



Co-Design of innovative contract models for agri-environment and climate measures and the valorisation of environmental public goods

## Research design and attribute determination to elicit consumer preferences for label-based approaches to stimulate the provision of Ecosystem Services along the value chain

Milestone 27 / 5.3

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## EXECUTIVE SUMMARY

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Originally, it was envisioned to conduct a workshop as a milestone (MS27) for the preparation of the Discrete Choice Experiment (MS28). At that time, the first part of WP5.3 consisted of a literature review followed by a workshop to discuss the results from the literature with experts. However, due to the wide spectrum of research on labels, we decided to extend the idea of the literature review and perform a Q-study as a stand-alone research item. This ensures more exchange with experts, leaves additional room for discussion and provides the opportunity to have in-depth one-on-one conversations. This entails a higher workload for the team, which will partially be compensated by a Masters' dissertation by Andrej Hagemüller (Masters' student at the Swedish Agricultural University (SLU)).

This report provides details on how we proceed to design the consumer preference study as the main feature of WP5.3.

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## ABBREVIATIONS

*DCE – Discrete Choice Experiment*

*ES – Ecosystem Service*

## INTRODUCTION

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Work package 5.3 will model consumer preferences and perceptions of 'label-based' approaches to stimulate the provision of ecosystem services (ES) within the value chain.

Currently, product labels are mainly used to inform consumers about health aspects of certain goods through the provision of information on nutritional components or organic cultivation practices. Other labels intend to guarantee fair working conditions in the production process ('fair trade' certificates; Giomi et al. 2018). In contrast to previous applications of labels, this work package particularly aims to identify product preferences depending on the additional information on ES provision. In other words, we could describe it as bundling ES and agricultural products together.

Prior initiatives of partner institutions helped to develop sustainability and biodiversity indicators along value chains of food production companies ('Firmen fördern Vielfalt'; see the HIPPI lab). Information derived from these indicators can be communicated to the public and thus possibly alter consumer behaviour. Firms that cooperated in the development of these indicators showed interest in further research of whether and how bundling of ES and agricultural products can be managed along the value chain.

In that respect, WP5.3 assesses how the information of sustainability and biodiversity indicators can be transferred to consumers via the channel of label-based approaches.

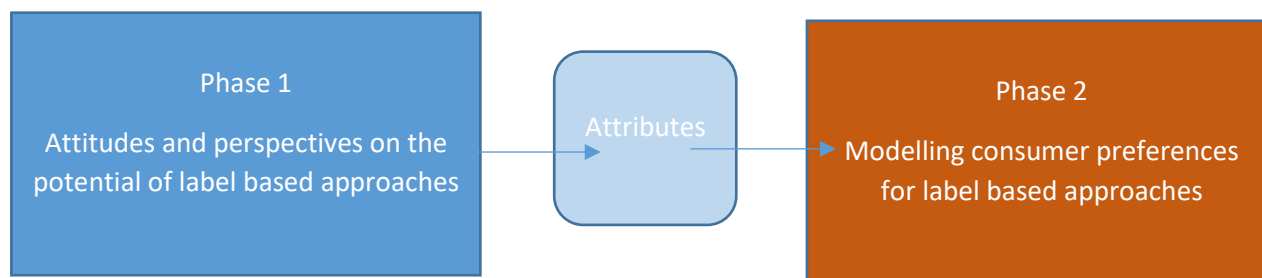
### Structure

The aim of the work package is to provide quantitative insights into consumers' preferences towards label-based approaches. To obtain these insights, we will conduct a Discrete Choice Experiment (DCE) in Germany, Poland, Netherlands, Spain and Slovenia. DCEs are a survey based stated preference valuation method, in which survey participants are confronted with hypothetical choice situations. Within these choice situations, the respondents choose the alternative, which provides the highest utility. Within WP5.3, survey participants will see different label-based approaches, characterised by certain attributes, and must choose the approach that they prefer most.

