



## WHITE PAPER about the food for elderly



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## 1. Introduction

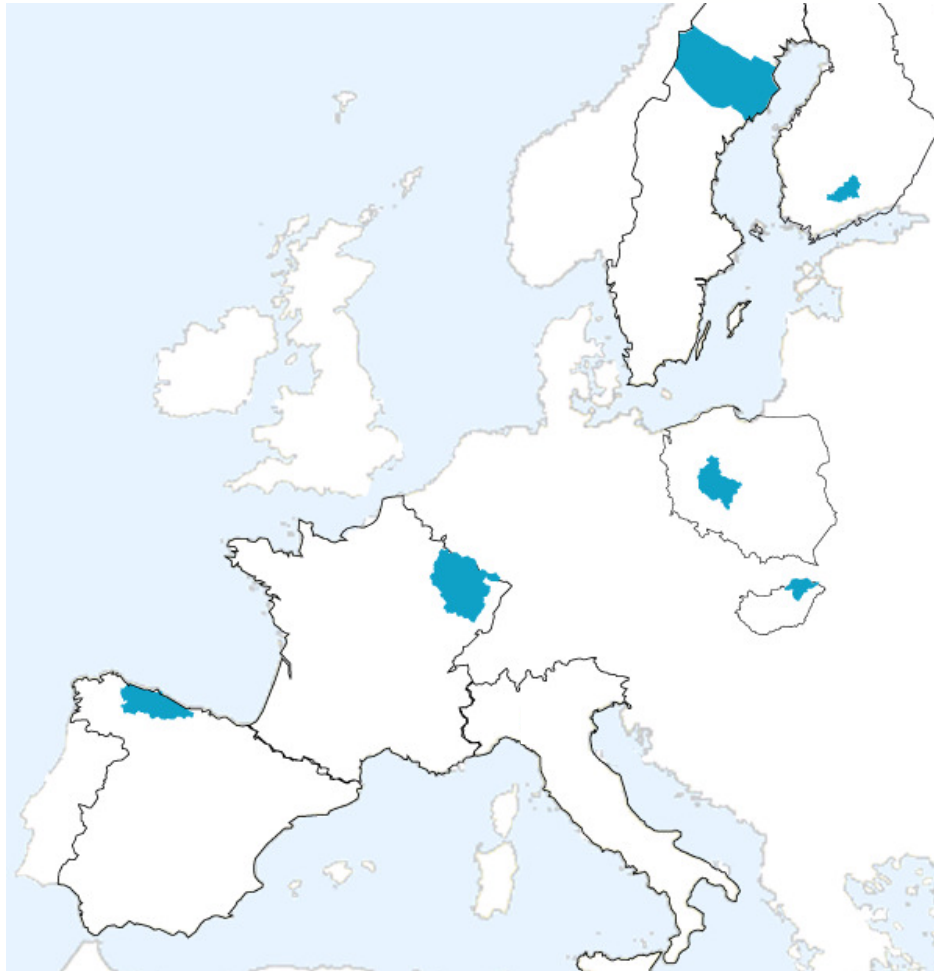
Europe's population is ageing at an unprecedented rate according to the United Nations. Predictions show that by 2050, 34% of all European adults are expected to be over sixty years of age (United Nations 2001).

Under this context, the European project BIO LIFE aims to survey, exchange and extend good practices regarding food and food intake in order to satisfy the needs of ageing population. In this sense the project will be focused on improving and strengthening of the innovation system in which R&D performers will play a key role looking for new formulas and developing new products, new services, which will be incorporated to the Food Industry.

For that reason, BIO LIFE firstly started working on the study of the state of art and the characterization of, in a regional framework, markets, actors, specific needs related to food (nutrition, packaging, home carried services...) for elderly people. This is the goal of the present document, to give the first approach of the current situation. This document aims to do the synthesis of the document done by all the participant of the consortium BIO LIFE.

