Viability of Values and Attitudes Concerning Purchase Intentions and Benefit Attribution for an Organic Sport Drink

Christoph Ameseder, Rainer Haas and Oliver Meixner
Institute of Marketing and Innovation
University of Natural Resources and Applied Life Sciences ,Vienna, Austria
christoph.ameseder@boku.ac.at; haas@boku.ac.at, oliver.meixner@boku.ac.at

Paper prepared for presentation at the 110th EAAE Seminar 'System Dynamics and Innovation in Food Networks' Innsbruck-Igls, Austria
February 18-22, 2008

Viability of Values and Attitudes Concerning Purchase Intentions and Benefit Attribution for an Organic Sport Drink

Christoph Ameseder, Rainer Haas and Oliver Meixner
Institute of Marketing and Innovation
University of Natural Resources and Applied Life Sciences ,Vienna, Austria
christoph.ameseder@boku.ac.at; haas@boku.ac.at, oliver.meixner@boku.ac.at

Abstract

The following contribution describes a product development case study for an isotonic organic sport drink in which the value factors of GfK Sinus Milieus have been applied. The underlying research question is, if the prescribed values are a viable tool to differentiate buyers and non-buyers of organic food in respect to purchase intention in the case of sport beverages. The authors furthermore investigate the importance of "organic" or other product features for fitness oriented consumers.

The paper draws on data from a survey in Austrian and German fitness centres with a total of 400 respondents. Purchase intention was indirectly measured with a Conjoint analysis, for the influence of values and factors on the purchase intention an analysis of variance was applied.

Results illustrate, that the GfK values and attitudes factors are a viable tool to differentiate between shoppers and non-shoppers of organic food. O
ur study has shown that the necessary factors to differentiate purchase intentions are varying over product categories. Furthermore a use of single factors is not recommended, only a combination of them is able to differentiate consumers in respect to their purchase intention.

Further research would be required to facilitate full understanding of the complex decision making process with regard to different product categories of organic food products. This research indicates that a combination of attitudes and values at the same time influence purchase intention. Furthermore values and attitudes differ among product categories and buying situation.

Keywords: *innovation, new product development, organic food, sport beverage, attitudes and values*

1. Introduction and Problem Description

Austria is one of the leading organic markets in Europe concerning market penetration (more than 6 percent) and per capita consumption (56€) (AMA, 2007) in Europe. Comparatively market penetration in Germany in 2005 is about 2.5 percent, nevertheless Germany is the biggest market for organic food products with estimated sales at 3.5 billion Euros (Willer et al, 2006). Due to ongoing growth rates of more than 14 percent in 2006 (AMA, 2007), a number of big specialized supermarkets with a sales area of more than 250 m2 opens up in Germany and Austria. The highest growth rates in specialized organic retail are expected in this segment. One of the major success factors of these markets is to provide a full assortment including all product categories as known in conventional retail, but obtain at the same time high authenticity and trustworthiness (Räpple, 2006, 21). Due to the fact that these supermarkets try to list a full assortment with an average of more than 5.500 products, market potential for new organic products exists. Nevertheless, most consumers associate organic at first with vegetables and fruits, in many cases still the only shopping experience with organic products. But the importance of motives appears to vary between product categories (Padel and Foster, 2005). Few attempts have been made, whether the motives apply equally to new products, product developments or product categories that have only recently become more widely available.
In the last years a lot of research has been done to develop a typology of organic shoppers, most of them using socio demographic combined with psychographic variables (Niessen und Hamm, 2006; ISOE, 2006; AMA, 2007a). Regular consumers tend to be educated and of higher social class, age differs. Prominent market segmentation tools, used in the professional market research sector, are the Sinus-Milieus lifestyle segments developed by GfK. GfK describes consumer segments by using attitudes and values of respondents. Concerning a recent study of the organic market in 2006 three Sinus-Milieus were identified to be of major importance for the organic food market, the Post-Modernists, the Modern Performers and the Conservatives (GfK, 2007). The measurement of attitudes and values of consumers delivers important information for marketing activities. But one major weakness of attitudes and values is that in many cases they are not directly related to shopping behavior; often a large discrepancy between self assessment of buying behavior concerning organic products and the actual behavior can be observed (Niessen and Hamm, 2006, 148).
One of the most typical assumed purchasers of organic food are (besides young families and empty nesters, ACNielsen, 2006) sportive consumers (AMA, 2007a). In principle organic food is perceived to be “healthier and safer” than conventional food. For 50 percent of consumers a healthier diet is the first reason for purchasing organic food products (AMA, 2007a; 2007b). Sport beverages, like some other beverages too, are still missing in the assortment of organic retailers. Market potential for organic sport beverages seems promising, but up to now no research has been found, clarifying, if organic is an important purchase criterion for sportive consumers.

