



## AN EMPIRICAL ANALYSIS OF CONSUMER AWARENESS AND TRUST IN ORGANIC FOOD LEGISLATION IN CROATIA

Vesna Brčić-Stipčević, Kristina Petljak

Faculty of Economics and Business, Zagreb, Croatia

**ABSTRACT. Background:** The results of the research conducted in March 2009 on a representative sample of the citizens of the Republic of Croatia using a highly structured survey questionnaire in households have shown that the majority of the respondents (76.6%) are familiar with organic food. In the survey, special emphasis is put on the purchase of organic food, especially among regular buyers.

**Methods:** Regular buyers were asked about their familiarity with the information on the organic food declaration and their trust in the reliability of the information on the organic food declaration. Furthermore, research explored respondents' familiarity with the label organic product of Croatia according to frequency of organic food purchase. Also, research explored consumer trust in organic food monitoring and control system in Croatia.

**Results and conclusions:** The research gives insight into familiarity with measures for organic food consumer protection in Croatia and recommendations for organic food legislation bodies.

**Key words:** organic agriculture, Croatian market for organic food, organic food legislation, survey research.

### INTRODUCTION

Organic agriculture was defined by the International Federation of Organic Agriculture Movements (IFOAM) as a production system that sustains the health of soils, ecosystems and people. It is a production system which relies on ecological processes, biodiversity and natural cycles adapted to local conditions, rather than the use of inputs with adverse effects [IFOAM, 2012]. Organic agriculture has developed as an answer to capital intensive agriculture and its negative ecological, social and economic consequences.

In Croatia, a legal framework for the regulation and development of organic agriculture is represented by the Act on the Organic Production of Agricultural Products and Foodstuffs (Zakon o ekološkoj proizvodnji poljoprivrednih i prehrambenih proizvoda) which was passed in 2001. This Act regulates organic production of agricultural products and foodstuffs, processing in organic agriculture, trade of organic food, unprocessed plant and animal products and products that are fully or partially composed of such products, labelling of organic products, inspection activities, certification process and incentives for organic farming. The purpose of organic agriculture is the protection of human health, nature, the environment and consumers.

An organic product is every agricultural product and foodstuff which is produced and marked in accordance with the Act on the Organic Production of Agricultural Products and Foodstuffs and the regulations based on it [Šamota et al., 2005]. The label organic product of Croatia (HRVATSKI EKO PROIZVOD) is a unique label in the Croatia which denotes that products have been produced in

accordance with organic production standards and certified by a certification body [Krešić and Sučić, 2010]. The right to the use of the label organic product of Croatia for a period of one year is given by the Ministry of Agriculture, Fisheries and Rural Development based on the request of organic food producer and certificate. The label HRVATSKI EKO PROIZVOD (Figure 1) has been in use since 2008.



Source: Ordinance on labelling and marking of organic products, Official Gazette (Narodne novine), No. 10/07

Fig. 1. Label organic product of Croatia  
Rys. 1. Chorwacka etykieta żywności organicznej

The development of organic production has also been developing organic food market. The organic food market in Croatia is still underdeveloped, but a number of organic farms have been growing rapidly [Petljak, 2011]. Consumers are becoming more concerned about their nutrition, health and food safety. Therefore, organic food has become an area of research interest for many authors.

## METHODOLOGICAL APPROACH

### *Research instrument and data collection*

The primary research was conducted in March 2009, through personal interviews in households using a highly structured questionnaire. For the purpose of this study, a nationally representative sample of 1,000 Croatian citizens older than 15 has been defined. The sources of the data for defining the framework for a sample selection were the results of the census conducted in 2001 by the Croatian Bureau of Statistics. The stratification is two-dimensional and was conducted according to two characteristics: (1) according to 6 traditional regions defined as a set of existing counties (Table 1) and (2) according to 4 settlement sizes (Table 2). Thus, a total of 24 strata were created.