BIO LIFE is made by an eight partners group from six European regions (Figure 1). These partners are:

- HAMK University of Applied Sciences, Degree Program in Nursing from Häme (FINLAND)
- UMEA University, Department of food and nutrition, from Västerbotten (SWEDEN)
- PULS Poznan University of Life Sciences from Wielkopolska (POLAND)
- NFH Hungarian Authority for consumer protection from North Hungary (HUNGARY)
- INNO8 think tank from Lorraine (FRANCE)
- AGRIA LORRAINE business support specialized in food industry from Lorraine (FRANCE)
- PRODINTEC foundation a technology centre from Asturias (SPAIN)
- CEEI a business innovation center from Asturias (SPAIN)



**Figure 1. Six European regions participating in Bio Life project**

In the first part of this White Paper, the demographic situation of the region of our project and a state of art about the food for elderly in each region will be described. In a second part the questionnaires sent to the elderly and a tool to identify the innovation propensity and the innovation capabilities for food SMEs will be described. Then our recommendations and best practices identified will be presented.

## 2. Demography and opportunities

To better understand the challenges that our society will face in the coming decades we must first make a point on the demographic situation in each country to date but also to come. Then we study and compare the nutritional needs in each region. Finally an overview of regulatory and market in different regions will be made.

### 2.1. Demography

Even if all of Europe is becoming more and more aged, we could think that this phenomenon doesn't affect all the countries of the project and all these regions with the same magnitude.

We can find in the chart below the share of the population aged over 65 years and the projection of it in 2030 by country (Figure 2).

	shared of population aged 65+	year of the datas	projection in 2030 by country
<b>Sweden</b>	18,80%	2008	22,50%
<b>Vasterbotten</b>	19,60%	2010	
<b>Finland</b>	16,50%	2008	25,50%
<b>Häme</b>	18,96%	2010	
<b>Poland</b>	13,50%	2008	23%
<b>Wielkopolska</b>	11,90%	2008	
<b>Hungary</b>	16,40%	2009	22%
<b>North Hungary</b>	16,10%	2009	
<b>Spain</b>	17%	2009	22,10%
<b>Asturias</b>	22%	2009	
<b>France</b>	16,30%	2008	23,20%
<b>Lorraine</b>	16,60%	2009	

Figure 2. Population over 65 years of age in the Bio Life project countries

Source:

[http://epp.eurostat.ec.europa.eu/portal/page/portal/publications/regional\\_yearbook](http://epp.eurostat.ec.europa.eu/portal/page/portal/publications/regional_yearbook)

As we can see in figure 2, all the regions are aged in the same proportions. And it will be truer in each country in 2030. As a consequence, this group of regions could be considered in the same situation about demography of people aged over 65 years.

By 2030 we will have more than one person in five over 65 years in the study countries. This is the result of the Baby Boom that has been called today Papy Boom. As the Baby Boom was a growth opportunity for our economies we have a growth opportunity for providing services and products tailored to this population. This phenomenon will be more evident during the next decades since the estimated life expectancy is increasing every year.

## 2.2. Generalities

Besides the demographic situation, we have found others similarities between all these regions:

- In all the countries of our study, women are always more numerous than men in the population older than 55 years.
- Even if there are some differences between each country, the population of elderly is characterized by the “inactivity” from an economic point of view. In addition, elderly presents an important heterogeneity among the people who form it in relation to the health and the appearance of the illness.
- About the marital status of elderly is mainly married. But as men have a shorter life expectancy than women, some of them become widowed. The rates of singles and separated or divorced are nearly the same in this group of the population wherever you are in these countries.
- About the education and the training levels, elderly are a group of people with a very high proportion of person which only have a primary education.

