

Upcycling of PE & PET waste to generate biodegradable bioplastics for food and drink packing

Task 7.3. Integration SSH and gender

- 7.3.1. Case study of one of the countries with the highest food and drink packaging rate: Finland
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Methodology

The questions in the survey is based on the AIDA method.

It is a useful and functional method for analysing CUSTOMER JOURNEY, i.e. the behaviour of consumers in the various stages of purchasing a product, from the first contact to the purchase itself.

AIDA examines the four principles – awareness, interest, desire and action. For example, it is possible that the respondents are well informed, but do not have formed attitudes towards recycling (lack of interest). This would be a sign that decision makers pay attention to developing consumer interest in recycling. Another example, it is possible that consumers have an awareness of recycling, a positive attitude towards it, a desire, but that there is a lack of realization (because, for example, they do not have the possibility of recycling in their place of residence). Please find below the graphic illustration for the AIDA method.



A consumer panel, in particular, consists of a sample of individuals who are observed and/or interviewed during several rounds of the same continuous survey. The aim is to collect information on the consumer's consumption habits and purchasing processes (purchase funnel).

Methodological Suggestions

Type of respondents: INDIVIDUALS

Method of research: ONLINE research - anonymous online questionnaire (CAWI mode computer)

Sample size:

The statistical sample is 500 answers, both for Italy and for Finland and Serbia, with a confidence level of 95% (more than acceptable) and a margin of error of 5% (also more than acceptable). Of course, the higher the confidence level and the lower the margin of error, the more questionnaires would be needed (at a 99% confidence level 666 answers would be needed, for a margin of error of 4% 601 answers would be needed). 1041 answers would be needed for a 99% confidence level and a margin of error of 4%. It is clear that at least 385 responses are sufficient for the type of research. In fact, an acceptable (minimum) level is a confidence level of 90% and a margin of error of 5%, which would require 273 responses. Margin of error - A percentage indicating the probability that the survey results reflect the opinions of the overall population. The smaller the margin of error, the greater the probability of receiving the correct answer at a given confidence level. Sample confidence level - A percentage that reveals how confident you can be that the population

would choose an answer within a given range. For example, a 95% confidence level means that you can be 95% certain that the results will be between the numbers x and y.

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right)}$$

- N = population size
- e = margin of error (percentage in decimal format)
- z = z score. The z score indicates by how many standard deviations a given proportion is from the mean.

The mode used is the anonymous online questionnaire (CAWI mode computer-assisted web interview). Other modes, e.g. telephone or in person, depending on the mode chosen by the interviewers, have been used.

To improve the result of the questionnaires it was necessary to anonymise the answers. Many people are reluctant to provide demographic information that they consider private, for example on income level and employment status. Therefore, the anonymity of the answers will also be ensured for EU Directive 976/2016 and we will make sure to let the respondents know this.

The purpose of the survey has been explained by providing a brief introduction clearly stating the objectives of the survey and explaining to respondents how the information will be used. The survey was very accessible, including users with disabilities through online distribution in many different ways.

The questionnaire are clear and short - it is easier for respondents to complete short surveys. The time required for completion should not exceed 3 - 5 minutes. The questions have closed answers.

Sample stratification:

- Stratification by country (the three case study countries) is necessary.
- Age stratification is supplementary, in order to specify the minimal acceptable number of respondents per age groups.

Namely, the distribution of respondents according to age groups is not expected to be uniform, as certain age groups would most likely be more represented than other age groups (for instance, age group 65+ would probably be less represented than some others). However, in order to have a representative sample, a minimum number of responses should be specified even for the age groups that are least represented. This minimum should be set at 50 respondents.

7.3.1. Case study of one of the countries with the highest food and drink packaging rate: Finland

The following is the evidence and results from the questionnaire administered to 500 people in Finland.

Demographics

Looking at the demographic parameters of the interviewed sample, it is clear that there is an equal distribution of the sample in terms of gender: 50% of the interviewees are male and 50% female. The 0.4% is probably a typo. The subjects who defined themselves as "other" are subjects who do not feel they fit into the qualifications "man" or "woman", and as they only had 2 answers they were not considered for the purposes of the research as their answers could not be traced.

As far as age groups are concerned, again there is substantial partiality between the various groups, with a slight preponderance of the over 50s (38.6%) followed by the under 35s (32%).

Concerning the educational qualification, only one respondent claims to have no education at all, while 10.8% of the respondents stop at primary education. An absolute majority claimed to have completed secondary education (54%) while 35% had higher education.

