Comparison of preventative *Neoseiulus californicus* releases against a grower standard predatory mite program in fall planted strawberries

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This study evaluated early, high-rate preventative releases of *Neoseiulus californicus* versus a grower standard program with *Neoseiulus californicus* and *Phytoseiulus persimilis* to manage *Tetranychus urticae* and *Eotetranychus lewisi,* two important spider mite pests in strawberries. The trial was conducted on fall-planted strawberries on the Central Coast in an organic field. As a generalist, *N. californicus* preys on both *T. urticae* and *E. lewisi*, while *P. persimilis* specializes in *T. urticae*. Three treatments replicated four times were tested: a control, preventative *N. californicus*, and a grower standard program. Preventative *N. californicus* was released four times starting in Dec at 200,000 mites/acre. Grower standard *N. californicus* applications began in Jan 2025 at 30,000 and 150,000 mites/acre; *P. persimilis* was released four times beginning in Feb 2025 at 40,000 mites/acre. Results showed that the preventative *N. californicus* treatment maintained the lowest and longest average spider mite populations and was associated with healthier plants compared to the control and grower standard treatment. However, none of the treatments kept spider mite populations below the economic threshold, likely due to grower spray decisions during a critical establishment period. These results highlight the potential of early, high-rate predatory mite releases to improve spider mite control. They also emphasize the need for proper implementation and research that can help growers and PCAs on effective biological control strategies.

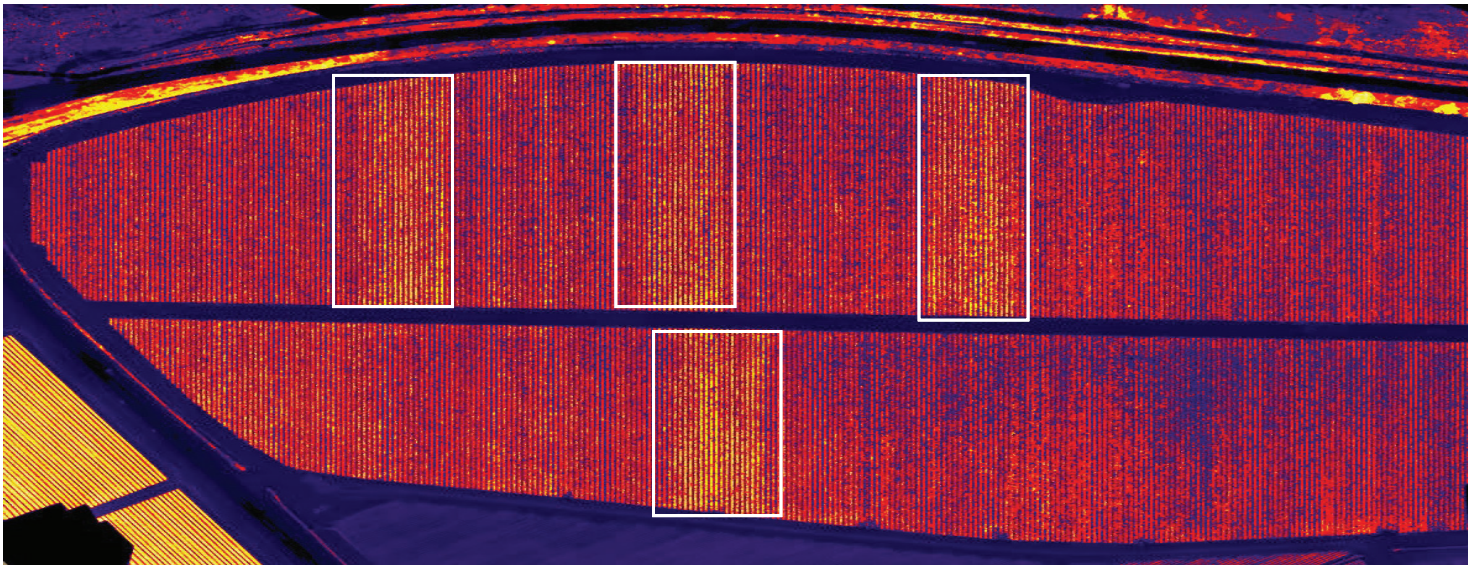

Figure 1. Normalized difference vegetation index (NDVI) image of field taken on 11 Apr 2025. White boxes indicate preventive *N. californicus* treatments.

