Working Title	Modeling Risk in the Agricultural Supply Chain
Key Research Question / Hypothesis	Weather conditions introduce risk into agriculture that can result in catastrophic loss of crops and disruption of the supply chain. This project will develop an expanded set of mathematical models to deal with supply chain risk.
Team Profile	1 – 2 MLog students
Project Description	Perhaps one of the oldest problems in statistics, agriculture depends a great deal on the weather, which varies in ways that can be statistically measured and analyzed. This research develops stochastic models to optimize the risk associated with agricultural operations such as harvesting crops. The goal to maximize the size of the harvest given weather conditions. Many of these models have already been conceptualized and currently need testing and expansion through minor mathematical development. An article published in 2004 by a member of the MIT Data Center summarizes one risk approach: http://mitdatacenter.org/1526-5498-2004-6-3-0225.pdf Other partially complete approaches developed by members of the MIT Data Center can be found at: http://mitdatacenter.org/Jones.pdf http://mitdatacenter.org/AnalysisofThreeCropRisks%20(SJA%208-1-04).pdf
Data Type & Sources	Weather data and details from Welch's, an agricultural cooperative among others.
Potential Advisor	Stuart J. Allen, Edmund W. Schuster, David L. Brock
Company Contact	There are a number of agricultural and food processing firms and cooperatives that are interested in examining ways to mitigate risk.
Primary Methodology	This project will include the following methodologies: • Gathering weather data • Testing the performance of various models. • Mathematical modeling of risk
Is	• A detailed technical analysis.
Is Not	• A qualitative project involving risk.