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Turing Instabilities in Systems of 1st Order Difference Equations.

When analyzing a system of discrete reaction diffusion equations, one primary area of interest is locating where in parameter space Turing instabilities occur. It will be shown that Turing instabilities cannot occur in the 'react then diffuse' equations if all diffusion coefficients are equal. Replicator dynamics is a system of equations that is used in evolutionary game theory applications. Conditions for Turing instability in first order discrete replicator systems with diffusion will be discussed with computer simulations of the results. (Received July 12, 2010)