

The effect of Additional Food in Holling Tanner Type Models

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Biological control, the use of predators and pathogens to control target pests, is a promising alternative to chemical control. It is hypothesized that the introduced predators efficacy can be boosted by providing them with an additional food source. The current literature only models additional food in predator-pest systems for *symmetric* predator functional responses - that is when the functional and numerical responses are of the same form. The purpose of the current manuscript is to show that providing predators with additional food in models where their functional response is not symmetric, such as Holling-Tanner models, is also effective in pest eradication. Results on stability, cyclicity and Turing instability in such a class of models is investigated. Our results have large scale implications for the effective design of biological control methods involving additional food.

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