2. Research question

Sinus-Milieus use several items to measure attitudes and values of consumers. Due to the fact, that the importance of values appears to differ between product categories (see Padel and Foster, 2005, 623), information is missing, if these values and attitudes can be assigned for other product categories than for the traditionally from GfK investigated product categories (e.g. milk fruit and vegetables). The following study investigates the relation between purchase intentions of sportive consumers for an organic isotonic beverage and the values and attributes used to describe Sinus-Milieus.
The underlying research question is, if the prescribed values from the Sinus-Milieus are a viable tool to differentiate in respect to purchase intention in the case of sport beverages. The authors

furthermore investigate the importance of specific product attributes of isotonic beverages for fitness oriented consumers and if there are significant differences between Austria and German consumers.

3. Theoretical Background

Surveys using the laddering method in the U.K. and Austria explored, that the main driving force behind purchasing organic food items is by far health, mostly individual health, rather than family health. Besides, personal well-being, enjoyment and quality of life are second most important. In Austria, salving one's conscience (through buying regional Austrian products, strengthening Austrian agriculture) is mentioned as the third reason. Also altruistic motives (such as concerns for the environment and animal welfare) are mentioned as well as food safety reasons (see AMA, 2007; Padel und Foster 2005, 609).
Niessen and Hamm (2006) used German GfK household-panel data and GfK attitudes and values to identify differences between conventional and organic food shoppers. Compared to the previous mentioned studies in Austria and the U.K. they used actual purchase data from the household-panel, but only for a few product categories such as fresh milk, eggs, apples, and carrots. A factor analysis of the values and attitude statements of buyers and non-buyers of organic food identified ten factors to describe the consumers. But five factors could not be used to explain differences in shopping behaviour, as table 1 shows (factor 1, 5, 6, 9, 10). Surprisingly the factor 1 "health and fitness" and factor 9 "environmental and animal protection" had to excluded, despite the fact that "health and fitness" had the highest share in explained variance of all factors (14%)! Useful for differentiation are the factors 2, 3, 4, 7 and 8. Interesting is that the organic shoppers still have negative attitude values towards hedonism.
Organic consumers show a higher responsibility concerning regional products, prefer purchasing seasonal fruits and vegetables, are more concerned about their nutrition and burdened food, eat less convenience and fast food and their willingness to pay for quality food is higher (Niessen and Hamm, 2006, 96ff.).

Table 1. Factors and proper statements, explained variance, and factor mean (see Niessen and Hamm, 2006); (factors and statements have been translated from German)

