Chicken Meat Supply Chain Modeling in Khorasan Razavi Province

Abstract

Poultry is now one of the largest industries in Khorasan Razavi province, and chicken meat has an important role in household food. Developing appropriate methods that lead to the strategies of handling poultry products in order to fulfil consumers' demand, have become a challenging issue especially in the face of crisis situations. In this paper, supply chain system is a process from rearing farm to ultimate consumption of final product, and provides useful operational analysis of system behaviors, to manage supply chain under demand uncertainties and production disruptions. Covering more possibilities, three scenarios of different price levels for corn, soybean, one-day chicken and two scenarios for percent of loss bird and reduction of rearing time are suggested. Choosing the best method to simulation of chicken meat price, we compared multivariate copula and gene expression programming (GEP) models. GEP simulation demonstrate better performance. In this paper, a system dynamics modelling is applied to study the behavior of chicken meat supply chain threatened by bird flu, demand fluctuations, and governmental interventions under Vensim environment. The best net income earns between 40-44 ages, after that net income decline dramatically and it reaches to the minimum at 53th day. Results show that without changing demand levels to achieve supply chain stability, in order to guarantee remunerative prices for producers and affordable prices for consumers, system needs to import chicken meat for the entire period of crisis and governments intervenes in the market. According to the results of chicken transport management, slaughter and rearing time, it is possible to fulfil the demand by domestic production capacity, even in the worst scenario, when the loss bird rate is maximum. The supply chain is influenced by endogenous factors as well as exogenous factors such as government interventions. Therefore, establishing an integrated system among rearing farm, transport system, slaughterhouse and government purchase is profitable especially in crisis periods.

Keywords: Khorasan Razavi province, Poultry, Simulation, Supply chain

University of Zabol
Faculty of Agriculture
Department of Agricultural Economics

Title:

Chicken Meat Supply Chain Modeling in Khorasan Razavi province

Supervisors:

Dr. M. Salarpor
Dr. M. Sabuhi

Advisors:

Dr. H. Mehrabi Boshrabadi
Dr. M. Ahmadpour Borazjani

By:

Mostafa Jamshidifar

September 2017