Furthermore, we have nearly a common typology of elderly in all Europe (Figure3):

Age	Activity	Free Time	Healthy	Money	behaviors
56 – 65 years	Mainly in professional activity	Relatively few during the first decade	Overall very good	Pinnacle financial of the careers and almost disappearance of debts	Preparation for retirement
66 – 75 years	Gradual disappearance of the professional activity  Explosion volunteering  Associative life	Very important  It is the discovery of « free time »	Relatively healthy  A mandatory caution is established around 70 years	The maximum disposable income, net of tax and social contributions	Desire for change in living environment  Desire to recreate a social environment  Desire for security and independence  Consumer recreation
76 – 85 years	No occupation  Gradual depletion of volunteering	Lots of free time but increased presence at home  Early problems of loneliness (seniors living alone)	Beginning of the autonomy problems  Intensive medical consumption	Less disposable income	Customer focused on physical and medical security  Needs related to aging on place: medical service, transportation, entertainment, maintenance etc...
over 85 years	Overall decline in activity	Very limited mobility  Refocusing on the home or admission in an institution	Growth of dependence phenomenon	Large proportion of need	Need to supported for by the family or by an institution

**Figure 3.A typology of elderly in European countries**



To conclude this part about the typology of elderly in Europe, we could see that the segmentation could be done not only by age but also by a group of characteristics that describe the population and his needs.

We easily could find this kind of segmentation in the younger population like baby food and food for children but for elderly, except for medical products like enteral nutritions we don't find this kind of segmentation in the products. We do have to think about the real reasons of that statement... Probably, there are not too many products for elderly in the market or marketing agencies do not consider it strategic to include references or images of elderly in the packaging...

As the demographics data show us, food industry could find an opportunity to develop at least three new segments of food for elderly. These new segments are based on the answer of the needs of the elderly. Therefore, if we want to help food SMEs to do innovations and develop their business, we must help them to know what the needs of the elderly are.