		Explained variance	
Factors statements	**Explained variance**	organic	Non organic
Factor 1: Health and fitness	14%	-0.0231	-0.0182
- I pay attention to my body weight. - Concerning nutrition I avoid everything that harms my health. - I pay attention to a healthy and balanced nutrition. - I do a lot of sports and keep myself fit.			
Factor 2: Responsible food shopping	6,6%	0.1311	-0.1477
- I only eat seasonal fruit and vegetables. - I'm informed, which foodstuffs are bonded and I stop buying them. - I try to buy products with little packaging.			
Factor 3: Environmental and Nutritional Indifference	6,8%	-0.1799	0.1080
- The effect of nutrition on health is overestimated. - Nutrition is discussed too much			
Factor 4: Convenience Orientation	5,2%	-0.0700	0.1133
- In my kitchen I cook convenience meals periodically. - I often eat in fast food restaurants or in food stalls.			
Factor 5: Attentiveness and Skepticism	4,1%	0.0496	-0.0535
- There have to be harder rules for food production			
Factor 6: Cocooning – My home is my castle	3,6%	-0.0292	0,0315
Factor 7: Hedonism	3,5%	-0.0581	0,1071
- I'm a Hedonist			
Factor 8: Willingness to pay	3,2%	0.1248	-0.1386
- Concerning nutrition, I pay more attention to the price than to the brand. - For high quality products I'm willing to pay more.			
Factor 9: Environmental and Animal Protection	2,8%	0.0359	-0.0448
- I get involved with environmental protection actively			
Factor 10: Basic Interest (concerning organic products)	2,7%	-0.0533	-0.0533
- I would like to have a bigger assortment of organic products in supermarkets. - It's difficult for me to identify a real organic product. - I'm informed, which food is environmentally burdened, and I stop buying it.			

4. Methodology

The present study used the same value and attitude statements as GfK to interview sportive consumers. Probands of our survey were additionally part of a conjoint analysis for an isotonic organic sport drink. The interviews were carried out in Austrian and German fitness centers. Random sampling was undertaken with 400 persons, whereas the number of respondents is evenly distributes among both nations.

A widely used method that takes into account, that consumers in real buying situations normally evaluate whole products and not single attributes is the conjoint analysis. (CA). Conjoint analysis is useful in the new product development process to evaluate product concepts or prototypes, as well as to identify market segments (see Mishra and Umesh, 2005). Furthermore, the CA estimates utility functions for each attribute and attribute characteristic. These utility functions (also called part-worth) indicate the importance of each attribute for the respondents' preferences. Instead of asking directly "Would you buy an organic sport drink?" we applied an indirect approach to measure purchase intention. Niessen and Hamm (2006) could show that there is a large discrepancy between self assessment of buying behaviour with organic products and the actual behaviour. We assumed that highly positive part-worths for the attribute "organic" are an indicator for purchase intention. With other words, by ranking the organic and non-organic sport drinks the consumer revealed his purchase intention.

In order to provide relevant data for respondent's attitudes and values, 20 well proven statements (five point scale) from GfK were used for the interviews. We used the five factors, which Niessen and Hamm (2006) have shown to be relevant in respect to purchase behaviour. (see table 1). Furthermore, the factor 1 "Health and Fitness" and factor 10 "Basic Interest in organic food" is composed of more statements in the interviews, due to the fact that these factors are of main importance in the case of an organic sports drink.

To analyze the relation between these values on the buying intention of respondent's, the analysis of variance was chosen. Due to the fact, that the CA provides metric data for the part-worths of "organic" and the data from respondent's attitudes are on a nominal scale, the variance analysis is the adequate method.

Concerning the presentation form of the stimuli within the CA, Sattler demonstrated (1994, 31), that for validity reasons the use of real products is more preferable compared to hypothetic products, such as verbal description of products or product images. Therefore prototypes were developed to produce different stimuli used in the CA. Furthermore the validity of the CA was measured by means of product sample give-aways. The respondents could freely choose between one specific sport drink out of three. A strong correlation between this decision and the ranking of the prototypes indicates a high external validity of the CA experiment.

