



## COMPETITION AND COORDINATION IN ORGANIC FOOD SUPPLY CHAINS

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**Abstract:** The organic produce market is growing due to the considerable increase in people awareness of environmental and social sustainability issues. Organic farming contributes to sustainable agriculture. It reduces the negative impacts of agriculture on the environment and provides people with healthier food. From an economic standpoint, an organic product can provide a higher revenue compared to its conventional peer, thanks to the premium price paid by consumers and the subsidies offered by governments. The market is competitive as most organic products have a variety of close substitutes offered by conventional farmers. Moreover, organic farmers face several challenges, including lower crop yield and higher farming costs compared to conventional systems. This talk characterizes the significant role of supply chain coordination in helping farmers overcome organic-farming barriers. We develop game-theoretic models to derive closed-form optimal solutions under centralized and decentralized decision-making scenarios, where an agribusiness enterprise, the Stackelberg leader, determines the wholesale price, and then the farmers, the followers, set their production quantities. Having observed the benefits of the centralized approach, a new coordination model, named synergistic trilateral contract farming, is proposed to incite organic farmers and agribusiness enterprises move towards centralization. The proposed coordination model provides farmers and agribusiness enterprises with higher profits compared to the traditional decentralized decision-making framework. It also benefits the society and the environment by motivating the production and consumption of organic produce. We also analytically explore how the main features of organic farming, including price premium, crop yield gap, cost factor, and product substitutability, affect the decisions made by organic food supply chain players under different decision-making scenarios.

**Bio :** Mohammadreza is postdoctoral research fellow at ESG UQAM and CIRRELT. He received his PhD in Industrial Engineering from Iran University of Science and Technology in 2017 and joined the Dhillon School of Business, University of Lethbridge, for his first postdoc fellowship in 2019. His research portfolio includes sustainable supply chain management, contracts and supply chain coordination, pricing and revenue management, and inventory control, across a wide range of sectors, including healthcare, agriculture, energy, and transportation.

**JEUDI / THURSDAY**

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**Ouvert à tous / Open to all**

**Responsable / Organizer**

**Teodor Gabriel Crainic**