**European Union**  
European Regional Development Fund



### 3. Questionnaire on food for elderly

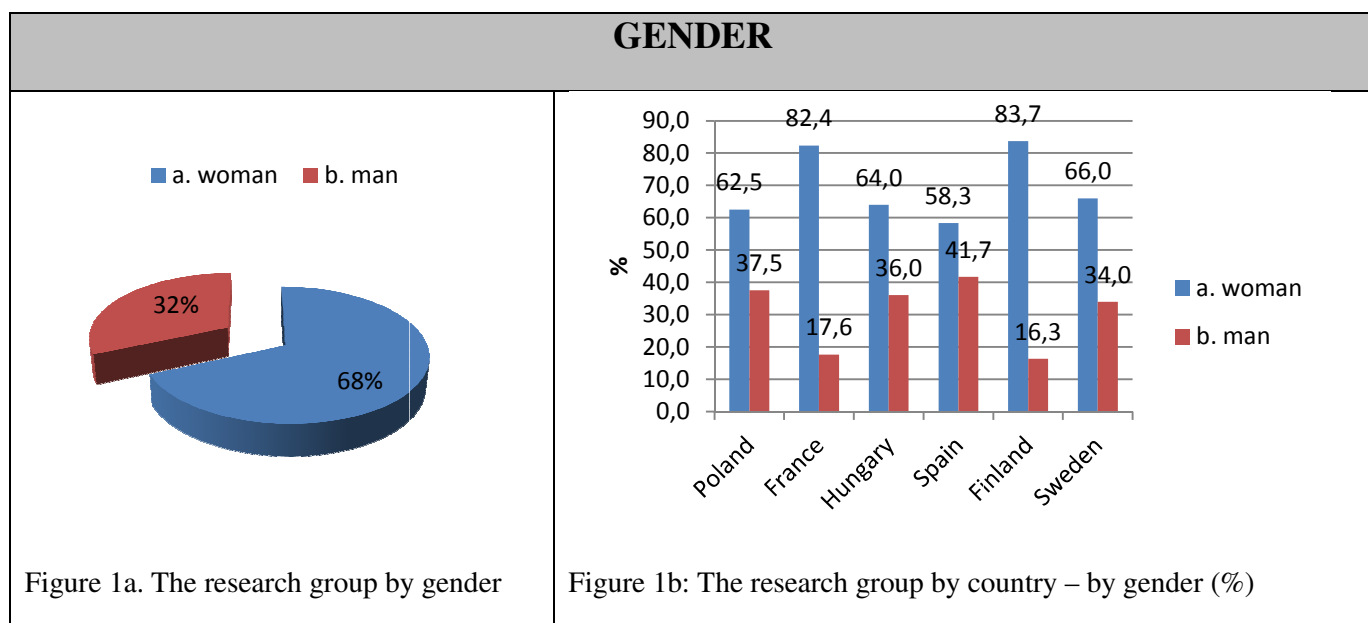
#### **3.1. Method**

Consumer behaviour and nutritional preferences were assessed with using a questionnaire in English which was subsequently translated into mother languages of six countries. The questionnaire included 25 close-ended questions and two concerning the anthropometric data. The survey was carried out simultaneously in all countries between July 2011 and May 2012. The study was anonymous and focused on the target group of individuals aged 55 and older. This paper presents the results of survey studies carried out on the group on 322 participants. All respondents were selected for the study with the snowball sampling method.

- **Poland:** (n=56; 17,4%)
- **France:** (n=51; 15,8%)
- **Hungary:** (n=50; 15,5%)
- **Spain:** (n=72; 22,4%)
- **Finland:** (n=43; 13,4%)
- **Sweden:** (n=50; 15,5%)

#### **3.2. Results part I**

#### **3.3.**



### AGE

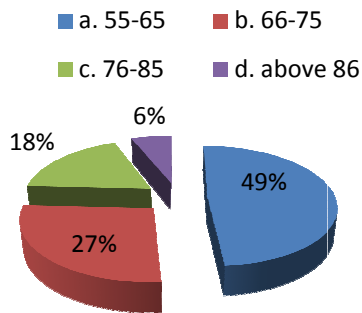


Figure 2a: The research group by age (%)

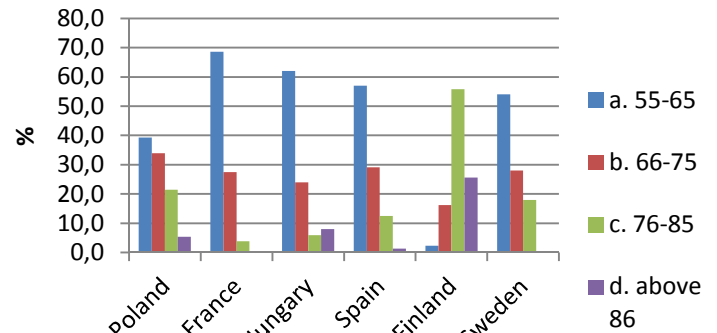


Figure 2b: The research group by country – by age (%)

### PLACE OF LIVING

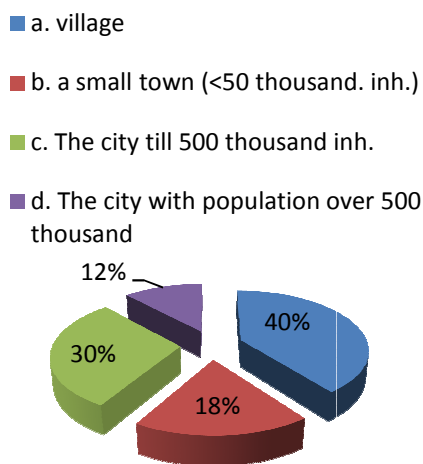


Figure 3a: The research group by living place (%)