As regards the areas of origin, there is a substantial balance between the different areas, with only Aland accounting for 0.6% of respondents.

Interestingly, 57% of the respondents live in an 'urban' environment while 17% live in a 'rural' environment. With regard to net income, there is a zonal bias between those below and those above the middle range.

Awareness

In terms of the level of awareness of the respondents, the vast majority of them were very well informed (30%) or well informed (57%), while only 2.1% had no information at all.

1. Do you believe people need to be more educated on the subject of recycling?

The question of expectations regarding the consequences of more and better information was then analysed: more than 80% of the surveyed sample agreed or strongly agreed on more information on the topic of separate collection, while a small percentage of less than 3% did not share the same opinion.

2. Do you believe people need to know where items go after they have been collected?

Also with regard to the destination of the collected items more than 80% of the sample agreed on what it is while 12% considered themselves neutral, only 2% disagreed.

3. Where would you say the majority of your knowledge of what can and can't be recycled comes from?

A lot of importance is given to the channels where information flows and arrives on the topic of separate collection: There is a good distribution along all main channels with a preponderance for what is written on the packaging of the products (19%) or on the packaging (19%).

4. How confident are you about which materials can be put in the recycling collection and which cannot?

The awareness of how safe a person feels about what they can and cannot recycle and about the destination of the object is then investigated: 14.7% declared themselves to be extremely safe and 47.1% were safe. An appreciable percentage (27%) was among those who declared themselves neutral about this safety, while just over 10% of the sample surveyed were insecure.

Interest

Still on the awareness of the fact that some plastics are biodegradable, more than 82% say they are aware of this phenomenon, while 17.4% are not aware of it. Regarding the importance of proper sorting, 86% stated that it was important or very important, while about 14% stated that it was not. But what are the motivations that lead to separate collection: 46% declare that the ultimate goal is to reduce pollution, while 27% link these

aspects to ethical choices. On the other hand, 15% declare that these practices have the aim of reducing plastic itself, while others turn to economic benefits (7%) and health protection (4.2%).

What is the trend compared to 3 years ago? Half of the surveyed sample declares that its attention has remained unchanged over the last 3 years, while 47% declares that it is more attentive. On the other hand, 2.3% declared less attention to the issue and related activities.

Concerning the awareness that uncontrolled and unmanaged spread of plastics is a problem 90% of the sample stated that it is a major or very major problem while the remaining 10% considered it to be minor. Can we reduce the use of plastic by reusing products? 90% of the sample agreed with this statement while almost 9% were neutral with a very small percentage disagreeing (about 2%).

If the authority were to make more bins available, would this be important and help with waste separation? Again, the vast majority of the sample of 87% agreed, while 10% were neutral and a small percentage disagreed.

Regarding the frequency with which they separate waste, 50% of the sample declared that it is a frequent practice and is now part of their daily routine. On the other hand, 38% of the sample declared that it is a very frequent practice in their domestic management, while 10% of the sample had to follow occasional rules or considered it a duty. 44% of the sample always separate waste, while 44% do so very often. There is still a segment of the population that does this rarely or never.

For what concerns the positive consequences of the practice of sorting, 22.7% link it to environmental dynamics and consequences, 17% consider it to be a moral duty towards future generations, 14% attribute positive consequences towards the climate or reduce pollution (10%).

But are there any obstacles to the practice of separate collection? 20% think that it requires too much effort, while 16% would find some form of payment for positive behaviour fair. For others, the problem is that there is too little space at home (13%) or there is a real forgetfulness in recycling (12.3%).

The next question is how strong the logistical problem is, i.e. how long it takes to get to a recycling bin and how to get there. The majority stated that they walk to the bin, while 26% need a means of transport (bus).

They then go back to evaluating their purchasing decisions and in particular whether they happen to buy any eco-plastic products: 73% do so sometimes, very few do so regularly (14.3%) while as many as 10% do not even know what they are talking about. Then the propensity to buy a more expensive product that has environmental benefits is assessed: 30% do not know whether they would do so, while 34% are likely to do so but only 5% are sure they would pay more. Almost 30% would not pay a higher price. Regarding the inclination to buy products made of biodegradable plastics, 50% responded positively, 27% were neutral and the remainder of the sample expressed a negative opinion.

7.3.2. Case study of one of the countries that has recycling rate around the European average: Italy

The results of the survey on a cluster of 500 people in Italy are reported below.

