A Green Leaf!? Consumers' Knowledge and Perception of the Mandatory EU Organic Logo

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Abstract

With the introduction of the mandatory EU organic logo for all organic food products in 2010 the European Commission aimed at supporting a sustainable development and the effective functioning of the internal market for organic food. This approach presupposes consumers' knowledge of the logo and their understanding of its meaning. By means of an online survey with 3000 participants in 6 European countries, knowledge of the logo and attitudes towards organic farming and European labelling as well as organic food purchase behaviour and socio-demographic indicators were elicited. The results indicate that knowledge of the logo is low. Only about 15% of all respondents knew its meaning. A binary logistic regression revealed that knowledge of the logo is higher among consumers who regularly buy organic food, who have good knowledge on the principles of organic farming and who consider freedom of chemical residues, of synthetic additives and organic production as important features of a high quality product. High education has a positive impact on the awareness of the logo, while age has a negative one. Large differences in knowledge exist between countries: the probability to know the EU logo is highest in Estonia and in Poland. Generally, knowledge of the EU organic logo is such low that the achievement of its purpose is doubted. Reasons are supposed to be the limited self-explanatory content of the logo as well as lacking awareness, resp. promotion campaigns.

Keywords: *Organic farming, labelling, trust, product quality*

1 Introduction

Labels for organic food are an important means of communication of organic product quality. Many organic labels exist in the EU member states. The term 'organic' and similar terms are protected by European law since 1992 (EC Reg 2092/91). With the revised EU Regulation on 'Organic production and labelling of organic products' (EC) 834/2007 a common label for organic food became mandatory in all member states. This new regulation came into force by January 2010. The need to label organic food with the EU organic logo was due by July 2010. A transition period for using existing packages ended in July 2012. The mandatory organic labelling consists out of the logo itself, plus the 'code number of the organic control body', plus the indication of the 'place of production of raw materials'.

The introduction of the mandatory labelling acknowledges consumer demand as a key factor for the development of organic farming in the EU. The aim of the European Commission by passing EC Reg. 834/2007 is laid down in Article 1.1: 'This Regulation provides the basis for the sustainable development of organic production while ensuring the effective functioning of the internal market, guaranteeing fair competition, ensuring consumer confidence and protecting consumer interests.' (EC, 2007). Consumer confidence is at the core of all the aims mentioned in Article 1.1. However, consumer confidence needs clear and transparent standards, which coincide with consumers' interests and preferences (Janssen and Hamm, 2012) and a reliable certification system (Albersmeier et al., 2010). Finally, consumers need to be adequately informed about these important aspects.

Generally, labelling is a means to address consumers and to provide them with information which is supposed to be relevant for their individual purchase decisions. In any case, consumers need to be aware of the issues which are communicated. They need to have knowledge of and interest in the product properties under consideration. Only then, labelling may comply with its aims of providing information and may have an impact on consumers' purchase decision by influencing consumers' product perception and judgement (Solomon, 2010).

Successful labelling needs consumers' trust in the certification system and standards complying with consumers' expectations. That is why labels should be based on standards which can be claimed by competitors and consumers. The standards need to be guaranteed by independent certification systems. Standards and labelling are particularly important if product properties are not observable or verifiable, neither at the moment of purchase nor after consumption (WB, 2011; Janssen and Hamm, 2012). These properties are so-called credence attributes with organic production being an example (Mondelaers et al., 2009; Pearson et al., 2011). Effective standard setting, certification and labelling shifts the credence property into a search characteristic.

An important concern of the EC Reg. is to replace the large number of different labels in the member states by one common label. Many European countries had introduced labels indicating organic farming already before the introduction of the EU logo. Some countries run governmental labels such as the German Biosiegel or the AB (Agriculture Biologique) label in France. In other countries private labels are most prominent such as the private label of Soil Association in the UK. In some countries, e. g. Italy and Poland, the German Biosiegel was frequently found in the market. Additionally, the old voluntary EU organic logo was important in organic food labelling in countries without strong national logos.

In order to fulfil its aim of improving the functioning of the internal market by reducing consumer confusion, the EU logo needs to be widely known by European (organic) consumers. This implies that all consumers and not only organic consumers have to be addressed by the new EU organic logo. It is to be assumed that consumers, who already buy organic food, trust in the (organic) quality of organic food even without a common and mandatory EU organic logo. In contrast, consumers who buy organic food only occasionally or never and who may distrust or may be uncertain about labelling of organic food are the most important target group of the EU organic logo.