The preparation of the final survey instrument including i) the design of the survey, ii) determining the attributes to characterise label-based approaches and iii) incorporating expert knowledge to create a high quality survey requires a number of steps that will be described here in the research design framework:

A) Preparatory phase assessing expert opinions through literature review and application of Q-methodology in Germany, Poland and Spain (more on Q-methodology below). This step constitutes a stand-alone research publication and will be pioneered in Germany with a Masters' dissertation. This will serve developing the attributes for the DCE (phase B).

B) Building on the insights from phase A, we will complete the survey design and conduct the DCE with consumers in Germany, Poland, the Netherlands, Spain and Slovenia. This will provide insights into public preferences for label design to inform about ES provision along the product value chain.



<p><b>Research design</b></p> <ol style="list-style-type: none"> <li>1.) Literature review</li> <li>2.) Explorative interviews</li> <li>3.) Workshop</li> </ol> <p style="text-align: center;">↓</p> <p>Statement development for Q</p> <p style="text-align: center;">↓</p> <p><b>Same Q Analysis</b> in three countries (Germany, Poland, Spain)</p> <p style="text-align: center;">↓</p> <p>Paper 1: Attitudes and perspectives on the potential of label based approaches</p> <p>We plan to finish the Interviews in May. We will develop this as online interview.</p>	<p><b>Attribute development</b></p> <p>The aim of the attributes is to adequately characterise and mirror features that influence the consumers’ decision-making process. They are the core part of a DCE.</p> <p>Q-methodology helps to determine fields of tension and to identify polarising statements. This will characterise the breadth of debate regarding the label design and reflect factors influencing consumers’ preferences for different label design.</p>	<p><b>Research design</b></p> <p>Has to be developed (start in June 2020)</p> <p>Basis for DCE are the attributes developed in previous stages of the work package</p>
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## Definitions

During the course of the project, we define labels as a medium to transfer information to the consumer. Goossens et al. (2016) state that labels are “...providing consumers with adequate information on the various dimensions of food production, consumption and distribution in order to allow them to make informed food choices in line with their values and preferences”. Similar to that, we use labels in our research as indicators of ES provision within the production process of consumer goods.

We specifically intend to go beyond the design aspect of a label. This work package shall shed light into i) what kind of ES consumers prefer bundled with agricultural products, ii) what kind of information on the ES provision consumers care about, and iii) what institutional setting of “label-based” approaches consumers prefer.

Thus, in our work package the term “label” comprises the design, the information and the institutions behind an ES indicator on consumer products.

## LITERATURE REVIEW AND APPLICATION OF Q-METHODOLOGY

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Food product labels are important communication tools that provide consumers with information about a product’s composition and nutritional profile. These labels allow consumers to compare and choose products. Today, consumers use package labelling to find information on ingredients, expiration date, nutrition, country of origin, serving size, or statements about health benefits to guide their choice. Consumers want this label information presented in an easy and transparent way (Wingfield, 2016). Some product information must be placed on the package by law. But increasingly other product features are highlighted with labels, such as organic, natural or gluten-free to appeal to more specific groups of consumers and to provide them with additional information (Wingfield, 2016).

Eco-labels inform consumers on the degree of environmental friendliness of a product. It has to be asserted though, that consumers must process complex information. To be effective, labels must speak to consumers’ preferences for environmental and other services. These services, however, are appreciated differently by consumers. This partly explains why there are so many different labels. For example, Chen et al. (2018) showed in their “fresh produce” study that a reduction in the use of pesticides is appreciated the most followed by less negative impacts on water quality which finally translates into a different willingness-to-pay (WTP) for a different environmental service provided.

Although labels can help to overcome information asymmetries between consumers and producers, they also can create a meta-problem of information asymmetries between consumers and labels (Banerjee & Solomon, 2003). Thus, it is crucial for any label to generate trust which can be achieved via good communication and high transparency. This includes that consumers can distinguish labelled and unlabelled products.

### **Potential of labels to communicate positive externalities from ecosystem services**

A company’s management practices might have positive or negative impacts on the environment, depending on the production standards a company is willing to comply. These impacts or in economic terms “externalities” are not always visible to the consumer. Even though not directly consumed with the product, a consumer might derive utility from the positive externalities a product creates.