Demographics

The data shows that there is a homogeneous distribution of respondents with regard to gender. There is one outlier, probably the result of an error when filling in the questionnaire. The majority of respondents were over 50 years old, followed by a good percentage (around 35%) in the middle age group. The lowest percentage of respondents were very young (2%). With regard to educational qualifications, there is an extremely low percentage of those who say they have no education at all, while the vast majority have secondary education (57%). Significant percentages are found for those with higher education (29%) and those with basic education (12%).

The parter of respondents is fairly homogeneous as regards territorial distribution, with peaks in the regions of Lombardy (14%), Piedmont (10%) and Veneto (10%). With regard to sedentary living, the majority of respondents said they lived in an 'urban' environment, while the smallest number lived in a rural environment.

Regarding income, there is an appreciable percentage of those who do not indicate the bracket (11%), while there is an equal distribution.

Awareness

Concerning the awareness of the information on separate collection, it can be seen that the majority of the interviewees have average information (61%), while the percentage of those who consider themselves well informed is also appreciable (33%). It seems therefore that the lack of information or the total absence of it is not important evidence and therefore concerns an extremely small percentage of the sample examined.

1. Do you believe people need to be more educated on the subject of recycling?

When asked whether they agreed that there should be more information on the topic of separate collection, almost the entire sample agreed with a small percentage declaring themselves neutral about this opinion.

2. Do you believe people need to know where items go after they have been collected?

Also in the case of the awareness about the final destination of the objects collected for recycling, an almost total majority of the surveyed sample agrees on knowing what the exact end is.

3. Where would you say the majority of your knowledge of what can and can't be recycled comes from?

Analysing the channels from where the information flow on the topic of separate collection arrives, labels and information in product packaging (18%), information conveyed by local companies (15%), information contained in product packaging (15.8%) and the communication activity of the mass media (10%) are the preferred channels.

4. How confident are you about which materials can be put in the recycling collection and which cannot?

Interesting evidence is provided by the average user's confidence in being aware of what can and cannot be differentiated: almost 15% say they are not at all sure or not very sure; this percentage increases considerably if we include users who declare themselves to be neutral (28.5%).

Interest

With regard to the knowledge of the different plastics and the fact that some of them are biodegradable, it is evident that the majority of the sample is fully aware of this and only a few do not have this information. Looking at the importance of correct and constant sorting, almost all of the sample believe that correct sorting is very important, while almost none of them attach importance to this awareness.

The motivations for separate collection are manifold and the interviewed sample appears to be extremely divided and disaggregated about these preferences: a good percentage is

clear that the activity of separate collection is done directly to reduce pollution (84.5%), while 24% attribute this activity to an ethical purpose. Many people think that the purpose of separate collection is to reduce the general use of plastics (18%), while only a few attribute a health or economic purpose to it. Looking at the trend in the development of awareness among the sample, it can be seen that more than a majority of them are becoming more aware of the issue: 58% say they are more aware than three years ago; 40% are equally aware, while only 1.6% think they are less aware than three years ago.

A specific question is then asked about the awareness of the risks perceived in relation to the constant and continuous use of conventional plastics. For more than 60% of the sample, this practice is very dangerous and a further 30% believe that the problem needs a high level of attention. About 5% of the respondents considered the issue to be of little or no relevance.

The respondents were then asked about their agreement to the reuse of products with a direct consequence of reducing plastics: 57% of the respondents were in complete agreement, while more than 33% were positive about this aspect. Only a few were neutral or even disagreed. As regards the provision of more waste bins, the absolute majority also agree, although there is a significant proportion of those who consider themselves neutral (12%).

When asked directly whether separate collection is a habit, 77% responded positively, while 19% said it was usual and frequent. Also on the frequency of sorting, almost all of the sample stated that they do this always or almost always, with a residual percentage doing it infrequently. With regard to motivations, it appears that the main one is that sorting waste results in protection for the surrounding wildlife (20%), reduces waste (15%) and pollution (15%). A good percentage sees the issue of sustainability by stating that such actions are propaedeutic for future generations (13.1%), while other motivations are related to health (6.9%), circular economy (4.5%). But there are also those who feel obliged to carry out this practice (7.4%).

We now analyse the set of answers to the question of what are the main reasons for not separating waste correctly and frequently. First of all, it is considered that waste is mixed (16.6%) and the sorting programme does not work well (13.8%). A good percentage admit that the practice of proper waste sorting requires too much effort (8%), is inconvenient



(9.2%), or costs too much (7%). Some admit a lack of knowledge about what to sort (7.7%) and about information in general (3%).