According to Eurobarometer (2012) on average over all 27 EU Member States 24 % of the respondents indicated to know the EU organic logo on organic farming. This share was higher in Denmark (39 %), France (38 %), Luxembourg (37 %) and Austria (36 %). The lowest shares of respondents knowing the EU logo were found in Romania (10 %), Poland (12 %), Bulgaria (13 %) and Spain (14 %).

A French study compared the knowledge of the EU logo of organic consumers with that of all French consumers (Agence Bio, 2012). On average of all French consumers, the knowledge of the EU logo had increased from about 13 % in 2010 to 42 % in 2012. In comparison, in 2012 93 % of the interviewees knew the national AB (Agriculture Biologique) label (Agence Bio, 2012). A recent study indicates that only 15 % of the German test persons stated to know the EU organic logo. In contrast, 75 % knew the German Biosiegel (Meyer-Höfer and Spiller, 2013). Thus, knowledge of the EU organic logo seems to be rather low.

Against this background, the aim of this paper is first to update the numbers on consumers' knowledge and perception of the new EU logo and second to identify criteria which determine consumers' knowledge of the mandatory EU logo. Based on these results we elaborate recommendations on how to improve knowledge and thus increase effectiveness of the EU organic logo in order to achieve the aims of the EU Reg. 834/2007.

The paper starts with a short description of the methodological approach, including the presentation of the hypotheses which were tested by means of the logistic regression analysis. This section is followed by the presentation of the results on consumers' knowledge and perception of the EU organic logo and of the regression analysis. This contribution closes with conclusions on potential for the improvement of consumers' knowledge of the EU logo.

2 Methodological approach

An online survey was conducted with 3000 consumers in 6 European countries (Estonia, France, Germany, Italy, Poland and the UK) in January 2013. We made use of an existing certified online panel run by a market research agency to avoid systematic biases in the selection of respondents. Quotas were set for age (50% between 18 and 45, 50% between 46 and 75) and for gender relation (2/3 women and 1/3 men) as this relation was frequently observed when analysing food purchase behaviour (e.g. Spiller et al., 2004; Zander and Hamm, 2010). No quotas were given for the share of organic food consumption and all test persons had to be at least co-responsible for food shopping (Table 1). On average, about one fifth of the respondents stated that they never or almost never buy organic food. About half of them buy organic food occasionally and about 30% buy organic food regularly, at least once per week.

Table 1.
Summary statistics for variables on demographic criteria and organic purchase behaviour (%)

	Country						
Variable / Description	DE	EE	FR	IT	PL	UK	All
Number of observations	500	500	500	500	500	500	3000
Age of test persons							
18 to 29 years	19.8	15.2	18.0	19.4	20.0	16.0	18.1
30 to 39 years	20.8	22.4	18.8	16.6	15.0	23.4	19.5
40 to 49 years	17.6	25.8	21.2	20.2	24.6	19.2	21.4
50 to 59 years	17.8	24.4	22.4	21.6	19.6	20.0	21.0
> 59 years	24.0	13.0	20.0	22.0	21.0	21.0	20.0
Gender							
female	67.0	67.0	67.0	67.0	67.0	67.0	67.0
male	33.0	33.0	33.0	33.0	33.0	33.0	33.0
Education (years of school visit)							
no formal qualification	0.4	2.6	4.4	0.2	1.2	5.4	2.4
about 10 years of school visit	48.8	29.6	15.0	7.4	2.0	23.6	21.1
12 or 13 years of school visit	25.0	13.4	34.0	51.0	43.4	19.2	31.0
college or university degree	25.8	54.4	46.6	41.4	53.4	51.8	45.6
Organic /no organic consumers							
no organic consumers	**19.2**	**20.2**	**23.8**	**19.0**	**17.0**	**25.4**	**20.8**
never/almost never	19.2	20.2	23.8	19.0	17.0	25.4	20.8
occasional organic consumers	**40.0**	**57.4**	**50.6**	**51.8**	**53.6**	**48.2**	**50.3**
less than once per month	15.8	22.6	21.8	19.2	19.8	18.8	19.7
about once or twice per month	24.2	34.8	28.8	32.6	33.8	29.4	30.6
regular organic consumers	**40.8**	**22.4**	**25.6**	**29.2**	**29.4**	**26.4**	**29.0**
about once per week	31.2	16.0	19.6	23.4	20.8	21.8	22.1
several times per week	9.6	6.4	6.0	5.8	8.6	4.6	6.8