Table 1. Respondents' representation by region  
Tabela 1. Reprezentacja respondentów w regionie

Region	Number of respondents	% of respondents
Zagreb and surroundings	249	24.9
Northern Croatia	180	18.0
Slavonia	174	17.4
Lika, Kordun and Banovina	88	8.8
Istria, Primorje and Gorski Kotar	119	11.9
Dalmatia	190	19.0
<b>Total</b>	<b>1,000</b>	<b>100.0</b>

Source: primary research

Table 2. Respondents' representation by settlement size  
Tabela 2. Reprezentacija respondentów według rozmiaru zasiedlenia

Settlement size	Number of respondents	% of respondents
up to 2,000 inhabitants	400	40.0
from 2,001 to 10,000 inhabitants	153	15.3
from 10,001 to 100,000 inhabitants	212	21.2
more than 100,001 inhabitants	235	23.5
<b>Total</b>	<b>1,000</b>	<b>100.0</b>

Source: primary research

Zagreb region and the surroundings includes Zagreb county and the City of Zagreb; Northern Croatia region includes Krapinsko-zagorska county, Varaždinska county, Koprivničko-križevačka county, Bjelovarsko-bilogorska county, Virovitičko-podravaska county and Međimurska county; Slavonija region includes Požeško-slavonska county, Brodsko-posavska county, Osječko-baranjska county and Vukovarsko-srijemska county; Lika, Kordun and Banovina region includes Sisačko-moslavačka county, Karlovačka county and Ličko-senjska county; Istra, Primorje and Gorski kotar region includes Primorsko-goranska county and Istarska county, and Dalmatia region includes Zadarsko-kninska county, Šibenska county, Splitsko-dalmatinska county and Dubrovačko-neretvanska county.

To disseminate the survey and gather answers from respondents, the professional market research agency's network of field operatives was used. After all questionnaires were completed, the survey data was analyzed using the methods of descriptive and inferential statistics.

The objectives of this research were:

- to explore respondents' familiarity with organic food,
- to explore whether the respondents buy organic food and to which extent,
- to identify regular buyers of organic food, their familiarity with and trust in the information on the organic food declaration,
- to explore respondents' familiarity with the label organic product of Croatia,
- to explore respondents' familiarity with organic food monitoring and control system,
- to explore respondents' familiarity with measures for organic food consumer protection in Croatia.

#### *Respondents' characteristics*

Table 3 shows respondents' characteristics - gender, age, education level, number of household members, number of children under the age of 18, employment status, personal monthly income and monthly household income.

Table 3. Respondents' characteristics  
 Tabela 3. Karakteristike respondentów

	<i>n</i>	%
<b>Gender</b>		
male	471	47.1
female	529	52.9
<b>Age</b>		
15-17	28	2.8
18-24	136	13.6
25-34	158	15.8
35-44	178	17.8
45-54	170	17.0
55-64	135	13.5
more than 65	195	19.5
<b>Education level</b>		
no elementary school	63	6.3
elementary school	163	16.3
high school (3 years)	196	19.6
high school (4 years)	442	44.2
college or higher education	136	13.6
<b>Number of household members</b>		
1 member	192	19.2
2 members	278	27.8
3 members	224	22.4
4 members	195	19.5
5 members and more	111	11.1
<b>Number of children under the age of 18</b>		
children under the age of 6	127	12.7
children between 7 and 14 years	156	15.6
children between 15 and 18 years	102	10.2
no children under the age of 18	615	61.5
<b>Employment status</b>		
full-time employment	384	38.4
fix-term contract	53	5.3
part-time employment	25	2.5
not-registered	9	0.9
self-employment	16	1.6
unemployed	513	51.3
<b>Personal monthly income</b>		
less than 1,200 kn	73	7.3
1,201-2,000 kn	142	14.2
2,001-3,500 kn	215	21.5
3,501-5,500 kn	197	19.7
5,501-7,000 kn	51	5.1
7,001-9,000 kn	15	1.5
more than 9,000 kn	15	1.5
no personal monthly income	173	17.3
no answer	119	11.9
<b>Monthly household income</b>		
less than 1,800 kn	78	7.8
1,801-3,500 kn	169	16.9
3,501-5,500 kn	137	13.7
5,501-8,000 kn	171	17.1
8,001-11,000 kn	135	13.5
more than 11,000 kn	89	8.9
no answer	221	22.1
<b>Total</b>	<b>1,000</b>	<b>100.0</b>

