VAHID ANVARI, Department of Mathematics and Statistics, University of Saskatchewan
System Dynamic Modeling of Chronic Wasting Disease

System dynamics methodology is a unique tool that helps us understand the behaviour of complex systems over time. This methodology operates within the context that systems are made up of numerous factors that interact in complex ways to function as a whole. Feedback loops, interactions, non-linear relationships, delays, and heterogeneities can be incorporated in order to simulate real life systems. System dynamics models are not used to forecast the future, but allow us to alter model variables and identify plausible reactions over time. These models can lead to new insights regarding a particular disease, identify critical research gaps and can incorporate changing conditions or management strategies. We developed a system dynamics model of chronic wasting disease (CWD) in mule deer in southern Saskatchewan with two objectives: 1) to identify long-term effects of the disease on free-ranging deer populations; and 2) to test the potential outcomes of various vaccination and management strategies.