Test persons were asked for their knowledge of the new EU organic logo and of the additional mandatory indications, as well as of other organic labels, their knowledge of organic farming principles and their understanding of organic product quality. Additionally, they were asked to exhibit their attitudes towards different aspects of organic farming and labelling. The interviews concluded with some questions on the actual purchase behaviour test persons regarding organic food and on socio-demographic indicators.

In order to identify drivers of consumers' knowledge of the mandatory EU logo in different countries a binary logistic regression analysis was estimated. The binary dependent variable 'knowledge of the EU organic logo' was based on the unprompted answer of test persons on the meaning of the new EU organic logo. Two categories were built for knowing of the meaning of the EU logo (1) and not knowing it (0).

Independent variables were introduced according to the following hypotheses based on theoretical considerations.

1. Consumers knowing about the concept of organic farming were supposed to have better knowledge of the EU organic logo. These persons are assumed to be more involved with organic farming and thus, to also be better informed about its labelling.
   Objective knowledge of the concept of organic farming was elicited by 9 different questions on organic production which respondents had to answer by indicating true or false. Test persons with 8 or 9 correct answers were coded as having ‘good knowledge of organic farming’. Test persons with 0-5 correct answers were assigned as having ‘bad knowledge of organic farming’.

2. Test persons with good knowledge of other organic labels are more likely to know the EU logo. They have a better knowledge of organic labelling in general and are supposed to be better informed about new organic labels.
   Test persons were confronted with various food labels: labels indicating organic food and labels not indicating organic food, such as the Fairtrade logo, or general quality labels. A dummy variable (0/1) was built. All consumers identifying any of the non-organic labels as organic were assigned ‘1’ indicating lacking knowledge of organic farming labelling.

3. Consumers who consider organic production, freedom of residues and animal welfare as major attributes of product quality have better knowledge of the EU organic logo. These consumers have a higher incentive to look for organic labels.
   Various dummies were built for testing this hypothesis. ‘QualityOrganic’ (0/1) when consumers mentioned organic production as quality indicator, ‘QualityAnimalWelfare’ (0/1) when consumers named animal welfare in husbandry as quality indicator, ‘Quality NoResidues’ (0/1) when test persons identified no chemical residues as quality indicator, and ‘QualityNoAdditives’ (0/1) when freedom from synthetic additives was named as important quality indicator.

4. Higher trust in organic production and its labelling increases the probability of knowing the new EU organic logo. People trusting in organic production and certification are supposed to have better knowledge of the logo, since the message of the logo is of higher value for them.
   Several statements were used to elicit consumers’ trust towards organic food and its labelling. Test persons had to indicate their degree of approval on a 7 point Likert scale. By means of reliability analyses several statements were merged by adding up the corresponding numbers on the scales (total score). The scale ‘trust in organic labels’ contained 5 different items (Cronbach alpha = 0.891).

5. Consumers in favour of organic farming and of common European labelling have better knowledge of the EU logo. These people are supposed to actively look for European certification of organic farming and therefore, should have a better knowledge.
   Similar to the factor trust, out of many different items on respondents’ attitudes, 7 items were summarised to the scale ‘appreciation of organic farming and the EU organic logo’ (Cronbach alpha = 0.863).

6. The higher the share of organic consumption the better consumers’ knowledge on the EU organic logo. Similarly to hypothesis 1 these test persons supposedly are more involved and therefore better informed about organic labelling.
   Test persons were grouped into ‘no organic consumers’ consuming never/almost never organic food, ‘occasional organic consumers’ with organic food consumption, less than once per month or about once or twice per month and ‘regular organic consumers’ who stated to consume organically at least about once per week (Table 1).

Apart from these variables country dummies were introduced in order to capture different labelling histories as well as different current labelling policies in the study countries. Finally, socio-demographic variables such as age, gender and education were included in the regression analysis.