Figure 1. Stimuli used in the CA

5. Product Attributes

The first step in the CA is the selection of a specific number of product attributes and product characteristics to configure the stimuli. However, the inclusion of numerous product attributes and characteristics would lead to a huge number of stimuli, respon-dent's information overload would be the consequence. Therefore an online survey was done (n=400), to get information's about the relevant product attributes and its characteristic from a customer point of view. On the basis of this survey and desk research (Haas 1998, Weber 2002) the decision was made to limit attributes for the CA to the extrinsic factors, which are relevant for the purchase decision process of customers. The final product attributes were packaging, label, organic certification, brand, price and health claim (EU directive 1924/2006) as shown in table 2.

Table 2. product attributes for CA-stimuli

Attribute	Operationalization	No. of attributes characteristics
Price	1,19 € 1,69 €	2
Label	2 new designed labels (unknown brands), one label including brand of the market leader	3
Organic	Organic label, declaration in product description on label	2
Health Claim	Claim and declaration in product description	2
Packaging	2 different bottle designs	2

Figure 2. Organic Label

The attribute "organic" was visualized by the label shown Figure 1. Furthermore, in the product description and the list of ingredients was a declaration that all ingredients are from organic farming.
A full profile out of these possible product concepts would contain 48 prototypes for the CA. Due to the fact that this would overburden respondents; a reduced orthogonal design was calculated. In this design, only ten stimuli were necessary to be able to calculate the utility function for all attributes; two were defined as "Holdout" to be able to estimate a validity measure.
The prototypes were filled with a liquid of constant color. As well, other attributes, like closure or information on the label were kept constant, to maintain a comparability of all prototypes. The had to rank the prototypes in respect to their preferences.

6. Value and Attitude Statements

Niessen and Hamm (2006) summarized the value statements from GfK household panels to factors using the factor analysis. Due to the fact that respondents answered on an ordinal scale, factor analysis could not be applied. Therefore these factors were used for the analysis of variance. Table 3 shows the factors, which were used for the survey.
The statements were answered by respondents on a five-point scale, starting from "I totally agree" to "I totally disagree" after the CA.

7. Results

Based on the survey results with 400 participants using the CA, haptic and appearance (i.e. bottle design and label) of the product are the most important attributes (see figure 3). The label (communicating the brand, design and product information) was of the highest importance, followed by bottle design. The attribute organic was ranked in the CA on place number four, right behind the price.

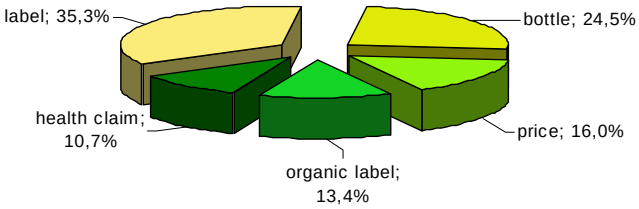

Figure 3. Importance of product attributes

Figure 4 shows the average utility scores for the parth worth for every attribute split into the respondents from Germany and Austria. Differences in the part-worth between Austria and Germany, as noticeable at the attributes “label” and “organic” are not significant, as a carried out analysis of variance shows.

