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A two-delay differential equation model for a mite population with multiple life stages.

Various species of pest mites pose significant challenges for apple growers worldwide. In Nova Scotia's Annapolis Valley, infestations of phytophagous mites, primarily the European red mite, *Panonychus ulmi* (Koch), can cause serious economic losses in apple orchards. The mites damage the leaves, which results in excessive fruit drop, thus causing lower yields and poorer fruit quality. A mathematical model of the population dynamics of the European red mite can provide insight into ways to control the mites. In this talk, potential delay differential equation models for the European red mite are explored. It is shown that a two-delay model is superior to a single-delay equation model in capturing the population dynamics of the pest.