3 Results

3.1 Knowlegde of the EU organic logo and of additional mandatory indications

At the very beginning of the interview, respondents were asked in an 'unprompted' manner for their knowledge of the EU organic logo. In order to avoid any context effects, they were not informed about the topic of the research beforehand. The question 'Have you seen this logo before' was contested by a quarter of all test persons with 'yes' (Table 2). This share was highest in Estonia and in France and lowest in Poland and the UK. The share of consumers having seen the EU logo before was significantly higher among regular consumers (36 %) than among occasional (23 %) and non-organic consumers (13 %).

Table 2.
Knowledge of the EU Logo (%)

	DE	EE	FR	IT	PL	UK	All
yes	28.4	36.0	35.0	19.4	13.0	16.6	24.7
no	37.4	38.2	38.2	50.6	53.2	51.2	44.8
don't know	34.2	25.8	26.8	30.0	33.8	32.2	30.5

Question: We will show you a logo: Have you seen this logo before?

The numbers found in this survey, with the exception of UK, are similar to the respective country results of the Eurobarometer (2012): Germany 33 %, Estonia 34 %, France 38 %, Italy 24 %, Poland 12 %, and UK 22 %. The reason for slightly higher numbers in some countries in the Eurobarometer (2012) might be that the question on the awareness of this label was put in the context of food while in the present study no context at all was given. However, the coincidence is quite high, given that different samples and approaches were used.

The subsequent question aimed at investigating if consumers really knew the message of the EU organic logo by putting an open question on their understanding of the label. The answers were coded according to six categories (Table 3). Only a small share of respondents knew that the EU logo indicates organic food according to common European standards (EU organic food). A larger share of the respondents knew that this label indicates organic food (Organic food). Answers in these two categories were interpreted as correct answers (on average 16%). Another small share of respondents associated the label with Europe or the European Union (Europe, EU) or something natural, ecological etc. (Nature, environment, natural, ecological). On average of all countries, about one third of the answers was wrong and another 50 % answered 'Don't know, not sure'. Knowledge was particularly low in the UK.

Table 3.
Consumers' knowledge of the meaning of the EU organic logo (% of answers)

	DE	EE	FR	IT	PL	UK	All
EU Organic food	6.0	6.4	7.4	2.6	5.2	0.8	4.7
Organic food	14.2	16.4	12.0	10.8	13.8	1.6	11.5
Europe, EU	3.2	5.4	7.8	9.0	15.8	3.2	7.4
Nature, environment, natural, ecological	8.4	14.6	10.8	9.4	19.2	6.0	11.4
Other wrong answers	7.8	10.4	15.6	24.2	21.6	9.4	14.8
Don't know, not sure	60.4	46.8	46.4	44.0	24.4	79.0	50.2

Question: Can you tell us in your own words what this logo stands for?

In order to relate the results on knowledge of the EU organic logo with other organic and non-organic labels, participants were shown 8 to 10 different food labels including some non-organic labels. For each country up to three important organic labels, the Fairtrade logo, an animal welfare label (for Italy another 'green' label was selected), a non-organic quality food label, a fake organic label, the EU organic logo, the old EU logo and the German 'Biosiegel' were presented to the test persons.

When confronted with these food labels, the best known organic labels were the national organic labels (Estonia, France, Germany and UK). These organic labels were established much earlier and are well known. The German Biosiegel was also the best known organic label in Poland and in Italy where well known national organic labels are lacking. In both countries the old EU logo was widely used previously (e.g. Janssen and Hamm, 2012). Additionally, the German Biosiegel is rather well known for two main reasons: first, German organic products exported to these countries bear this label and second, the label includes the protected term 'bio'. The existence of strong national logos (private or governmental) seems to be correlated with the relative size and significance of the national organic food market. That is why particularly some of the Eastern European countries are lacking well-recognised organic indications.

Confusion existed with regard to existing non-organic labels. In Estonia and the UK nearly half of all respondents believed the non-organic quality label to be organic. A very high share of respondents associated the Fairtrade label with organic farming in Germany (52 %) and in the UK (70 %).

