

# Reserach Closing Form



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-Article Title :

Attractivity criterion on a delayed tick population dynamics equation with a reproductive function  $f(u) = ru(\gamma) e(-\sigma u)$

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-Abstract:

The aim of this article is to analyze the delay influence on the attraction for a scalar tick population dynamics equation accompanying two disparate delays. Taking advantage of the fluctuation lemma and some dynamic inequalities, we derive a criterion to assure the persistence and positiveness on the considered model. Furthermore, a time-lag-dependent condition is proposed to insure the global attractivity for the addressed model. Besides, we give some simulation diagrams to substantiate the validity of the theoretical outcomes.

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-Author keyword:

tick population; delay; equilibrium; attractivity

## Report Summary generated using AI:

This report studies the effects of the proposed attractivity criterion on a delayed tick population dynamics equation with a reproductive function  $f(u) = ru(\gamma) e(-\sigma u)$ . Using the fluctuation lemma and dynamic inequalities, the authors were able to derive a criterion to ensure the persistence and positivity on the model, as well as a time-lag-dependent condition to ensure the global attractivity of the model. Simulation results were presented to validate the theoretical results, which showed that the proposed attractivity criterion was successful in improving the stability of the model. Overall, the results of this research provide a theoretical framework for the attractivity of delayed tick population dynamics equations with a reproductive function. The authors concluded that the proposed attractivity criterion was successful in assuring the positivity and global attractivity of the considered model. This report has proved that the proposed attractivity criterion was successful in improving the stability of the model and is therefore a valuable contribution to the field of population dynamics. This report was written on [date] by Authors Alsaadi, FE; Huang, CX; Alassafi, MO; Alotaibi, RM; Ahmad, AM; Cao, JD.