If for example, a brewery decides to plant a tree for each case of beer sold, the consumer benefits twice: once because of the consumption of beer and once because of the tree planting activity.

If for example a farmer decides to crop legumes on his fields, he will increase soil fertility and reduce artificial fertilizer input, which ultimately improves the surrounding water quality.

If a fruit farmer decides to cooperate with local beekeepers, the bees will help pollinating the trees and also produce honey.

Producers often incur higher production costs to perform these sustainable management practices. Consumers on the other hand, cannot directly verify whether a certain sustainable practise has been implemented, as most of the effects are not directly visible. Thus, there exists high information asymmetry between consumers and producers regarding what the producers truthfully did.

A label could tackle this problem of information asymmetry by informing consumer about producers' production practices and the environmental benefits resulting from the producers' activities. This requires, that the activities and benefits are certified to some degree to by an independent institution. An example of such a certification is the Naturplus Standard, which is currently implemented in Germany. The Naturplus-Standard contains criteria for designing efficient nature conservation projects that aim to provide biodiversity and ES (more information on the criteria can be found here: <http://www.naturplus-standard.de/>).



**Fig. 1:** Logo of Naturplus- Standard

The services of the sustainable activities can then further be quantified and expressed as for example in the form of a blossom, as it is currently planned for AgoraNatura, an online market place for nature conservation projects (LINK TO CIL).

Die AgoraNatura-Blüte

Die Naturleistungen



**Fig. 2:** Blossom with graphical representation of delivered services from nature conservation projects (Diversity of plants, diversity of animals, genetic diversity, pollination, climate regulation, water services and exclusive option to visit)

The combination of standard and representation in form of a blossom guarantees two major aspects: Firstly, by having the standard in place, it is possible to bridge the information asymmetry between consumers and producers. Secondly, by quantifying and representing the services through the blossom, it is possible to raise awareness towards the services of nature conservation practices.

Having gained the trust from consumers, producers are able to charge a premium for sustainable practices, so that both parties benefit - consumers through the positive externalities of sustainable production practices and producers through higher profits. At the moment, there is no research addressing consumers' preferences towards label-based approaches to stimulate the provision of additional ES.

The concept of preferences refers to "... comparative judgments between entities ... [that] can be represented by a numerical scale, or utility." (Ben-Akiva et al, 1999). In other words, when a consumer is exposed to a choice between two alternative goods, his preferences will lead him to make a judgement that yields higher utility.

In our context, we want to study consumers' preferences towards label-based approaches to adequately stimulate the provision of ES along the value chain.

The topic of label design for sustainable practices is an interdisciplinary field, covering market research, such as product marketing and supply chain management, but also consumer behaviour and farm economics. Additionally, our group of researchers is equipped with high expertise in research concerning the governance of ES, particularly modelling choice behaviour.

Based on our knowledge of how nature can benefit to the well-being of society, and seeing the potential of the agricultural sector to provide additional benefits to humans, we want to investigate how labels can be used to stimulate the provision of additional benefits from nature. In particular, we want to find out i) what kind of ES consumers prefer bundled with agricultural products, ii) what kind of information on the ES provision consumers care about, and iii) what institutional setting of "label-based" approaches consumers prefer.



## Selected social media attention of product labels for nature conservation

The use of labels to raise awareness for sustainable product value chains and to steer consumer behaviour was addressed in social media by many peer academics and institutes in the beginning of 2020. This debate helps to illustrate what is currently being discussed (Fig. 3, Fig. 6), what is being implemented (Fig. 5) and also what is currently missing in the scientific debate (Fig. 4, Fig. 6).