From a logistical point of view, it is evident that the majority of the sample surveyed reach the disposal centres/bins on foot. With regard to the purchase of eco-plastic products, it is evident that there is still a lack of information: in fact, 14.9% of the sample surveyed stated that they did not know what these products were. Among the informed ones, however, the vast majority (66%) makes this kind of purchase occasionally and without continuity, while only a few buy eco-plastic products regularly (11.8%).

With regard to the propensity to buy a sustainable but more expensive product, there is still a large percentage of those who are not sure (23.3%) or would not buy such products (9.3% and 6.3%), while there are still few who would definitely buy them at a more expensive price (17.8%). The percentage of possibilists is more important (43.2%). When it comes to the inclination to buy products made of biodegradable plastics, the majority is also in the affirmative, while around 12% are more inclined towards the negative.

7.3.3. Case study of one of the countries with the lowest recycling rates: Serbia

Below are the results of the administration of the questionnaire to a sample of 500 people in the territory of Serbia.

Demographics

In terms of gender, there is a slight preponderance of women (52.8%) over men (48.2%). The age group is well distributed between young people under 35 (36.2%), middle aged (32%) and over 50 (31.8%). Looking at educational qualifications, the majority stated that they had higher education (55%) followed by secondary education (44%); very few had only primary education (0.8%).

With regard to the area to which the sample belongs, there is a substantial equality between the four main regions with a preponderance for Šumadija and western Serbia (29%) and a lower turnout from the south (20%).

The information on net income is then investigated: the vast majority is below or equal to the average, while about 17% are above it; 13% give no indication.

Awareness

Awareness of correct and complete information on separate collection was then investigated: over 70% of the sample declared themselves to be informed or well informed, while the remainder had some information gaps.

1. Do you believe people need to be more educated on the subject of recycling?

Of course, the vast majority of the sample (71%) agrees that more information is needed and 24% also agree, with only a few being neutral or disagreeing.

2. Do you believe people need to know where items go after they have been collected?

62% of the sample agreed that the destination of the objects integrated in the collection process should be known.

3. Where would you say the majority of your knowledge of what can and can't be recycled comes from?

But what are the information channels? Here the answers are multiple and there is a preference for social media (71%), friends (28%) and writing on boxes and packaging.

4. How confident are you about which materials can be put in the recycling collection and which cannot?

Almost 50% of the sample are confident which materials can be separated and which cannot, while 40% are neutral. Almost 10% are not confident.

Interest

However, there is general positive information about the fact that some plastics are biodegradable (76.3%). In addition, well over 80% of the sample give importance to good sorting practice, while almost 17% do not. The goals for sorting include reducing pollution (44%), ethical choices (28%), reducing plastic (10%) and protecting health (8.5%).

The trend compared to the previous three years sees half of the sample demonstrating greater attentiveness and the other half feeling equally attentive. But almost everyone is aware that the overuse of plastics is a problem: only 2.6% consider this problem to be low.

The use of plastic could then be reduced by reusing products: 70% agreed, 16% were neutral and 12% disagreed. Eighty per cent therefore believe that putting more bins out is useful.

Concerning the frequency and habit of sorting, 51% say it is an established habit, while 1.6% do it as a duty. 68% of the sample selects waste often but there are still those who do it occasionally (27%) or never (4%). The positive consequences? For the surveyed sample there is the protection of wildlife, the climate and the consequent reduction of pollution.

But why is this practice still not carried out? 24.9% do not have a valid programme to help them carry out this activity, while 20% do not find programmes that work. Other problems are related to mixed waste, lack of information or lack of space at home. Logistics also



present some problems, since 39% have waste bins close to home and can reach them on foot, but 22.7% have to use means of transport.

Still few people buy eco-plastic products on a regular basis (10%), while it is interesting to note that 29% are not aware of the existence of such products. Half of the sample would buy a more expensive product with less plastic, 27% do not know and about 10% would not. And so for bioplastic products: more than 60% would be inclined to buy products with biodegradable plastics, while there is still a good fringe of those who are unsure (18%) and those who would not (around 10%).

7.3.4. Final report

CROSS SURVEY ON CONSUMERS – ITALY/FINLAND/SERBIA

Below are the cross-referenced results of the questionnaires administered to 500 people within the three national contexts, as well as highlights of any differences or characteristic elements.

