

# Chapter 49

## Eco–Certification and Transparency in Global Food Supply Chains

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### **ABSTRACT**

*This chapter portrays the information flow for sustainability issues along the globalized food supply chain and explores the eco-certification decisions of farm businesses, viewing them as the first upstream chain participant. This examination is based on the literature to connect eco-certification with transparency and to portray traceability schemes for sustainability issues in food supply chains, followed by information technology-based systems and applications supporting traceability. The third section presents the eco-certification decisions at the supply chain level in four subsections. It first builds a theoretical framework regarding the downstream firms' sustainability-related decisions by offering conceptual definitions. Next the farm business decision logic is given, followed by the discrete choice model. The specialization of the model is presented in the third subsection, followed by the results, discussions, and implications for practitioners. Some conclusions and implications for future research are offered in the last section.*

### **INTRODUCTION**

The food supply is implicated for its environmental impact at all stages of the food life cycle, while the production stage contributes the highest share of the average household footprint for food consumption (Garnett, 2011; Weber & Matthews, 2008). Thus, it is expected that the agro-food sector can become

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substantially less harmful for the environment if sustainability-related changes in the structure and the quality of food production take place. For example, if the conventional food production is transformed to organic, then the use of synthetic agrochemicals can be minimized, the water consumption can be reduced, and the energy gain can reach even 41.5% of the total energy requirements in food production and supply from the farm gate to the consumer's table (Schwarz, Schuster, Annaert, Maertens, & Mathijs, 2016; Tubiello et al., 2014; Ziesemer, 2007). Such a shift to a more environmentally responsible agriculture can be directed by public authorities' interventions and nongovernmental organizations' pressures and can be driven by the market mechanisms (Mylan, Geels, Gee, McMeekin, & Foster, 2014; Tselempis, Karipidis, Pavloudi, & Semos, 2015; Weber & Matthews, 2008).

In the case that such a change is driven by market forces, environmentally responsible agriculture could be the result of the responses of the food supply chain actors to environmentally sensitive demand. For example, by 2008, the major United Kingdom supermarkets had announced targets to improve the sustainability performance of their supply chains both as a response to postpone regulation and to defend against nongovernmental organization criticism and as a reaction to a perception in the market regarding a cultural shift toward greater sensitivity to sustainability problems and the rise of "green consumers" (Mylan et al., 2014). This provides a new competitive context for supermarkets. In other words, consumer choices can generate incentives for producers and marketers by indicating preferences for eco-friendly products or by rewarding them with price premiums, thus leading the food supply chain actors to adopt proactive environmental management strategies in order to become more attractive to customers (Delmas & Grant, 2014; Hartmann & Moeller, 2014; Karipidis & Sartzetakis, 2013; Karipidis, Tsakiridou, Aggelopoulos, & Belidis, 2010; Weber & Matthews, 2008).

Viewing environmentally friendly food production and supply through the lens of a supply chain, we adopt Ahi and Searcy's (2013) suggestion that coordination in sustainable supply chains can be a good starting point. They defined sustainability as the creation of coordinated supply chains with key interorganizational business systems designed to efficiently and effectively manage the material, information, and capital flows associated with the procurement, production, and distribution of products or services in order to meet stakeholder requirements. Combining this with Kottila and Rönni's (2010) findings that consumers are requesting better placement and assortment of information available at stores, food supply chain actors must create coordinated sustainable supply chains through the integration of environmental considerations as well as communicate messages to consumers (using signals) to elevate their own positions against market competitors. For example, they can implement programs that certify that they use inputs or sell food grown in sustainable cultivations or animal production units avoiding negative effects on the environment, from the reduction of carbon footprints to the elimination of eco-toxic substances.

The main objective of this chapter is twofold. It first aims to portray the flow of sustainability-related information to downstream food supply chain partners by reviewing the literature. Taking into consideration that the overall supply chain performance can be improved if all supply chain partners embed sustainable practices into their activities (Ahi & Searcy, 2013; Hassini, Surti, & Searcy, 2012) and that a substantial reduction of environmental consequences can be achieved by improvements in the food production stage, then the study's second aim is to analyze the eco-certification decisions of farm businesses and identify the factors accelerating certification. Thus, the chapter's main contribution is that it analyzes the farm business eco-certification decisions within the framework of information sharing and the relationships between supply chain members in order to achieve and trace the sustainability in food supply chains.

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