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Environmental services coupled to food products and brands: Food companies interests and on-farm accounting

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ABSTRACT

Much research has been carried out on governmental support of agri environmental measures (AEM). However, little is known about demands on and incentives from the commercial market for environmental contributions of the farmers. The factors farm structures, level of remuneration and legal framework have been thoroughly investigated. However, demands of the food industry for environmentally friendly goods[1] and their effects on farmers' decisions have not yet been analyzed. Leading companies in the food industry have observed an increasing consumer awareness and, due to higher competition, see an additional need to communicate environmental benefits which result from either organic production methods or agri-environmental measures.

To address this research deficit, two case studies were carried out. The first case study is a survey aimed at the industrial food producers' demands with regards to the environmental performance of supplying farms. Concurrently, within a second survey farmers were questioned to find out what conditions are required to implement agri-environmental measures beyond cross compliance and document their environmental performance. This article presents the outcomes of the first case study.

The results show that food companies have an interest in the documentation of environmental benefits of supplying farms for their marketing strategies. Provision of support by finance or contract-design is also seen as appropriate tool to promote an environmentally friendly production. In turn the food producers' demand and support for documented environmental services can have a positive influence on farmers' decisions for implementation and documentation of these services. Thus, the surveys provide essential findings for further development of documentation strategies for environmental benefits within the supply chain.

1. Introduction

Agricultural land use encompasses large areas of land; therefore, its environmental impacts are of eminent importance for nature and society. Although agriculture may negatively impact the environment, it also provides important ecosystem services, such as species diversity or greenhouse gas regulation as well as creating recreational landscapes. Organic farms may indirectly promote species and habitats diversity because of lower fertilization and restricted pest management (Sandhu et al., 2008; Haas et al., 2001). Organic farms also receive more agri-environmental premiums than conventional farms. Altogether, in 2003 (last complete dataset available) 45% of the organic holdings and only 10% of non-organic farms in the EU15 were supported by agri-environmental premiums (European Commission, 2007). In fact, in Germany 74% of organic farms in comparison to 42% on conventional farms received these premiums (Commission Européenne, 2005; European Commission, 2007). These numbers underline the importance of organic farming for the implementation of further agri-environmental measures. However, especially in the field of biodiversity, organic farming does not automatically guarantee and monitor environmental benefits. Problems arise from heterogeneous label standards, present inconsistent criteria and the difficulty in accounting indirect environmental services. Even agri-environmental programs rarely specify guidelines for accounting or documentation in order to measure success of environmental measures. Consequently, it is crucial that organic, as well as, conventional farms adapt strategies and management practices in order to provide and monitor environmental services. As these

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[1] Agricultural commodities that are produced by using environmentally friendly management practice, such as low fertilizer inputs, avoidance of pesticide application or special mowing techniques in order to protect soil, water, species and habitats.

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services are politically and socially desirable (BMELV, 2008; The Gallup Organisation, 2010) and support the common good, the farmers' achievements must be remunerated. Unfortunately, in many countries agri-environmental measures are insufficiently financed (Von Haaren and Bills, 2009).

Simultaneously, private markets show a growing interest in environmental aspects in products chains. A large portion of the EU population is aware of the importance of and actual threats to environmental services, such as biodiversity (The Gallup Organisation, 2010). Furthermore, studies show a growing consumer demand for environmentally friendly goods and intact cultural landscapes (BMELV, 2008; BMELV, 2010a,b; Nestlé, 2009). These developments illustrate a potential for the support of sustainable and environmentally friendly agriculture. However, little is known about the interests and response of the industry, especially concerning food companies.

As food companies attempt to meet the demands of their customers, they can serve as representatives for consumer decisions. Some companies already look for solutions to document and illustrate the ecological image of their products. They participate in voluntary schemes, such as the international ISO 1400, the EU-wide EMAS (Eco-Management and Audit Scheme), in several recognized eco labels (including the EU organic label) or associations that promote environmentally friendly production aspects (e.g. Association of Organic Food Producers). A transparent statement of environmental services made by contract farms could provide the basis for a reliable (authentic) reputation for food companies. This, in turn, would help to give non-market services a real value. However, connecting these services to a market requires an assessment method and documentation that measures and compares ecosystem services. The results delivered by these methods of cause need to be compatible to accepted methods of sustainability assessment. For example targeting the food product chain, integration into life cycle assessment might be one of the key objectives to connect ecosystem services to a product or a company (cf. Roy et al., 2009).

