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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tick population; delay; equilibrium; attractivity

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This research report is submitted to report the findings of the research "Attractivity Criterion on a Delayed Tick Population Dynamics Equation with a Reproductive Function" from the authors Alsaadi, FE; Huang, CX; Alassafi, MO; Alotaibi, RM; Ahmad, AM; and Cao, JD. The aim of the research was to analyze the delay influence on the attraction for a scalar tick population dynamics equation with two disparate delays. To meet this goal, the authors took advantage of the fluctuation lemma and various dynamic inequalities to derive a criterion that assures persistence and positiveness of the model, as well as a condition that ensures global attractivity for the addressed model. Furthermore, simulation diagrams were generated to prove the validity of the theoretical outcomes. Overall, the research was successful in providing useful insights into the attractivity of a delayed tick population dynamics equation with a reproductive function. The results of this research can be used to design control strategies for the tick population, and improve our understanding of the mechanisms underlying the dynamics of this system. We thank the authors for their hard work and dedication in producing this valuable research. Sincerely, Research Team