Lale Asik* (lale.asik@ttu.edu), Department of Mathematics and Statistics, Texas Tech University, 1108 Memorial Circle, Lubbock, TX 79409-1042, and Angela Peace. The Effects of Excess Food Nutrient Content on the Coexistence of Competing Consumer Species.

Recent discoveries in ecological stoichiometry have indicated that food quality in terms of the phosphorus:carbon (P:C) ratio affects consumers whether the imbalance involves insufficient or excess nutrients. This phenomenon is called the “stoichiometric knife-edge.” In this study, we develop and analyze two consumers feeding on one producer model, which captures this phenomenon. Criteria for local stability and instability of the non-negative equilibria are obtained. The co-existence of the three species is also discussed. Finally, computer simulations are performed to investigate the dynamics of the system. (Received September 09, 2019)