Demographics

In all three countries the sample to which the questionnaire was administered appears to be homogeneous in terms of gender (50% male and 50% female). There are some outliers in Italy and Finland, probably the result of typos.

		GENDER					
		ITALY		FINLAND		SERBIA	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Valid	men	239	47,8	253	50,8	241	48,2
	women	260	52,0	245	48,8	259	51,8
	other	1	0,2	2	0,4		
	Total	500	100,0	500	100,0	500	100,0

In Italy the youngest respondents are just 21% compared to Finland and Serbia where they are 32% and 36% respectively. In Italy the most represented group is the over 50s (43.4%) as well as in Finland (38.6%); while in Serbia the over 50s account for 31.8%.

		AGE					
		ITALY		FINLAND		SERBIA	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Valid	18-35	105	21,0	160	32,0	181	36,2
	36-50	178	35,6	147	29,4	160	32,0
	51-65	217	43,4	193	38,6	159	31,8
	Total	500	100,0	500	100,0	500	100,0

In Serbia no element of the sample seems to have no education at all and very low is also the percentage of those who have only primary education (0,8%); instead in Italy and Finland those who have primary education are above 10%. The majority of the respondents belong to those with higher education with 57.4% and 54% respectively, while in Serbia

this range is only 44%. It is interesting to note the large gap in higher education between Serbia (where it is well above 50%) and the other two countries where it is below 40%.

EDUCATIONAL QUALIFICATION							
		ITALY		FINLAND		SERBIA	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Valid	without education	5	1,0	1	0,2		
	primary education	60	12,0	54	10,8	4	0,8
	secondary education	287	57,4	270	54,0	221	44,2
	higher education	148	29,6	175	35,0	275	55,0
	Total	500	100,0	500	100,0	500	100,0

Even in the area of residence there is a strong gap between Serbia, where the majority (75%) live in urban areas, and Italy and Finland, where 57% of the population lives in urban areas. In the latter two countries the percentage of those living in rural areas is important (around 18%), much lower in Serbia (around 10%).

AREA OF RESIDENCE							
		ITALY		FINLAND		SERBIA	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Valid	Urban	288	57,6	287	57,4	377	75,4
	Suburban	119	23,8	127	25,4	70	14,0
	Rural	93	18,6	86	17,2	53	10,6
	Total	500	100,0	500	100,0	500	100,0

As far as income is concerned, the majority of respondents who are below average are in Serbia (45%), while in Italy and Finland the percentage in the same bracket is much lower (30-31%). The bracket in line with the average sees a substantial equality between Italy and Serbia (26% and 23%) while Finland is lower at 16%. In the above-average income bracket, Italy and Finland are higher and in line with each other at over 30%, while Serbia is lower at 17%. About 10-15% in all three areas do not indicate their income bracket.

AVERAGE NET ANNUAL INCOME							
		ITALY		FINLAND		SERBIA	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Valid	below national average	152	30,4	159	31,8	228	45,6
	equal or similar n. average	133	26,6	82	16,4	118	23,6
	above national average	160	32,0	179	35,8	88	17,6
	not indicate	55	11,0	80	16,0	66	13,2
	Total	500	100,0	500	100,0	500	100,0

Awareness

With regard to the information on the subject and on the operations concerning separate collection, it is immediately evident that Italy and Finland appear to be better informed than Serbia: in fact, those who declare themselves to be very well informed are respectively 33% in Italy, 30.4% in Finland and only 16.7% in Serbia. More or less in line is the group of those who consider themselves fairly well informed, with a percentage ranging from just

over 60% to 55% in Serbia. Even in the case of those who are not very well informed there is an important gap between Italy (5.6%) and Finland (10.6%) on the one hand, and Serbia (28%) on the other. Very low percentages in all three countries for those who have no information at all.

INFORMED ABOUT SEPARATE WASTE COLLECTION								
		ITALY		FINLAND		SERBIA		
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Valid	very informed	165	33,0	152	30,4	84	16,7	
	enough informed	305	61,0	284	56,9	275	55,0	
	not very informed	28	5,6	53	10,6	140	28,0	
	not informed at all	2	0,3	11	2,1	1	0,3	
	Total	500	100,0	500	100,0	500	100,0	

Looking at the sources of information, i.e. where the main news and information flow about separate collection comes from, it can be seen that in all three countries there is a fairly even distribution of information sources with slightly higher percentages for packaging and labels, media and social media.