Source: primary research

## RESEARCH RESULTS ANALYSIS

### *Respondents' familiarity with organic food*

From 1,000 research respondents, most of them (76.6%) are familiar with the definition of organic food (m=766). However, the smallest share of the respondents (11.0%) correctly defined organic food, i.e. the smallest share knows that organic food is the food which is produced using the procedures defined by the law on organic production. The most respondents (52.2%) think that organic food is the food produced without pesticides, chemical fertilizers, genetically modified organisms and other chemical additives. While 21.0% of the respondents think that organic food is the food produced on family farms using conventional agricultural techniques, 15.7% of the respondents think of organic food as the one produced without the use of genetically modified organisms. The research results show that although the respondents think that they are familiar with organic food that is not true because the smallest number of the respondents correctly define organic food.

### *The purchase of organic food*

Half of the respondents (50.1%) said they never buy organic food. Organic food is rarely bought by 37.5% of the respondents, while 12.4% of the respondents often buy organic food. The above mentioned results are not only the specificity of the Croatian market. Similar findings about the low purchase of organic food on a regular basis have been found by Tarkiainen and Sundqvist as well [Aertsens et al., 2009]. Further analyses were conducted with the respondents who frequently buy organic food (m=95) and hereafter they are referred to as "regular buyers". The regular buyers of organic food buy it two to three times a week (32.2%) or weekly (22.3%). Less than once a month organic food is purchased by 18.8% of regular buyers, and two to three times a month by 17.2% of them. The smallest percentage of regular buyers (9.5%) buys organic food once a month. Furthermore, regular buyers often buy fresh fruit and vegetables (31.2%), bread and other bakery products (29.4%), milk and dairy products (24.0%). Other products such as honey, fresh meat and meat products, baby food are bought in smaller percentage (less than 10.0%), and the reason is their under-representation on the Croatian market [Petljak, 2010].

### *Regular buyers' familiarity with and trust in the information on the organic food declaration*

Regular buyers of organic food were asked if they have read the information on the organic food declaration. The majority of regular buyers (66.1%) answered that they have read the information on the organic food declaration, while 33.9% of frequent buyers do not read the information on the organic food declaration. Afterwards, regular buyers were asked to answer what information there are on the organic food declaration. The distribution of responses is given in Table 4.

Table 4. Regular buyers' familiarity with the information on organic food declaration  
Tabela 4. Znajomość regularnych odbiorców z informacją na deklaracji żywności organicznej

Information on declaration of organic food	f	%
Information which are prescribed by the ordinance on labelling	20	21.1
Information which are prescribed by the ordinance on labelling, the name of the control station and/or the code of the control station	15	15.8
Information which are prescribed by ordinance on labelling, the name of the control station and/or the code of the control station and the number of certificate	25	26.3
I do not know	35	36.8
<b>Total</b>	<b>95</b>	<b>100.0</b>

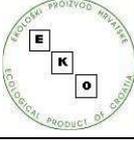
Source: primary research

The majority of regular buyers of organic food are not familiar with the information on the organic food declaration (36.8%). Furthermore, 26.3% of regular buyers answered correctly that the organic food declaration contains information which are prescribed by the ordinance on labelling, the name of the control station and/or the code of the control station and the number of certificate. Also, 21.1% of regular buyers consider that declaration contains information which is prescribed by the ordinance on labelling, and 15.8% of regular buyers consider that declaration contains information which is prescribed by the ordinance on labelling, the name of the control station and/or the code of the control station. After that, regular buyers of organic food were asked if they believed in the reliability of the information on the organic food declaration. The majority of regular buyers of organic food (73.8%) believe in the reliability of the information, while 26.2% of regular buyers do not believe in the reliability of the information on the organic food declaration.

