



# Green marketing tools for fruit growers associated groups: application of the Life Cycle Assessment (LCA) for strawberries and berry fruits ecobranding in northern Italy



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## ABSTRACT

In recent years, interest in environmental issues has increased and, in particular, it has been firmly established the idea that consumer choices can actually affect the environmental performance of the different production systems.

In the fruit and vegetables sector, retailers are among those who have been able to respond more quickly to this challenge, mainly using third-party certification and private eco-branding. However, there are other players in the sector that can have a pro-active role in the differentiation of their product, including producer groups, as stakeholder with direct experience of the product from the outset. Associated groups of agricultural producers of food growers can be encouraged and supported to include in their marketing practices eco-friendly information regarding their production systems. Eco-labelling could support these coops in differentiating their products to better position themselves in the market.

This paper presents how the use of LCA methodology combined with the calculation of the carbon dioxide offsetting of the same production system using the IPCC method, can help to integrate environmental content (green) into the Delizie di Bosco di Piemonte brand of cooperative Agrifrutta. At the aggregate level, the application of LCA methodology to the supply chains considered has been able to quantify the emissions from the strawberries and berry fruits marketed under the “Delizie di Bosco del Piemonte” brand. For the year 2013 the total emissions of brand products, according to the GWP impact category, amounted to 209 t CO<sub>2</sub> eq. The results for the emissions calculated for 2013 have been fully offset within the cooperative, through the sequestration of CO<sub>2</sub> performed by 21 ha of chestnut trees on the farms owned by the members of the Cooperative.

It discusses the need of further investigation on the way to combine effectively an eco-label with a corporate brand and how to improve of the label credibility by an appropriate and balance communication.

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## 1. Introduction

In recent years, interest in environmental issues has increased and, in particular, it has been firmly established the idea that consumer choices can actually affect the environmental performance of the product system. This applies to that part of sustainability relevant to them, relating to the use and management of the

product and its waste (Tascione and Raggi, 2012). Increasingly, this also seems to apply to the effects of the actions of consumers on primary production. Consumers, in effect, may play an important role in improving the food supply chain, as with their choices at the time of purchase, they may reward or penalise a product on the basis of the more or less sustainable methods by which it was obtained (Grunert, 2011).

Although consumers say they are willing to reward a product considered environmentally friendly according to their standards, the history of organic products shows that positive attitudes do not always translate into purchases (Thøgersen, 2000). One of the main difficulties to create the conditions for an actual purchase is

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certainly disclosure by companies, especially in terms of information provided on food labels (Erskine and Collins, 1997). Labelling is an important tool to communicate the characteristics of the products to consumers, including sustainability (Banterle et al., 2013). However, the amount of information that can be placed on the label is limited and it does not always have a positive influence on the effectiveness of communication (Wansink et al., 2004).

Over the past three decades, labels and brands in-store and on-pack have been the most frequently used means of communicating sustainability information related to food. According to the catalogue [ecolabelindex.com](http://ecolabelindex.com) (2014), about 432 labelling systems are in existence in 246 countries, of which 147 include rules for food/drinks. The common goal of all these systems is to increase transparency along the food supply chain and inform consumers in an effort to push them towards sustainable consumption.

Such a proliferation of different markings is not, however, always positive. When there is a lack of standardization and regulation of the industry, manufacturers are tempted to make trivial, misleading or even deceptive green marketing claims, undermining consumer confidence to such an extent that the “sustainable consumer” is not satisfied with the information available and tries to find out more, referring to websites, newspapers, television programs, education or advertising (Banterle et al., 2013).

Environmental product markings can be classified and divided in various ways. There are two main categories of differentiation: the existence of a compulsory or voluntary system and the presence or lack of independent certification (granting rights to use the mark). An example of mandatory labelling is that of the EU for energy, for example for the evaluation of the energy consumption of appliances on a scale from A to F, where A indicates the minimum energy consumption and F the maximum. With regard to voluntary labelling, the International Standards Organisation (ISO) uses three categories, namely Type I, II and III. Type I refers to third-party certifications with schemes involving the use of a logo associated with the certified products. This type of label is commonly referred to in the literature as an eco-label, although the term used in this paper is expanded to include all systems of environmental declaration labelling of products.

