

SUMMARY OF MASTER'S DISSERTATION

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Title			
Resilient Supply Network Structure Design for Fresh Produce			
Abstract			
<p>On March 11th 2011, Japan experienced an earth quake and a tsunami of cataclysmic magnitude. Although the areas affected by the earth quake were the ones most prepared in the world to face this type of events, the disaster cause widespread disruption that hindered businesses not only in area of impact, but throughout Japan and beyond. This event put more focus than ever before on the vulnerability of today's highly lean and tuned supply networks to disruptions. The case of contaminated food products in the Fukushima prefecture showed how sensitive the fresh produce supply network, in particular, can be to disruptions due to natural or industrial disasters. In this paper we study the supply disruptions affecting the fresh produce supply networks and we propose a mitigation strategy to improve the network's resilience. After reviewing the various solutions to disruptions proposed in literature, this paper highlights some specificities of the fresh produce supply network that make these solutions inadequate. As an example, we focus on the fresh oranges sector and we use related trade data for validating the model assessing the results. We propose the introduction of fresh produce options for hedging the supply risk. Thereafter, we examine the effect of introducing hedging options on the supply network topology and thus, its resilience. As there is nowadays no platform for trading of such options, we consider three different types of platforms. And we compare the effect of introducing options through every one of these platforms and the corresponding effect on the network's resilience and the single demand nodes' profitability. We find that, though having a number of restrictive requirements, the PEM (Private Electronic Market) is the platform that makes introducing hedging options most effective. Further research is necessary evaluate the feasibility of the best solution-PEM, - but the other two alternatives evaluated here –though not as effective- are available or can easily be.</p>			
Key Word(5 words)			
Supply network, Resilience, Disruptions, Hedging options, Fresh Produce.			