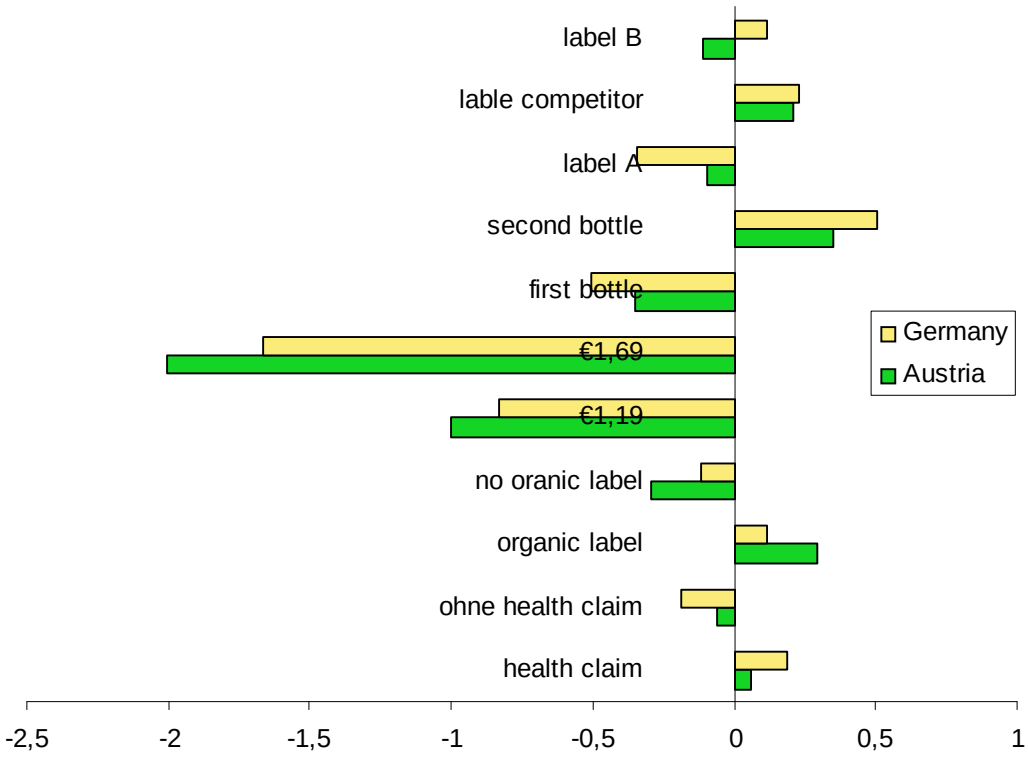

Figure 4. average utility scores for attribute characteristics (part-worth) for Austria and Germany

The utility part-worth for the organic label is used to estimate buying intention concerning organic sport beverages. The influence of the five most important factors, as shown in table 1 on the purchase intention of respondents concerning the product attribute “organic” was measured with the analysis of variance. Furthermore, the factor 1 “Health and Fitness” and factor 10 “Basic Interest in organic food” were investigated, due to the fact that these factors are of main interest for organic sport beverages. Results of the analysis of variance (univariat) are shown in table 3.

Table 3. Results of analysis of variance (univariat) for 7 factors.

Factor	**F**	**significance**	**Partial Eta-squared**
Factor 1: Health and Fitness	1,878	0,031	0,057
Factor 2: Responsible food shopping	0,998	0,455	0,033
Factor 3: Environmental and Nutritional Indifference	2,759	0,004	0,057
Factor 4: Convenience Orientation	1,175	0,313	0,022
Factor 7: Hedonism	0,805	0,523	0,011
Factor 8: Willingness to pay	2,252	0,023	0,042
Factor 10: Basic Interest (concerning organic products	1,307	0,231	0,028

As table 3 illustrates factor 1, 3, 8 and 10 have a significant influence on the purchase intention (significance < 0.05). Nevertheless, this influence is very low, as the fractional Eta-quadrate illustrates. Therefore another analysis of variance (multivariate) was carried out, using the 3 most important factors (partial Eta-squared >0.04). An analysis of variance using all four factors wasn’t carried out. The effects of interaction of more than 3 factors are too hard to interpret (Backhaus, 2006, 141). The results for this analysis of variance, using the factors 1, 3 and 8 is illustrated in table 4.

