1154-92-2395 **Dilini Fonseka*** (dilini.fonseka@ttu.edu), 1108 Memorial Circle, Lubbock, TX 79409, and **Angela Peace**. *The number of pollinators really drives the stability of a stoichiometric plant-pollinator-herbivore model.*

Plant-pollinator interactions play an important role in the maintenance of the balance of nature. All organisms living in the environment are composed of different ratios of chemical elements. By considering the balance of essential chemical elements in nature, we can formulate mathematical models to study their role in the dynamics of the system as well as nature. We formulate and analyze a stoichiometric herbivore-plant- pollinator model. Our model includes four-dimensional systems of ordinary differential equations to represent the plant, pollinator, herbivore populations, as well as the varying nutrient levels of the plant. We analyze the dynamics of the systems such as non- negativeness and boundedness of solutions, as well as the existence and stability of boundary equilbria. We perform numerical simulations and bifurcation analysis of the model. Bifurcation analysis shows the existence of critical thresholds of number of pollinators for plants to survive and for herbivores to die. (Received September 17, 2019)