To start with, the actual interests and future intentions of food companies need to be better understood. On one hand, the influence of governmental and public authorities on farmers' decisions to implement environmental measures has been thoroughly investigated (cf. Lambert et al., 2007; Mante and Gerowitt, 2008; Pannell et al., 2006; Pretty and Smith, 2004). On the other hand, the demands of the food industry for environmentally friendly produced goods and their effect on farmer's decisions have not yet been analyzed. It is assumed that the food industry is interested in documenting the environmental performance of supplying farms in order to use it for their communication and marketing strategies. However, questions remain unanswered about how the food companies can effectively support the farmers and how ecosystem service documentation can be designed, so that the services are credibly connected to the product. In order to explore this knowledge gap, a method was designed to meet the following research questions:

- How does the food industry rate the demands of consumers for environmentally friendly food products?
- What kind of environmental benefits are actually provided by the food companies and how are they illustrated?
- Are food companies interested in a documentation of environmental benefits provided by contract farms?
- Do food companies provide support to their supplying farmers (or are they willing to do so in the future), so that the farmers are able to implement environmental measures?
- Finally, how can food companies promote the transformation of non-commercial market services, such as biodiversity benefits provided by farmers, into market services?

2. Methods

In order to address these questions, a case study was conducted in Germany. A mixed method approach, using questionnaires and content analysis of websites, was used to investigate food companies' attitudes toward the environmental performance of supplying farms. First, a written questionnaire was sent by E-Mail and letter to one hundred food companies within Germany. The sample for the questionnaire was based on a random selection from an online business directory for companies of the food industry. The questionnaire, which was divided into four thematic sections, included eleven questions. Respondents were asked to answer questions using the Likert scale with additional space for comments (cf. Bortz and Döring, 2006). The first section contained questions about the current demand for environmentally friendly produced food and the food companies' response to it. The second set of questions examined the food companies' attitude toward documentation of environmental services for marketing purposes. In the third section, companies were asked about the level of detail they prefer for the documentation results of environmental services on farms. In the last section, the food companies rated statements about their willingness to support environmental services of their contract farmers. The questionnaire closed with two questions concerning the size of the company and the eco labeling of their products.

The second approach was based on a content analysis of the websites of 54 food producers that have production sites in Germany. The assortment was carried out as a systematic random sample from the same online business directory for companies of the food industry as mentioned above (verified data from August 2011). The random sample was taken independently from quota parameters, because desired features, such as inclusion of organic producers, small/medium sized companies and large-scale enterprises were obtained sufficiently through the sample size.

For the content based web analysis, the core issues and questions from the questionnaire were examined. The objective of the content analysis was to determine whether food companies consider environmental protection and nature conservation to be important. Additionally, it was examined by what terms and activities the companies fill the subject environmental protection with content. A distinction was made between i) whether the companies provide real environmental benefits themselves, or ii) whether the companies demand or promote environmental benefits of their supplying farmers. In order to answer the research questions, a category system was set up and operationalized by indicators (cf. Bilandzic et al., 2001; Taddicken and Bund, 2010; Welker et al., 2010). Table 1 shows an extract of the categories and basic indicators used in the online content analysis. The indicators and applicable units of measures were developed through an analysis of food producers' websites until an exhaustive list was derived (cf. Perry and Bodkin, 2000).

An automated analysis of web contents with special software programs was abandoned, since it was necessary to capture textual contexts and to analyze video or audio data. In order to address the content quantity and non-linearity (Hyper-links) (cf. Rössler and Wirth, 2001) as well as the multimedia character of webpages the following rules were applied:

(i) analyze content only if accessible under the same root directory (no tracking of external links),
(ii) include all main and sub-pages,
(iii) include multimedia (video, audio etc.) if enclosed in the webpage,
(iv) follow each internal text-link only to the next page,
(v) exclude downloadable documents or media, shops, forum, guest books and login areas.