Table 4. Analysis of variance (mulitvariat)

source	Typ III Sum of Squares	df	Mean Square	F	significance	Partial Eta-squared
Corrected Modell	258,802(a)	223	1,161	3,099	,000	,780
Intercept	1,169	1	1,169	3,123	,079	,016
factor 1	12,873	13	,990	2,645	,002	,150
factor 8	7,797	8	,975	2,603	,010	,096
factor 3	15,171	9	1,686	4,502	,000	,172
factor1 * factor 8	52,500	49	1,071	2,861	,000	,418
factor 1 * factor 3	59,931	56	1,070	2,858	,000	,451
factor 8 * factor 3	51,904	35	1,483	3,960	,000	,415
factor1 * factor8 * factor3	49,001	36	1,361	3,635	,000	,402
error	73,017	195	,374			
total	349,639	419				
Corrected Total	331,819	418				

78 percent of the variance of the part worth “organic” as measured with the CA can be illustrated with these three factors and its effects of interaction. According to Bortz and Döring (1995, 568) a Partial-Eta bigger than 0.4 can be characterised as big (0.1=small; 0.25=medium). Therefore interaction of factors seems to have a high influence on the purchase intention.

8. Conclusion and discussion

Results based on this survey concerning the influence of values and attitudes on purchase intention illustrate, that one single factor explains only a very little part of total variation, therefore on single factor isn’t valuable. Only combinations of significant factors are the right tool, to measure the influence on purchase intention.

It has to be mentioned, that the buying situation is different. It can be assumed, that the buying decision process in fitness centers is a typical impulse purchase situation. Impulse purchase situations are characterized by spontaneous highly emotional decisions with only a small cognitive part. This would be comparable to the last shelve before the cashier at supermarkets. Time pressure and the influence of urgent thirst, typical conditions at fitness centers, may strongly influence the buying decision of sport beverages. In contrast the respondent’s answers to the value statements need much more cognitive efforts. This might be as well one of the reasons, why some factors showed lower impact on the purchase intention than in the GfK study.

Furthermore the significance of different factors seems to vary between different product categories and different buying situations. While factor 2, 3 and 8 along with previous studies (for traditional products) have a significant influence, factor 4, “convenience orientation” and factor 7 “hedonism” doesn’t. Otherwise factor 1 “Health and Fitness” is significant. Due to the fact, that survey was carried out in fitness centers, it could have been expect, that health and fitness are of major importance.

The analysis of variance using three factors delivered one more interesting result. By far the interaction of 2 factors has greater influence on purchase intention than 2 factors together. E.g. A consumer, that has a high awareness for his own health and fitness and a high willingness to pay more for high quality products (factor 1 and 8) is much more likely to buy an organic sport beverage than a consumer with only one of these factors; the attendance to buy an organic product is even higher than it would be by a sum of these two factors. Results therefore indicate that a combination of several values and attitudes are important for buying behavior concerning organic beverages.

The usage of the CA to measure the purchase intention of consumers was valid, as the validity verification Kendall-Tau confirmed. Nevertheless, the importance of the product attribute of "organic" is only at 13.4%. It has to be mentioned, that during the CA experiment the organic label was overlooked by a number of respondents. Especially when using prototypes, smaller and inconspicuous attributes loose relevance compared to hypothetic presentation forms, as a prototype delivers a lot more information. The fact that some respondents overlooked the organic label became evident, during the interviews about the value statements. Some respondent recognized surprised that some of the presented stimuli are organic, and mentioned, that they had overlooked the label, because it's too small. Due to the fact that a much bigger organic label would have influenced the respondents above average (see Meixner et al., 2007), the organic label was placed at average size.

The usage of the value statements and the five-point scale showed some explicit problems concerning the analysis of the data. The five-point scales were chosen, because respondents are used to this kind of survey, and so interviews were easy to carry out. Nevertheless, some statistical evaluation couldn't be done. Especially the factor analysis would have been useful, to accumulate factors and calculate factor averages for organic food buyers and non-buyers. A comparison of these factor averages would have been more convenient to estimate the influence on purchase intention than results of the variance analysis. For further research about the value statements of the Sinus-Milieus it seems appropriate to use a metric scale or to use at least ten-point scale.

In conclusion it can be said, that results indicate, that values and attitudes differ among product categories as well as among different target groups. Several values and attitudes with a significant influence on purchase intention are essential to differentiate customers in the market for organic products. At the same time, the buying situation seems to have an impact, as the point of sale differed as well compared to previous studies.

