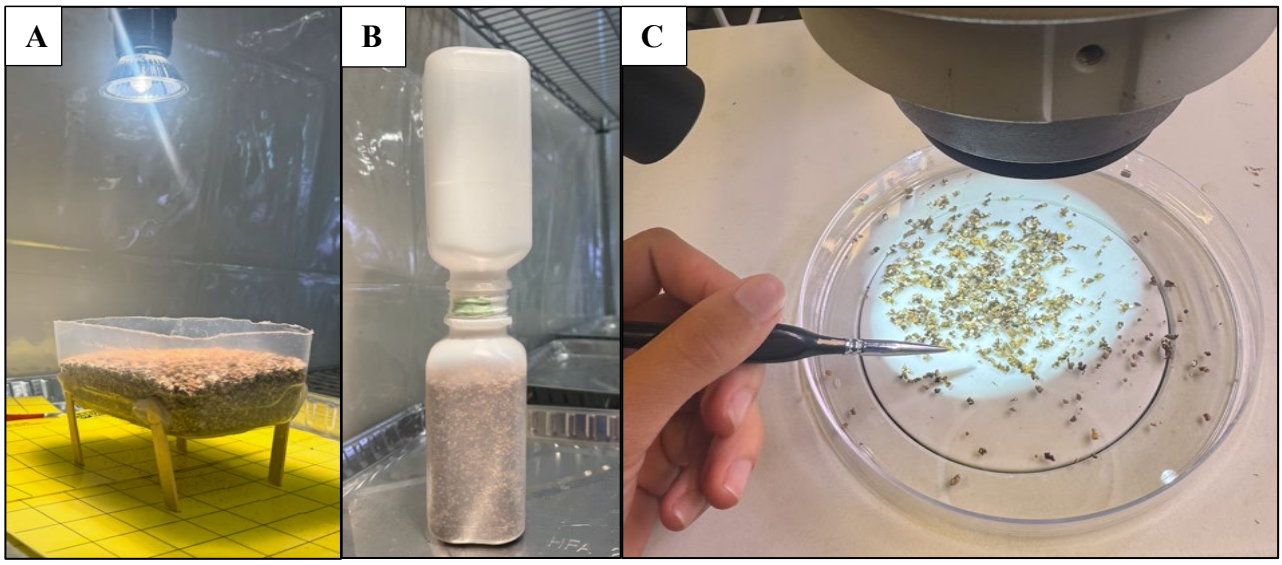


Figure 1. Methods used to assess the quality and quantity of *Phytoseiulus persimilis*: the "Old Method" (A), the reverse Berlese method (B), and the IOBC subsampling method (C).

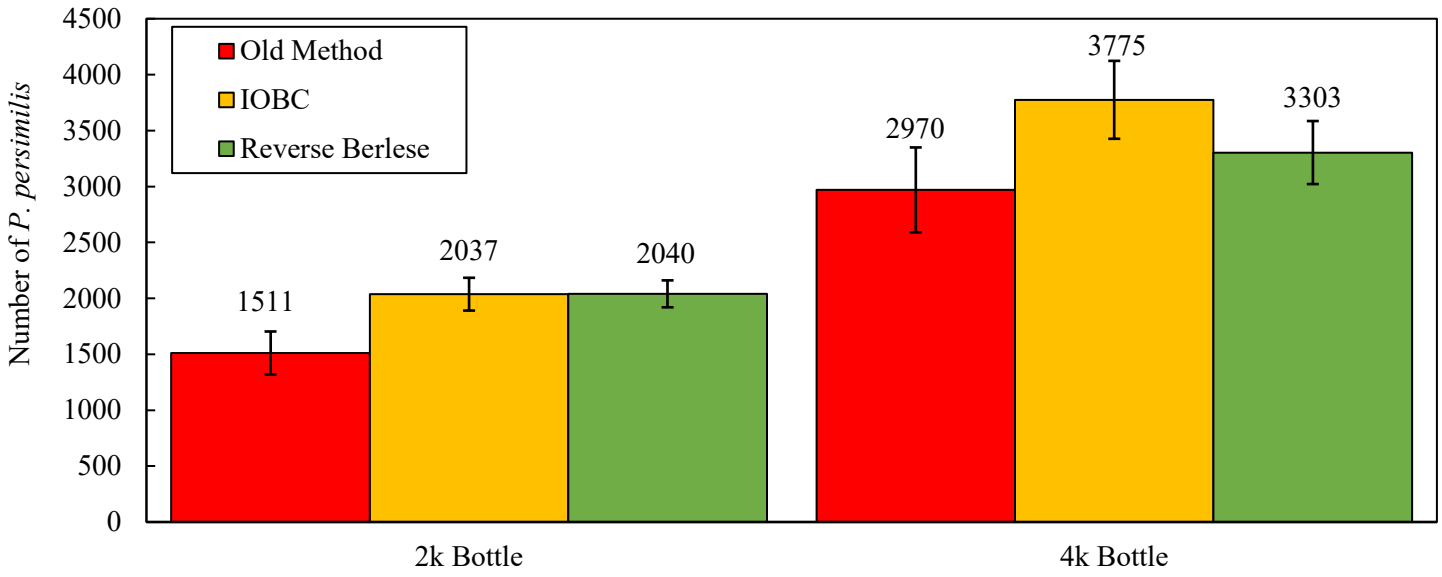


Figure 2. Comparison between the labeled number of mites (2k or 4k) and the average number of mites recovered using the Old Method, IOBC, and reverse Berlese methods. Eighty bottles were sampled for this study from 2024-2026. Error bars represent the standard error.