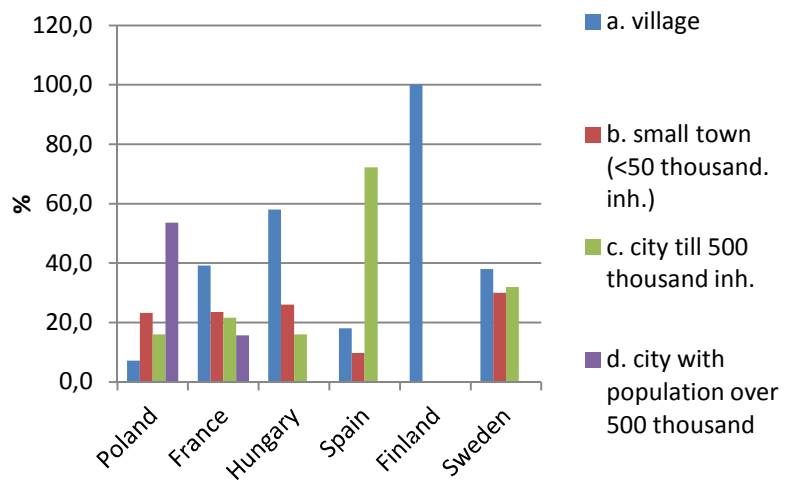


Figure 3b: The research group by country – by living place (%)

## EDUCATION

- a. Basic (primary school)
- b. Secondary school
- c. Collage
- d. Universities

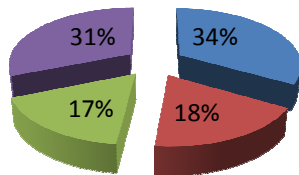


Figure 4a: The research group by education (%)

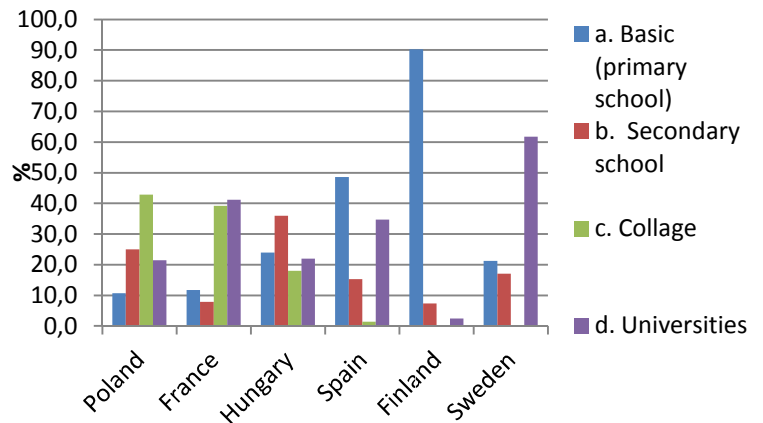


Figure 4b: The research group by country – by education (%)

## EARNINGS

- a. below the national average
- b. similar to the national average
- c. above the national average

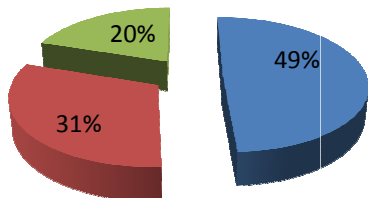


Figure 5a: The research group by earnings (%)

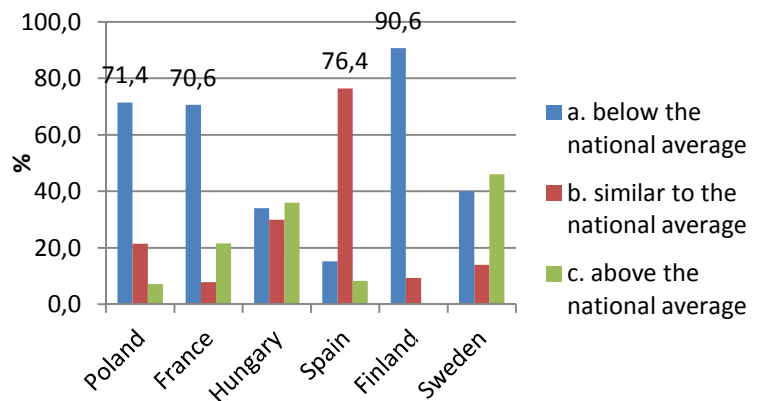


Figure 5b: The research group by country- by earnings (%)