Fig. 3: Report on policy recommendations for more sustainable diets, informed by labels



**Fig. 4:** Expert addressing: "Yes we need a climate label. A simple one with many levels and coded with colours"



**Fig. 5:** Agroforestry label on chocolate



Fig. 6: Forum to discuss sustainable food value chains and the role of digitalization



Fig. 7: "Harm to table" game



**Fig. 8:** Asking for advice regarding the potential of labels

### Q methodology – The method

To understand the diverse labelling aspects from the marketing perspective and to gain insights into the potential to integrate the ES concept through labels, Q-methodology will be applied. Q-Methodology is a mixed methods approach to assess the subjectivity of a certain study population. It aims to reveal common subjective viewpoints by confronting a variety of key stakeholders in individualised interviews with a sample of opinion statements. Within the interview format, study participants must sort pre-defined statements based on their level of agreement or disagreement into a grid (see Fig. 8. Doing so, study participants must clearly justify their agreement or disagreement to a particular statement.

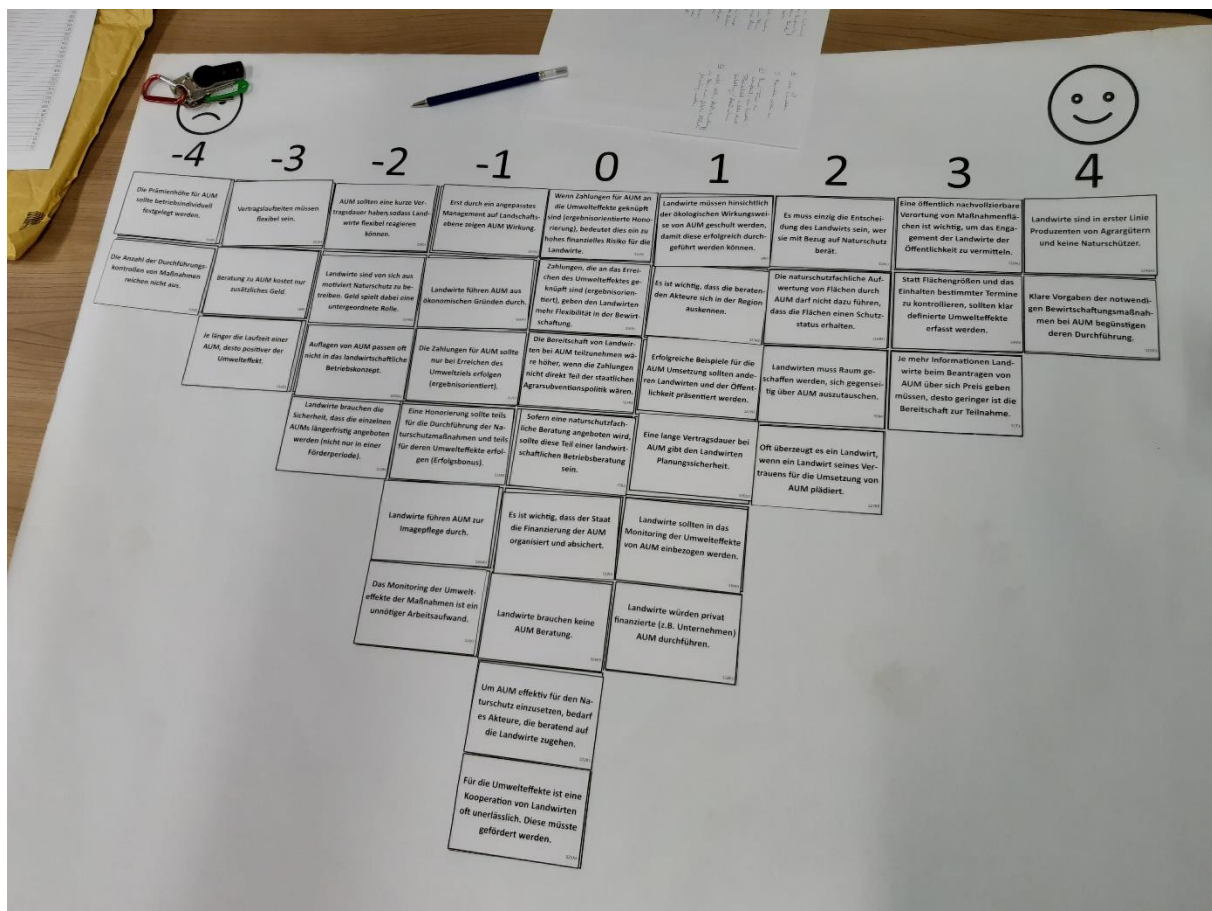


Fig. 9: Example of a final Q-sort

In the context of WP5.3, the study population will consist of people from marketing divisions of food producers and retailers. An important inclusion criterion for the survey population is that they have prior experience with engagement in nature conservation projects. In other words, there must be a certain degree of intrinsic motivation and interest in participating in nature conservation. The distinction between producers and retailers appeared to be an important one in internal discussions. Whereas one group is directly linked to farmers and farming practices, the other group is in close contact with the consumer and may have more experience with consumer choices concerning labels. In total, it is expected to interview five producer and five retailer from each country.

Prior to the interviews, the researchers formulated statements based on literature, workshops and own expertise. The survey population is selected by the researcher and consists of relevant stakeholders to the research problem (the respective steps for WP5.3 are described below).

The central feature of Q-methodology is to quantitatively reveal latent factors within the survey population through factor analysis. Each revealed factor of the analysis represents a unique social perspective towards label-based approaches. The factor analysis indicates by which degree each factor is represented by a respective statement. This allows for cross factor comparisons and analysis of conflict and consensus statements. The qualitative part of Q-methodology consists of content analysis of the single interviews. Each study participant must individually sort the statements and provides reasoning for his arrangement. The final result of a Q-study is a finite number of factors,



each consisting of a subsample of the study population, whereby each person can only load onto one factor. Based on what the people said in their interviews, researchers can formulate narratives for a specific factor.