		ITALY		FINLAND		SERBIA		
		Responses		Responses		Responses		
		N	Percent	N	Percent	N	Percent	
Info(a)	friends	57	3,8%	66	5,0%	140	9,2%	
	family	130	8,8%	90	6,8%	87	5,8%	
	Neighbours	38	2,6%	20	1,5%	30	2,0%	
	Social media and internet	138	9,3%	133	10,0%	357	23,6%	
	product packaging	235	15,8%	261	19,6%	217	14,3%	
	label	272	18,3%	256	19,3%	261	17,2%	
	local company	235	15,8%	173	13,0%	58	3,8%	
	Media	150	10,1%	172	12,9%	289	19,1%	
	training and education	194	13,1%	76	5,7%	27	1,8%	
	consumers association	34	2,3%	69	5,2%	45	3,0%	
	other	1	0,0%	15	1,2%	4	0,3%	
Total		1.483	100,0%	1.332	100,0%	1.514	100,0%	

If we look at the degree of confidence the population has in exactly which materials can be sorted and which cannot, we see that all three countries have around 14% of the sample saying they are extremely confident. While those who are quite safe are between 43% and 47% in Italy and Finland, they fall to around 35% in Serbia. There is also a gap between those who are neutral in the first two countries and those who are less than 30%, while in Serbia they are just over 40%. Low percentages for those with little or no confidence in all areas.

CONFIDENCE ON MATERIALS THAT CAN BE SORTED								
		ITALY		FINLAND		SERBIA		
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Valid	extremely confident	73	14,6	73	14,7	73	14,6	
	enough confident	218	43,5	236	47,1	174	34,9	
	neutral	143	28,5	139	27,8	201	40,2	
	little confident	53	10,6	46	9,2	28	5,7	
	not confident at all	14	2,8	6	1,2	23	4,6	
	Total		500	100,0	500	100,0	500	100,0

Investigating how much importance the citizens give to a correct separate collection, we see that in Italy there seems to be a greater sensibility than in the other two countries: 67,2% give a lot of importance to the separate collection, while in Finland we are at 41% and in Serbia we are at 37%. It is interesting to note that in Italy the percentage of those who do not care at all or very little about separate collection is very low (1.2%), while the percentages rise above 10% in the other two countries.

IMPORTANCE GIVE TO CORRECT SORTING							
		ITALY		FINLAND		SERBIA	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Valid	very important	336	67,2	206	41,2	189	37,8
	enough important	155	31,0	226	45,2	221	44,3
	little important	6	1,2	56	11,3	83	16,6
	not important at all	3	0,6	12	2,3	6	1,3
	Total	500	100,0	500	100,0	500	100,0

On the question of why separate collection is done, we see that the three countries are in line with each other in terms of priorities, from reducing pollution (around 45% everywhere), followed by ethical choices (around 27-28%) to reducing the use of plastic itself (between 18 and 10%).

		ITALY		FINLAND		SERBIA	
		Responses		Responses		Responses	
		N	Percent	N	Percent	N	Percent
Info(a)	to reduce plastic use	161	18,0%	119	15,4%	76	10,3%
	to protect health	54	6,1%	32	4,2%	63	8,5%
	to reduce pollution	406	45,4%	354	46,0%	331	44,9%
	for ethical choices	214	24,0%	208	27,0%	208	28,2%
	for economic benefits	57	6,4%	57	7,4%	56	7,6%
	other	2	0,2%	3	0,4%	3	0,4%
Total		894	100,0%	773	100,0%	737	100,0%

How has the trend changed in the last three years? Italians declare themselves to be substantially more attentive, while the majority of Finns and Serbs are substantially equally attentive to the issue of separate waste collection. Very low percentages in all areas of those declaring themselves less attentive compared to the previous three years.

TREND COMPARED TO 3 YEARS AGO							
		ITALY		FINLAND		SERBIA	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Valid	more attentive	293	58,6	236	47,3	234	46,9
	equally attentive	201	40,1	252	50,4	251	50,2
	less attentive	6	1,3	12	2,3	15	3,0
	Total	500	100,0	500	100,0	500	100,0

When asked whether the uncontrolled spread of plastics is a problem, the vast majority of Italians (63%) and Serbs (70%) agree with this statement, while only 40% of Finns agree. However, there is a substantial balance between the three countries when we look at the

percentages of those who consider the problem to be quite relevant. Low or no percentages of those who do not consider it relevant.