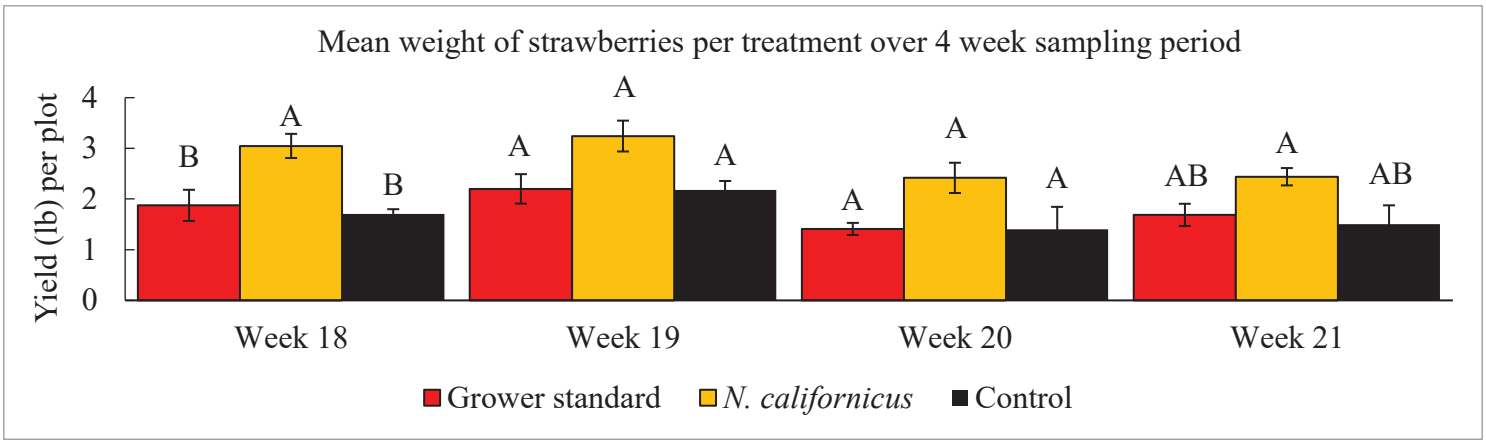

Figure 2. Mean sample fruit weight (lb) of strawberries from 60 plants per replicate for each treatment taken in Apr and May 2025. Data was analyzed using Proc Glimmix in SAS 9.4. Bars sharing the same letters are not significantly different according to Tukey HSD test. Error bars represent the standard error of the mean.