### **Q methodology – Study development for WP5.3**

On February 20th 2020, the kick-off meeting of the Hipp contract innovation lab (CIL) was used to discuss current sustainable agricultural practices within their supply chain. The meeting was moderated by the Leibniz University Hannover and included discussions of existing contracts with farmers and a guided tour on a partner farm nearby the Hipp headquarters. Apart from resource suppliers and nature conservation advisors from Hipp, representatives from the Lammsbräu brewery participated at the workshop. Although producing different consumer goods, both companies share a common history in nature conservation engagement. In addition to their production activities, both companies are part of the “Association of ecological cultivation”, which was represented by Renate Dylla during that meeting.

The relevant insights for research regarding WP5.3 were further discussed in an expert interview with Prof. Dr. Ulrich Hamm from Kassel University. He is one of Germany’s leading experts in product marketing and the application of product labels. In his past research, he applied DCE to assess consumer preferences for bio and fair trade labels.

Based on this deliberation process of literature review, workshop and interviews, we came up with the following categories to build the according statements for the Q-study:

1. Communication of labels
2. Relation to consumers
3. Image of the enterprise
4. Limits of labels
5. Ecosystem services and labels

Having these categories at hand, we developed a number of 45 statements to include in the Q-study.

The interviews were first conducted in Germany with representatives of food processors and retailers. In the second phase, further interviews were conducted in Poland and Spain.

## **CONCLUSION FOR ATTRIBUTE DEVELOPMENT**

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The overarching idea behind conducting the Q-study prior to the DCE was to identify fields of tension, which help to define the attributes and respective attribute levels for the DCE survey. The statements applied in the Q-study reflect a number of different opinions towards the appropriate use of labels in the context of ES. The study subjects of the Q-study, which are entirely from the applied marketing domain, have long experience with consumers’ decision-making responses to labels. Thus, their evaluation of the potential of label-based approaches of delivered ES along the value chain is of substantial value when designing the consumer preference study in the second phase of WP5.3.

Recent research exemplifies how to use Q-methodology to determine attributes for a DCE. In her research, Kejser-Jensen (2019) uses Q-methodology to identify points of contention concerning ES provision. In that case, Q-methodology helped to identify and pre-select ES benefits to particular stakeholder groups.

The approach in WP5.3 is very similar in that respect. Based on the statements to which the expert signal strong agreement, we will be able to select the attributes and attribute levels for the DCE.

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