9. References

ACNielsen (2006); Trendnavigator „Bio", Juni 2006

AMA - Agrarmarkt Austria (2007); Rollama Daten für das 2. Trisemester 2007

AMA - Agrarmarkt Austria (2007a); Motivanalyse über die Meinungsbildung über Biologische Lebensmittel

AMA - Agrarmarkt Austria (2007b); RollAMA: BIO – immer mehr, immer öfter, immer lieber; 87 % der Österreicher kaufen regelmäßig Bio. at: http://www.ama-marketing.at/index.php?id=28&no_cache=1&tx_ttnews%5BpS%5D=1185363781&tx_ttnews%5Bpointer%5D=4&tx_ttnews%5Btt_news%5D=96&tx_ttnews%5BbackPid%5D=27 (29. März 2007)

Backhaus, K.; Erichson, B.; Plinke, W.; WEIBER, R; (2006); Multivariate Analysemethoden, eine anwendungsorientierte Einführung. Berlin, Springer.

Bortz, J.; Döring,N. (1995); Forschungsmethoden und Evaluation, Berlin, Springer

Brunso, K., J. Scholderer (2004); Testing relationships between values and food-related lifestyle: results from two European countries. Appetite 43(2): 195-205.

GfK, Gesellschaft für Konsumforschung (2007); Studie: Bio Käufer in den Sinus Milieus. Nürnberg, GfK für Bio Verlag GMBH: Vortrag im Rahmen der Bio Fach 2007.

Haas, R. (1998); "Die Verpackung ist der „Stille Verkäufer“ in Blick ins Land 6/1998; 32-33

ISOE (2006); Projekt: Bio+pro – Zielgruppen für den Bio-Lebensmittelmark. at. http:// www.isoe.de/projekte/reload.htm?biopro.htm, (15. April 2007)

Meixner, O. (2003); Entscheidungsunterstützung und Wissensmanagement in der Neuproduktentwicklung. Wien, Universität für Bodenkultur, Institut für Marketing und Innovation.

Meixner, O., Haas, R., Pöchtrager, S., (2007); Importance and relevance of quality labels in the Austrian meat supply chain, EAAE Seminar ‘System Dynamics and Innovation in Food Networks’, 2007

Mishra, S. and Umesh, U.N. (2005); Determining the utility of conjoint analysis results using violation of a priori signs. Journal of Business research 58, 2005, 301-311

Niessen, J., Hamm, U. (2006); Tiefenanalyse der realisierten Nachfrage nach Öko-Lebensmitteln auf Basis von Paneldaten. Kassel, Institut für Ökologische Agrarwissenschaften.

Padel, S. and Foster , C.(2005); "Exploring the gap between attitudes and behaviour - understanding why consumers buy or do not buy organic food." British Food Journal 107(8): 606-625.

Räpple, M. (2006); Marketing Strategien für Bio Lebensmittel - Käuferverhalten und konsequentes Marketing in Theorie und Praxis. VDM Verlag Dr. Müller; Saarbrücken

Sattler H.(1994); Die Validität von Produkttests - Ein empirischer Vergleich zwischen hypothetischer und realer Produktpräsentation; Marketing ZFP, Heft 1, 1. Quartal 1994

Sahota, (2007); “The world of organic agriculture – statistics and emerging trends; Willer and Yussefi: 52 – 55

Sorenson, D. and J. Bogue (2006); "Modelling soft drink purchasers´ preferences for stimulant beverages." International Journal of Food Sciences and Technology 41: 704-711.

Weber, K. (2002); Idealproduktgestaltung mit Hilfe der Conjoint-Analyse gezeigt am Beispiel Obstmost aus der buckligen Welt. Institut für Agrarökonomie. Wien, Universität für Bodenkultur.

Willer, H. Yuseffi, M. (2007); The world of organic agriculture – statistics and emerging trends:133-151