#### *Respondents' familiarity with the label organic product of Croatia*

Respondents who are familiar with the definition of organic food (m=766) were asked about their familiarity with the label organic product of Croatia. Respondents were shown four labels (Table 5) and they were asked which of the labels the label organic product of Croatia is. Research results indicate that 43.6% of respondents are familiar with the label organic product of Croatia and 30.8% of respondents answered incorrectly. As many as 25.6% of respondents are not familiar with the label organic product of Croatia. These results indicate that further effort should be put into informing about and promoting the label organic product of Croatia.

Table 5. Respondents' familiarity with the label organic product of Croatia  
 Tabela 5. Znajomość respondentów na temat chorwackiej etykiety żywności organicznej

Label organic product of Croatia	f	%
	334	43.6
	46	6.0
	76	9.9
	114	14.9
I do not know	196	25.6
<b>Total</b>	<b>766</b>	<b>100.0</b>

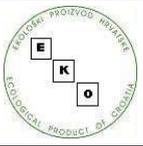
Source: primary research

For further data analysis, all respondents (m=766) were divided into 3 categories: regular consumers, frequent consumers and those who do not consume organic food. Research confirmed statistically significant difference in the respondents' familiarity with the label organic product of Croatia and the frequency of purchase of organically produced food;  $\chi^2=15.998$ ,  $p < 0.05$  (Table 6).

The label organic product of Croatia is recognized by 43.6% of respondents. The largest percentage of respondents, who recognize the label organic product of Croatia are those who rarely buy organic food (46.9%) and the least those who buy it often (38.9%), which are indeed surprising results.

Table 6. Respondents' familiarity with the label organic product of Croatia according to the frequency of organic food purchase

Tabela 6. Znajomość odbiorców z chorwacką deklaracją żywności organicznej odnośnie częstotliwości zakupu żywności organicznej

Label organic product of Croatia	Frequency of organic food purchase						Total	
	often		rarely		never			
	f	%	f	%	f	%	f	%
	37	38.9	135	46.8	162	42.3	334	43.6
	11	11.6	18	6.3	17	4.4	46	6.0
	12	12.6	34	11.8	30	7.8	76	9.9
	13	13.7	40	13.9	61	15.9	114	14.9
I do not know	22	23.2	61	21.2	113	29.5	196	25.6
<b>Total</b>	95	100.0	288	100.0	383	100.0	766	100.0
$\chi^2, p$	$\chi^2 = 15.998; p < 0.05$							

Source: primary research

#### *Respondents' opinion about the organic food monitoring and control system*

From the total number of respondents who are familiar with the definition of organic food (m=766), most of them (42.8%) are not aware of the existence of organic food monitoring and control system in Croatia. Respondents, who are familiar with the label organic product of Croatia, were asked about effectiveness of organic food monitoring and control system. As seen from Table 7, statistically significant difference is determined by respondents' opinion about the organic food monitoring and control system and frequency of organic food purchase ( $\chi^2=20.994$ ,  $p<0.01$ ). Respondents who frequently buy organic food in the largest percentage believe that organic food monitoring and control system in Croatia is effective (48.7%) while that this system is effective believes 17.3% of respondents who do not buy organic food.