PLASTIC DIFFUSION AS A PROBLEM								
		ITALY		FINLAND		SERBIA		
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Valid	very relevant	316	63,1	202	40,4	350	70,0	
	enough relevant	159	31,7	248	49,5	137	27,5	
	not very relevant	21	4,2	43	8,5	13	2,6	
	not relevant at all	5	1,0	8	1,6			
	Total	500	100,0	500	100,0	500	100,0	

Concerning the awareness that less plastic can be produced by reusing products, 57% of Italians agree, compared to 44% of Finns and 45% of Serbs. The Serbs are fairly neutral (16%). Again, the percentage of those who disagree with this statement is low.

LESS PLASTIC: REUSING PRODUCTS								
		ITALY		FINLAND		SERBIA		
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Valid	strongly agree	285	57,0	222	44,4	226	45,2	
	agree	169	33,8	225	45,0	128	25,6	
	neutral	34	6,7	42	8,4	85	16,9	
	disagree	9	1,8	7	1,4	41	8,2	
	strongly disagree	3	0,6	4	0,8	20	4,1	
	Total	500	100,0	500	100,0	500	100,0	

Also on the question of whether the introduction of more bins for separate collection would produce positive effects, we see a strong differentiation in this case between Serbia, where 80% of respondents strongly agree, and Italy and Finland, where about 44% of respondents are in the same category. These percentages become more balanced when those who simply agreed are taken into account. Again, the percentages of those who partially or totally disagree are negligible.

AUTHORITIES: MORE BINS FOR SEPARATE WASTE COLLECTION								
		ITALY		FINLAND		SERBIA		
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Valid	strongly agree	246	49,2	222	44,4	403	80,1	
	agree	172	34,4	215	42,9	78	15,6	
	neutral	63	12,5	52	10,3	12	2,4	
	disagree	16	3,3	6	1,2	1	0,2	
	strongly disagree	3	0,6	6	1,2	6	1,2	
	Total	500	100,0	500	100,0	500	100,0	

In Italy, 77% of the sample considered recycling to be an established habit, compared to about 50% in Finland and Serbia. However, 19% of the Italians adopted this behaviour frequently, while the percentages are higher for the Finns (38%) and the Serbs (23%). Negligible percentages are found for those who see this activity as just a duty.

FOR YOU, SORTING IS...								
		ITALY		FINLAND		SERBIA		
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Valid	established habit	385	77,0	252	50,3	259	51,8	
	frequent behaviour	95	19,0	191	38,3	118	23,6	
	set of rules	16	3,2	45	9,1	115	23,0	
	duty I don't like	4	0,9	11	2,3	8	1,6	
	Total	500	100,0	500	100,0	500	100,0	

With regard to the frequency of separate collection, here too we see that the number of regulars is higher in Italy (76%) than in Finland (43%) and Serbia (23%). As in the previous table, also in this one we see that if we take the data related to the answer "almost always" we notice that the percentages between the various nationalities become more balanced. It is interesting to note that in this case there is a substantial difference between those who sometimes differentiate between Italy (2.2%), Finland (10.5%) and in particular Serbia (27.7%).

HOW OFTEN DO YOU COLLECT SEPARATE WASTE?								
		ITALY		FINLAND		SERBIA		
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Valid	always	381	76,3	220	43,9	119	23,7	
	almost always	103	20,7	221	44,3	223	44,6	
	sometimes	11	2,2	52	10,5	138	27,7	
	never	5	0,9	7	1,4	20	4,0	
	Total	500	100,0	500	100,0	500	100,0	

We then go on to investigate the motivations, or rather the positive consequences of the habit of separate waste collection. Here too we find ourselves within the three nations in a sort of general balance that sees as the main beneficial consideration that of reducing pollution and protecting wildlife, followed by a view of sustainability and responsibility towards future generations and the specific reduction of waste.

		ITALY		FINLAND		SERBIA		
		Responses		Responses		Responses		
		N	Percent	N	Percent	N	Percent	
Info(a)	reduce wastes	195	15,0%	232	19,9%	149	43,7%	
	protects wildlife	252	20,0%	260	22,4%	260	76,2%	
	good for the economy	59	4,5%	75	6,4%	23	6,7%	
	help with climate problems	147	11,3%	163	14,0%	80	23,6%	
	reduce pollution	196	15,0%	122	10,5%	142	41,7%	
	saves energy	50	3,8%	71	6,1%	37	11,0%	
	for future generation	171	13,1%	200	17,2%	187	54,8%	
	good for health	90	6,9%	23	2,0%	74	21,6%	
oblige to do it	97	7,4%	16	1,4%	8	2,2%		
Total		1.257	100,0%	1.162	100,0%	342	100,0%	

Analysing the causes of incorrect and infrequent adoption of separate collection, we see that, for example, in the case of Italy and Finland, the respective samples declare that the activity itself requires too much effort, while Serbia does not perceive this problem, focusing more on the fact that the planning is defective or even absent.

