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Ecological stoichiometry studies the balance of energy and multiple chemical elements in ecological interactions to establish how the nutrient content affect food-web dynamics and nutrient cycling in ecosystems. Stoichiometric population models aim to describe fully the complex dynamics often observed in nature in a simple and sound setting. In this study, we formulate a food chain with two limiting nutrients in the form of a stoichiometric population model. This model naturally extends the model due to Loladze, Kuang and Elser. A comprehensive global analysis of the rich dynamics of the targeted model is explored both analytically and numerically. Chaotic dynamic is observed in this simple stoichiometric food chain model and is compared with traditional model without stoichiometry. Our finding shows that decreasing producer production efficiency may have only a small effect on the consumer growth but a more profound impact on the top predator growth. (Received September 23, 2017)