The EU Reg. 834/2007 defines that besides the EU organic logo itself, two additional compulsory indications are to be placed on the product. The 'place of production of raw materials' (EU- or non-EU agriculture) was introduced in order to provide additional information and to avoid 'deceptive practices and any possible confusion amongst consumers' (EU Reg 834/2007: Recital 27). This aim can only be achieved if consumers know about the indication and believe it to be sufficient with respect to its information content. Additionally, the 'code number of the control body' needs to appear in the labelling (EU Reg 834/2007: Art 24).

On average of all countries, only about 9% of the respondents were aware of the additional indications. Only in Italy, this share was higher for the indication of the code number of the control body. The reason is supposed to be the fact that Italy had run promotion campaigns in favour of this code number as 'true' indicator of organic food, some years ago. Comparing the answers of organic and non-organic consumers shows that the awareness of additional compulsory indications is highest among regular consumers (19 %), followed by occasional (8 %) and by non-organic consumers (2 %).

To the author's knowledge, only Janssen and Hamm (2012) asked consumers for their opinion on the mandatory indication on the origin of raw materials by means of focus groups. They report a lot of 'scepticism' around this indication (Janssen and Hamm, 2012: 346). Test persons generally rejected the statement 'the indication EU or non EU, without the specific country is sufficient' (ibid).

3.2 *Impact factors of knowledge of the EU organic logo*

In order to explain consumers' knowledge of the EU organic logo, a binary logistic regression model was estimated. Explanatory variables were introduced according to the theoretical considerations and hypotheses outlined in section 2 (Table 4). According to the results 'good knowledge of organic farming' has a positive impact on the knowledge of the EU organic logo. Interestingly, knowing other labels for organic farming reduced the probability of knowing the EU organic logo. This may serve as an indication that consumers who feel sure about organic labelling, are without need for a new logo and are therefore less likely to ask for any information on new organic labels.

Test persons believing organic production, freedom of chemical residues and freedom of synthetic additives to be attributes of a high product quality have a higher probability of knowing the EU organic logo. Similarly, regular and occasional organic consumers do have better knowledge of the EU organic logo. The scales for trust in organic farming and for attitudes towards organic farming and EU legislation were without any impact on the knowledge of the EU organic logo.

Table 4.
Impact factors on the knowledge of the EU organic logo

	Regression coefficient (ß)	Standard deviation	Wald	Sig.	Exp(B)
Knowledge					
EU logo seen before	1.370	0.133	105.79	0.000	3.937
Knowledge of other organic labels	-0.390	0.092	18.13	0.000	0.677
Non organic lables identified as organic	0.125	0.132	0.89	0.346	1.133
Bad knowledge on organic farming	-0.238	0.159	2.23	0.135	0.788
Good knowledge on organic farming	0.280	0.149	3.54	0.060	1.323
Characteristics of high quality product					
Organic production	0.422	0.137	9.43	0.002	1.525
Free of chemical residues	0.366	0.126	8.37	0.004	1.442
Free of synthetic additives	0.324	0.129	6.32	0.012	1.383
Attitudes					
Trust in organic farming and EU logo	0.004	0.017	0.05	0.819	1.004
Pro organic farming and EU legislation	-0.012	0.013	0.79	0.375	0.988
Organic purchase behaviour					
Regular organic consumer	0.725	0.281	6.68	0.010	2.065
Occasional organic consumer	0.518	0.260	3.97	0.046	1.679
Main place of shopping organic food					
Specialised organic shops	0.108	0.135	0.64	0.422	1.114
The farmers' place	-0.114	0.136	0.70	0.401	0.892
Socio-demographics					
Women	-0.113	0.133	0.73	0.394	0.893
Lower Education[1]	-1.636	1.052	2.42	0.120	0.195
Higher Education[1]	0.323	0.131	6.11	0.013	1.381
Age between 30 and 39	0.028	0.191	0.02	0.885	1.028
Age between 40 and 49	-0.161	0.193	0.69	0.406	0.852
Age between 50 and 59	-0.542	0.203	7.11	0.008	0.582
Age 60+	-0.407	0.207	3.86	0.050	0.665
Country[2]					
France	1.794	0.361	24.68	0.000	6.016
Estonia	2.333	0.375	38.66	0.000	10.310
Italy	1.490	0.372	16.04	0.000	4.438
Poland	2.387	0.367	42.26	0.000	10.876
Germany	1.988	0.362	30.10	0.000	7.303
Intercept	-3.986	0.571	48.73	0.000	0.019

[1] - reference category: medium degree of education
[2] - reference country: UK

Out of several socio-demographic indicators tested (gender, different age groups, high and low education), only higher education and elder people turned out to differ regarding the probability of knowing the EU logo. While better educated people more frequently knew the EU organic logo (cp. Eurobarometer, 2012), elder people exhibited worse knowledge of the EU organic logo.

