

Case Study of the Roma Tomato Distribution Chain: A Dynamic Interface for an Agricultural Enterprise in Mexico

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Abstract : From August to December of 2016, a diagnostic and strategic planning study was carried out on the supply chain of the company Agropecuaria GABO S.A. de C.V. The final product of the study was the development of the strategic plan and a project portfolio to meet the demands of the three links in the supply chain of the Roma tomato exported annually to the United States of America. In this project, the strategic objective of ensuring the proper handling of the product was selected and one of the goals associated with this was the employment of quantitative methods to support decision making. Considering the antecedents, the objective of this case study was to develop a model to analyze the behavioral dynamics in the distribution chain, from the logistics of storage and shipment of Roma tomato in 81-case pallets (11.5 kg per case), to the two pre-cooling rooms and eventual loading onto transports, seeking to reduce the bottleneck and the associated costs by means of a dynamic interface. The methodology used was that of system dynamics, considering four phases that were adapted to the purpose of the study: 1) the conceptualization phase; 2) the formulation phase; 3) the evaluation phase; and 4) the communication phase. The main practical conclusions lead to the possibility of reducing both the bottlenecks in the cooling rooms and the costs by simulating scenarios and modifying certain policies. Furthermore, the creation of the dynamic interface between the model and the stakeholders was achieved by generating interaction with buttons and simple instructions that allow making modifications and observing diverse behaviors.

Keywords : agrilogistics, distribution, scenarios, system dynamics

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