		ITALY		FINLAND		SERBIA	
		Responses		Responses		Responses	
		N	Percent	N	Percent	N	Percent
Info(a)	if they paid me	2	5,1%	20	16,1%	27	6,6%
	uncomfortable	4	9,2%	9	7,5%	9	2,3%
	lack of space at home	5	11,4%	17	13,2%	18	4,5%
	i don't know what to recycle	3	7,7%	5	4,3%	41	10,1%
	costs too much	3	7,0%	3	2,6%	3	0,8%
	i don't remember to recycle	2	5,6%	15	12,3%	27	6,6%
	too much efforts	5	12,7%	26	20,7%	4	1,1%
	confused guidelines			4	3,0%	16	3,8%
	no programs	3	8,0%	6	4,8%	102	24,9%
	no information	1	3,0%	7	5,6%	14	3,3%
	the program doesn't work	6	13,8%	7	5,5%	85	20,7%
	mixed waste	7	16,6%	6	4,4%	63	15,4%
Total		40	100,0%	125	100,0%	411	100,0%

Regarding the logistical aspect, we see that in all three countries the percentage of those who do not have to make any effort in this respect is almost non-existent, while around 20% have to use a means of transport. The highest percentages are found in the exclusive use of walking.

EFFORT TO REACH THE BINS							
		ITALY		FINLAND		SERBIA	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Valid	only by foot	241	48,3	253	50,6	195	39,0
	staying at home	164	32,7	88	17,6	186	37,3
	using means of transport	87	17,4	132	26,3	114	22,7
	none	8	1,6	28	5,5	5	1,0
Total		500	100,0	500	100,0	500	100,0

In terms of purchasing intentions and awareness, Serbia is lagging behind in terms of information (28.9%) compared to Italy (14.9%) and Finland (10.8%). However, in all three countries, the vast majority of the population occasionally buys eco-plastic products and about 10% buy them regularly.

DO YOU BUY ECOLPASTIC PRODUCTS?							
		ITALY		FINLAND		SERBIA	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Valid	I don't know	75	14,9	54	10,8	144	28,9
	never	32	6,5	10	2,0	17	3,4
	sometimes	334	66,8	365	73,0	292	58,3
	regularly	59	11,8	72	14,3	47	9,4
Total		500	100,0	500	100,0	500	100,0

As far as the willingness to pay for a more expensive product is concerned, we note in this case a differentiation between Finland and the other two countries: in fact, in Finland the percentage of those who would certainly buy a more expensive product is very low (about 5%) compared to Italy (17.8%) and Serbia (23.9%). Important in all three countries is the share of those who do not know if they would buy more expensive products.

WOULD YOU BUY A MORE EXPENSIVE PRODUCT WITH LESS PLASTIC?								
		ITALY		FINLAND		SERBIA		
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Valid	certainly yes	89	17,8	27	5,4	119	23,9	
	probably yes	216	43,2	172	34,3	196	39,3	
	i don't know	117	23,3	153	30,5	135	27,0	
	probably no	47	9,3	112	22,3	34	6,8	
	certainly no	31	6,3	37	7,4	15	3,1	
	Total		500	100,0	500	100,0	500	100,0

Regarding the inclination to buy products with biodegradable plastics we see that in Serbia there is a much higher percentage (25%) than in Italy (20%) and Finland (11%). And here again, the percentage of those who have not decided about buying in all three countries is extremely appreciable.

INCLINDE TO BUY PRODUCTS WITH BIODEGRADABLE PLASTIC								
		ITALY		FINLAND		SERBIA		
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Valid	certainly yes	100	20,0	56	11,1	126	25,3	
	probably yes	244	48,8	214	42,8	244	48,8	
	i don' know	100	20,1	137	27,4	90	18,0	
	probably no	38	7,5	67	13,5	33	6,6	
	certainly no	18	3,6	26	5,2	7	1,3	
	Total		500	100,0	500	100,0	500	100,0