Country specific differences, particularly regarding organic 'labelling histories' were represented by country dummies in this model. It turns out that the country dummies had by far the highest impact on the knowledge of the EU organic logo. These marked differences in the probability of knowledge of the EU organic logo between countries are hardly to be explained only by differing organic 'labelling histories'. Knowledge of the EU organic logo is significantly lowest in the UK which is the reference category in this analysis (see also Table 2 and 3). UK has a strong private label, and there might be a lot of scepticism regarding EU membership and EU legislation. However, we could not find any significant relationship in the items eliciting the attitudes of the test persons. The probability of knowing the EU organic logo is by far highest in Estonia and in Poland. Both countries differ markedly in their organic labelling histories: Estonia has a strong national label, Poland helped itself with the old EU organic logo and the German Biosiegel. Both countries were part of the first EU accession wave which could have had an impact. It can be assumed that people's attitudes towards identical standards and laws all over the EU might differ from those in earlier Western EU member states. However, this assumption could not be verified from a wide range on items asking for consumers' attitudes regarding general EU issues.

In France in labelling organic food, the new EU logo is closely connected with the former governmental organic label AB (Agriculture Biologique), regarding colour and placing on packages. This, for sure is an important reason for the high share in knowledge of the EU organic logo in France. Apart from this, it is not possible to explain country specific differences. To the author's knowledge no specific promotion or awareness campaigns on the new EU organic logo took place in any of the study countries which could have explained country specific differences.

4 Conclusions

The results indicate that higher frequency of organic consumption (s.a. Agence Bio, 2012), good knowledge of the concept of organic farming and the assessment of organic production as important quality criteria are driving factors for better knowledge of the EU organic logo. Accordingly, consumers who already know how to identify organic food are more likely to know the new EU organic logo. Thus, the more important target group of the introduction of the new EU organic logo are occasional and non organic consumers. This consumer segment might be more in need of assistance in deciding for organic food by a common label: a label which is able to increase their confidence and trust in organic food. However, particularly these consumers are more difficult to address, since their involvement in organic food is supposedly lower. According to a German study labelling as means of consumer information mainly targets better educated consumers with higher income and higher product involvement (WB, 2011). Against this background, it is questionable if the EU organic logo really is capable to address occasional and non organic consumers.

Generally, knowledge of the EU organic logo turned out to be limited and in all study countries other organic labels exist, which are better known than the EU organic logo. This is only partly surprising given that the EU organic logo, although having been introduced to the market in 2010 became compulsory without exceptions only by July 2012.

In order to achieve its aim of improving the functioning of the internal market, better knowledge of the EU organic logo is desirable. From general consumer research it is well known that logos or labels should be simple and informative as well as contain a clear message. Looking at the EU organic logo exhibits that there are some flaws with respect to these criteria. The label does not give any explanation on itself. Instead, it must be accompanied by the code number of the control body which includes terms, such as 'BIO', 'EKO', 'ÖKO', 'EKO', 'ORG' and 'ØKO (one per country). This additional indication is supposed to support consumers to link the EU logo with organic farming. Unfortunately, the code number of the control body frequently is printed in different colours and in standard letter so that no direct link with the logo exists.

Thus, in order to make recognition easier, it is recommended to amend the EU organic logo, the leaf, by a direct link with organic farming, e.g. by integrating the term referring to organic production (e.g. BIO, ÖKO, ORG) into the label.[1] Where available, the EU organic logo should be placed close to well established organic labels, following the French example. Identical colours would help consumers to align the EU logo with better known national labels.

Another important shortcoming of the introduction of the EU organic logo is that no awareness or promotion campaigns accompanied its introduction. These measures are particularly important for people less involved with organic food and farming. Only by making the EU organic logo more popular, it might be possible to replace national labels by the EU organic logo in reasonable time frame.

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[1] Some processors extended the logo already in line with this recommendation.