Table 7. Respondents' opinion about the effectiveness of organic food monitoring and control system according to the frequency of organic food purchase  
 Tabela 7. Opinia respondentów na temat efektywności systemu monitoringu i kontroli odnośnie częstotliwości zakupu żywności organicznej

Organic food monitoring and control system is effective.	Frequency of organic food purchase						Total	
	often		rarely		never		f	%
	f	%	f	%	f	%		
yes	18	48.7	32	23.7	28	17.3	78	23.4
no	10	27.0	55	40.7	56	34.6	121	36.2
I am not aware of existence of this system	9	24.3	48	35.6	78	48.1	135	40.4
<b>Total</b>	37	100.0	135	100.0	162	100.0	334	100.0
$\chi^2, p$	$\chi^2 = 20.994; p < 0.01$							

Source: primary research

#### *Respondents' familiarity with the measures for organic food consumer protection*

The largest number of respondents (31.8%) believes that enhanced control of organic food producers from authorized institutions is measure for organic food consumer protection, as it is. 27.3% of respondents think that Consumer Protection Act (Zakon o zaštiti potrošača) is a measure for organic food consumer protection, while 24.3% of respondents think that the publication of the results of monitoring and control of individual organic food producers is a measure for organic food consumer protection. Finally, 15.5% of respondents are of the opinion that comparative tests for organic food are a measure for organic food consumer protection. If respondents were suspicious about the quality and freshness of organically produced food, the majority of them (25.9%) would not know who to contact for the protection of their consumer rights; 19.7% of respondents would notify sanitary inspection, 17.1% of respondents would inform the inspection and the Ministry of Agriculture, Fisheries and Rural Development, 11.8% of respondents would call the supervision station and 11.4% of respondents would call the inspection.

## CONCLUSION

This paper presents the research findings based on the survey research conducted on a representative sample of respondents using a highly structured questionnaire. The first part of the paper elaborates on organic agriculture, with a special emphasis on organic food legislation in Croatia. The results of the conducted survey based on 1,000 respondents indicate that the respondents (m=766) think they are familiar with the definition of organic food, but when they were asked about the definition of organic food, the smallest percentage of the respondents (11.0%) knows that organic food is the food which is produced by using the procedures defined by the legislation on organic production. Half of the respondents (50.1%) said they never buy organic food. Organic food is rarely bought by 37.5% of the respondents, while 12.4% of the respondents often buy organic food. The majority of regular buyers (66.1%) claim that they read the information on the organic food declaration, but when asked about the information on the organic food declaration, only 26.2% of regular buyers gave the correct answer. Despite this, the majority of regular buyers of organic food (73.8%) believe in the reliability of the information on the organic food declaration. When asked about their familiarity with the label organic product of Croatia, research confirmed statistically significant difference in the familiarity of respondents with the label organic product of Croatia and the frequency of purchase (often, rarely, never) of organically produced food. In fact, the largest percentage of

respondents who recognize the label organic product of Croatia are those who rarely buy organic food and the smallest percentage are those who buy it often. Respondents who frequently buy organic food in the largest percentage believe that organic food monitoring and control system in Croatia is effective (48.7%), and those who never buy organic food in the largest percentage believe that this system is effective (17.3%). The largest number of respondents (31.8%) believes that enhanced control of organic food producers from authorized institutions protects consumers who consume organic food. The original contribution of this research is in the analysis of consumers' familiarity with organic food legislation in Croatia. Survey research results indicate the necessity for further education of consumers and informing them about organic food legislation in order to raise the awareness of organic food legislation and consumer confidence in organic food in Croatia. Above mentioned activities would certainly contribute to the further development of organic food market in Croatia. Therefore, this research provides very important implications for decision makers in Croatia, in terms of further steps needed to speed the development of organic agriculture and market for organic food in Croatia.

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## EMPIRYCZNA ANALIZA ŚWIADOMOŚCI I ZAUFANIA KLIENTÓW DO USTAWODAWSTWA W ZAKRESIE ŻYWNOSCI ORGANICZNEJ W CHORWACJI

**STRESZCZENIE. Wstęp:** Wyniki badań (z użyciem wysoko ustrukturyzowanych kwestionariuszy skierowanych do gospodarstw domowych) przeprowadzonych w marcu 2009 r. na reprezentacyjnej próbie mieszkańców Chorwacji wskazały, że większość respondentów (76,6%) jest zaznajomionych z żywnością organiczną.