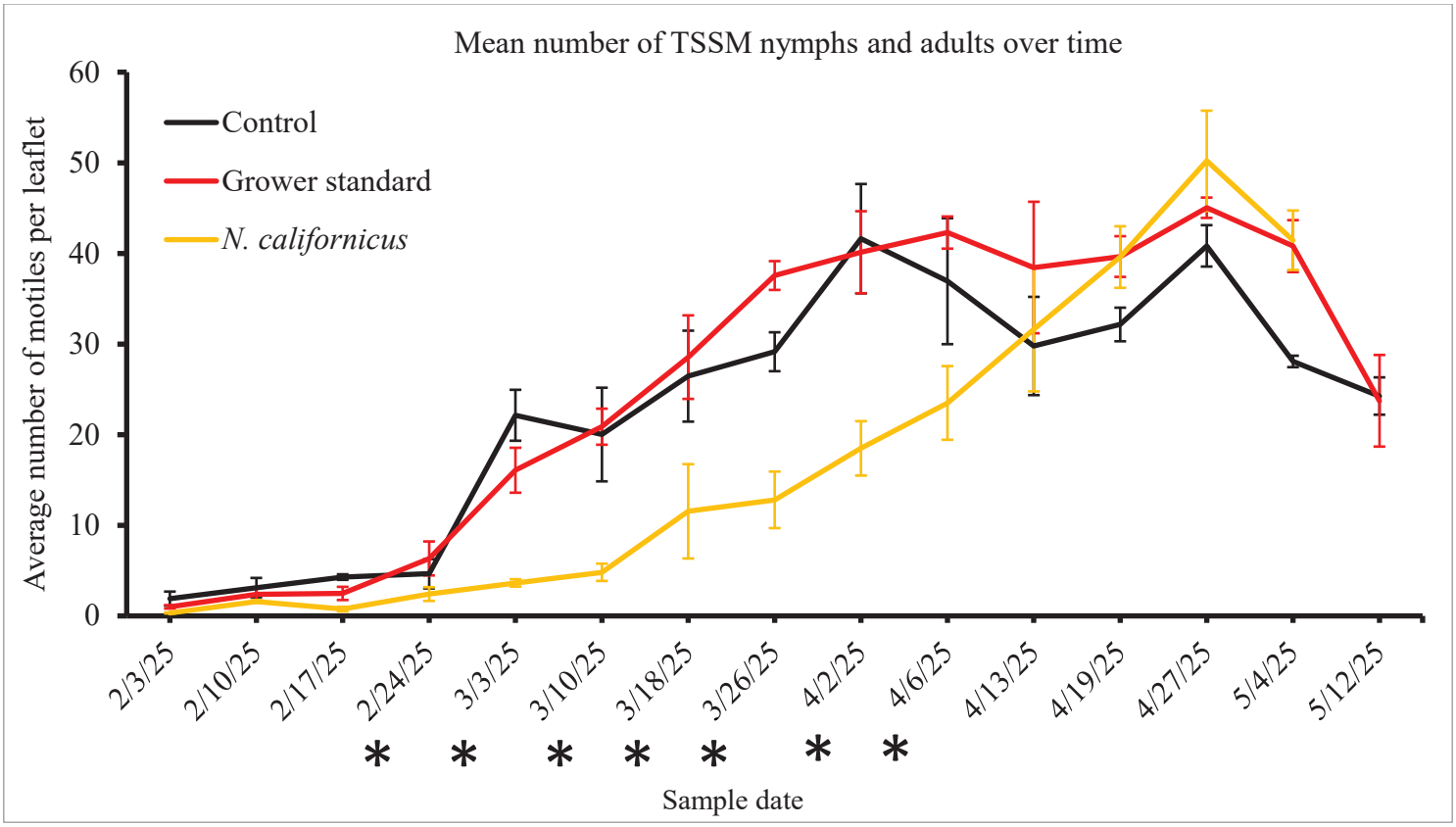

Figure 3. Mean sample populations of *Tetranychus urticae* per leaflet over time across four predatory mite treatments. Data was analyzed using Proc Glimmix in SAS 9.4 using a Poisson distribution. Bars with * are significantly different according to Tukey HSD test and represent where *N. californicus* had the lowest number of prey mites.

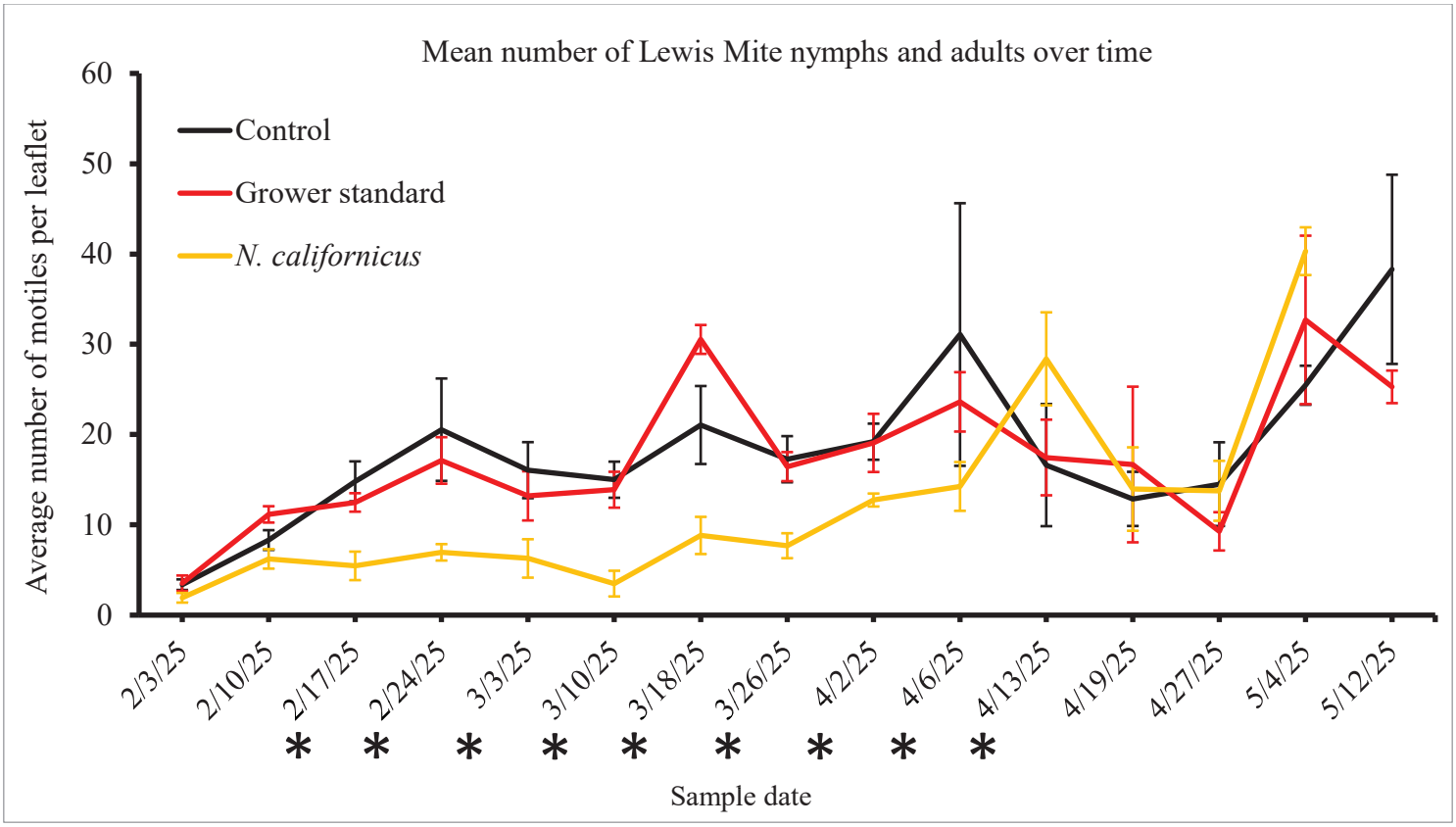

Figure 4. Mean sample populations of *Eotetranychus lewisi* per leaflet over time across four predatory mite treatments. Data was analyzed using Proc Glimmix in SAS 9.4 using a Poisson distribution. Bars with * are significantly different according to Tukey HSD test and represent where *N. californicus* had the lowest number of prey mites.