DIET BASED FITNESS VARIABILITY OF *COCCINELLA NOVEMNOTATA* (COLEOPTERA: COCCINELLIDAE)

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ABSTRACT

Coccinella novemnotata (Herbst) is a species of North American native lady beetle (Coleoptera: Coccinellidae) which has come under great ecological duress over the past 30 years and is experiencing a significant decline throughout its native range. This species once was widely distributed across most of the United States, especially in the Northeastern U.S. In recent years, a marked decline made individuals increasingly rare and more difficult to find. Several possible causes for the decline have been identified, including gross habitat changes which have led to varied available food sources including preferred and non-preferred aphids, both of which hold great value in optimal fitness for this lady beetle.

Research into the causes of decline and any attempts at reintroduction will require efficient and reliable mass rearing to produce large numbers of individuals. This study looked at the possible food sources for *C. novemnotata* that can be found in areas where the lady beetle has been located to determine the best diet to enable greater mass rearing success. Focus was placed on a coccinellid egg diet, 6 single-aphid diets, and 5 mixed-aphid diets to include; *Rhopalosiphum padi* (L.), *Aphis glycines* (Matsumura), *Sipha flava* (Forbes), *Aphis craccivora* (Koch), *Schizaphis graminum* (Rondani), and *Acyrthosiphon pisum* (Harris). Developmental duration and survivorship of *C. novemnotata* were compared among diets using analyses of variance and Tukey's proportions tests. *Coccinella novemnotata* generally developed faster and had greatest survival on *A. pisum* and dual-species aphid diets with *A. pisum*. *Acyrthosiphon pisum* is an introduced aphid and was not part of the original natural diet of *C. novemnotata*.