**Metody:** W badaniach szczególny nacisk położony jest na zakup żywności organicznej, zwłaszcza przez regularnych odbiorców, którzy zostali zapytani o znajomość informacji znajdującej się w deklaracji organicznej żywności i pewność, czy jest to informacja rzetelna. Dalej badanie zgłębiło znajomość etykiety żywności organicznej odnośnie częstotliwości zakupu tej żywności. Ponadto badania opisują zaufanie konsumenta odnośnie monitorowania i systemu kontroli żywności organicznej w Chorwacji.

**Wyniki i wnioski:** Badanie daje wgląd w znajomość miar ochrony konsumenta żywności organicznej w Chorwacji i podaje rekomendacje dla organów legislacyjnych w zakresie żywności organicznej.

**Słowa kluczowe:** organiczne rolnictwo, chorwacki rynek żywności organicznej, ustawodawstwo dla żywności organicznej, badanie ankietowe.

## EINE EMPIRISCHE ANALYSE DER BEWUSSTHEIT UND DES VERTRAUENS VON VERBRAUCHERN IN DIE BIO-LEBENSMITTEL ANBETREFFENDEN VORSCHRIFTEN IN KROATIEN

**ZUSAMMENFASSUNG. Einleitung:** Die Ergebnisse der im März 2009 an einer repräsentativen Stichprobe von Bürgern der Republik Kroatien mit Hilfe einer stark strukturierten Fragebogen-Umfrage in den Haushalten durchgeführten Forschung haben gezeigt, dass die Mehrheit der Befragten (76,6%) mit Bio-Lebensmitteln vertraut sind.

**Methoden:** In der Umfrage wurde besonderer Wert auf den Kauf von Bio-Lebensmitteln gesetzt, vor allem bei regelmäßigen Käufern. Die regelmäßigen Käufer wurden also nach ihrer Vertrautheit mit den auf der Deklaration befindlichen Angaben zu den Bio-Lebensmitteln sowie nach dem Vertrauen in Bezug auf die die Zuverlässigkeit der Informationen über die betreffenden Bio-Lebensmittel befragt. Im Rahmen der Forschung untersuchte man weiterhin die Vertrautheit der Befragten mit dem kroatischen Label für Bio-Produkte; diese wurde nach der Häufigkeit des Verbrauchs von Bio-Lebensmitteln beurteilt. Die Forschung ermittelte darüber hinaus das Vertrauen der Verbraucher in das Überwachungs- und Steuerungssystem für Bio-Lebensmittel in Kroatien.

**Ergebnisse:** Die empirischen Analysen ergaben einen Einblick in die Vertrautheit der kroatischen Bio-Lebensmittel-Verbraucher mit Maßnahmen des Verbraucher-Schutzes sowie zahlreiche Empfehlungen für die gesetzgebenden Körperschaften im Bereich der Bio-Lebensmittel.

**Codewörter:** Bio-Landwirtschaft, kroatischer Markt für Bio-Lebensmittel, Gesetzgebung von Bio-Lebensmitteln, Umfrageforschung.

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Vesna Brčić-Stipčević, Ph. D.  
Professor, Department of Trade  
Faculty of Economics and Business, University of Zagreb  
J. F. Kennedy Square 6, 10000 Zagreb, CROATIA  
Phone: ++385 1 238 3383  
Fax: ++385 1 233 5633  
e-mail: [vbrcic@efzg.hr](mailto:vbrcic@efzg.hr)

Kristina Petljak, Spec. M. Sc. Econ.  
Teaching and Research Assistant, Department of Trade  
Faculty of Economics and Business, University of Zagreb  
J. F. Kennedy Square 6, 10000 Zagreb, CROATIA  
Phone: ++385 1 238 3384  
Fax: ++385 1 233 5633  
e-mail: [kpetljak@efzg.hr](mailto:kpetljak@efzg.hr)