Type II labels are based on self-declaration of producers, importers, distributors or retailers, while those of Type III provide quantitative environmental data on the product as the result of an independent evaluation (Horne, 2009). Voluntary tools and the use of labels derived from voluntary tools were already considered in the early 1990, as a potentially effective policy tool to allow important results to be achieved such as the acquisition of new market shares or increased market shares through the differentiation of products based on their sustainability attributes (Boer, 2003; Orsato, 2009), but without overloading companies with excessive liens and encumbrances (Blanco et al., 2009; Darnall and Sides, 2008; Gusmerotti et al., 2012; Khanna and Damon, 1999). In the last few years they have been increasingly adopted worldwide to communicate and demonstrate the sustainability of the production processes, in a more or less effective and truthful manner depending on the case, (Kilian et al., 2012; Rubik et al., 2008), thus guiding consumers in their purchasing decisions.

Rex and Baumann (2007) point out that Coop Sweden declared that, as a result of consumer choice of ecological food products in 2004, in the country, the amount of pesticides used in food production was reduced by an amount equivalent to 14,000 kg and the amount of synthetic fertilisers by 1,000,000 kg. Always in Sweden, a survey has shown that the change in the purchase of household cleaners reduced the use of chemicals by 15% after the introduction of eco-labels, in which it was shown that the surfactants used had been replaced by biodegradable ones. It is important to note that these results were achieved through a

combination of efforts such as advertising campaigns associated with the use of eco-labels.

In the food sector in particular, the development of the green market and the challenge of transforming the production steps in “best practices” to sustainably reshape supply chains has been run especially by large retailers through the use of two tools: third-party certification and eco-branding (Anstey, 2009; Chkanikova and Lehner, 2014; European Commission, 2008, 2009, 2010, 2011a, b; Jones et al., 2009).

While some research (Anselmsson and Johansson, 2007; Burch and Lawrence, 2005; Chkanikova and Lehner, 2014) has demonstrated over the years how the establishment of private eco-branding has encouraged the efforts of food retailers to stimulate the demand for and supply of sustainable products, little is said of the creation of eco-branding by associated groups of agricultural producers. The marketing offices of these entities, which in Italy are mainly in the form of cooperatives, are the contact point between agricultural production, particularly fruit and vegetables, and national and international retailers. Even in the case of cooperatives, the creation of an eco-label can mean a competitive market strategy based on product differentiation (Orsato, 2009). As already noted for private branding used by retailers (Burch and Lawrence, 2005) and for associated producer groups, this tool could be an opportunity to encourage the adoption of innovative practices and processes and a way of accelerating attainment of certain sectors of the market with regard to traditionally branded products. For eco-labels to actually be useful to the growers association, it is necessary that the information is conveyed in clear and engaging messages (Peattie and Crane, 2005) with a focus on the environmental characteristics of food products that it is in the common interest of consumers to protect (protection of the environment and biodiversity, fish stocks, the heat balance of Earth's atmosphere through the control of greenhouse gases, the quality of workers' conditions). Currently this is a challenge, as it requires a thorough understanding of complex issues relating to sustainability, the development of indicators and metrics for each product, the ability to anticipate future trends of sustainability, in-depth knowledge of the customer (retailers) and purchase responses by consumers.

## 2. Methods

### 2.1. Conceptual framework and aim of the study

It is therefore necessary that all players in the supply chain, from primary producer, are involved in processes related to sustainability's communication and implementation, possibly in a proactive manner and not just as part of a gear. To achieve this end, it is important to identify appropriate tools, capable of reaching a compromise between the market demand, the assessment of sustainability and the need for clear and effective communication.

Aim of the paper is to address the challenge and the advantages related to the creation of eco-branding by associated groups of agricultural producers.

Moving from the initiative of the Cooperative Agrifrutta, who decided to increase the green content of its brand “Delizie del Bosco di Piemonte”, it has been discussed how the LCA methodology combined with the calculation of the carbon dioxide offsetting of the same production system using the IPCC method, produce data and information that fits with this purpose and fulfils the market demand, the assessment of sustainability and the need for a clear and effective communication.

The research work has therefore been divided into two stages:

- a close examination of the current situation in terms of sustainability of the agricultural and food sector of the Cooperative,

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