## WORK STATUS

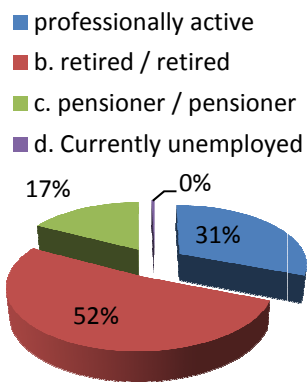


Figure 6a: The research group by work status (%)

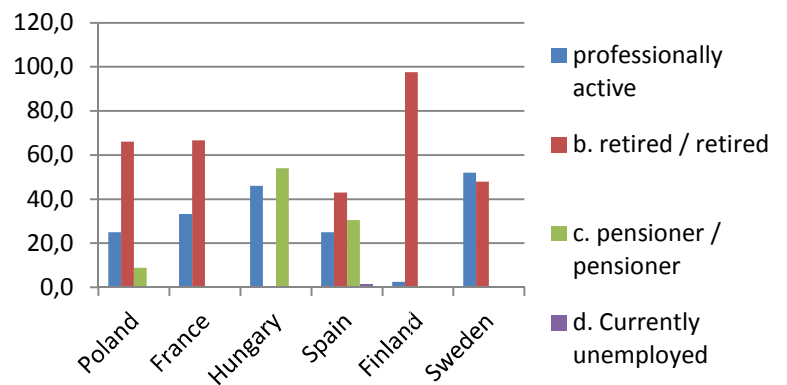


Figure 6b: The research group by country – by work status (%)

### NUMBER OF PEOPLE IN HOUSEHOLD

- a. I am a lonely person
- b. I live with a spouse / partner
- c. I live alone with a child
- d. I live with a spouse / partner and child / children
- e. other

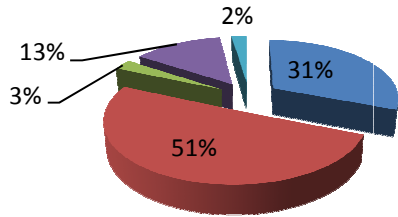


Figure 6a: The research group by number of people in household (%)

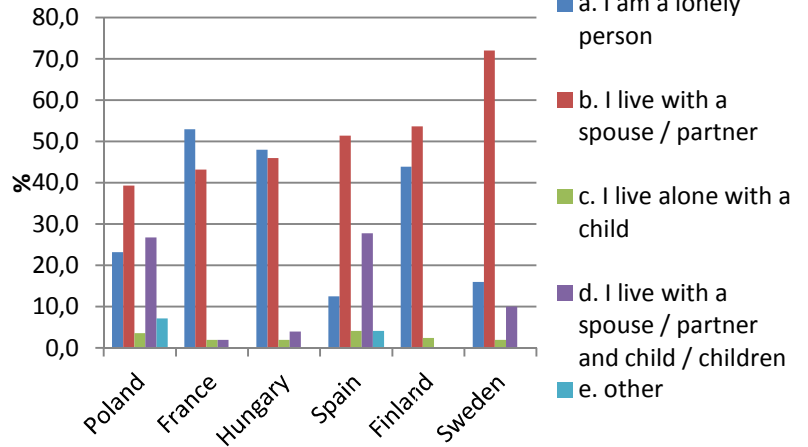


Figure 6b: The research group by country –by number of people in household (%)

### BMI (Body Mass Index)

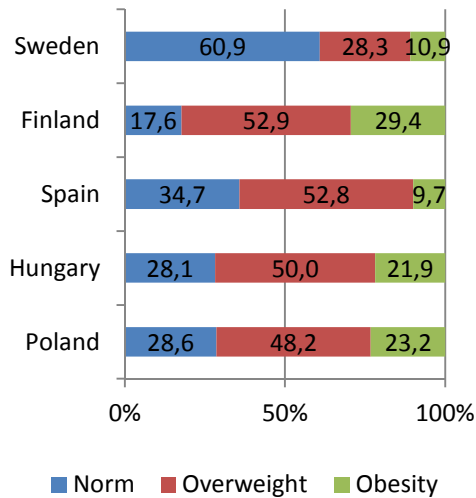


Figure 7a: The research group by BMI (%)

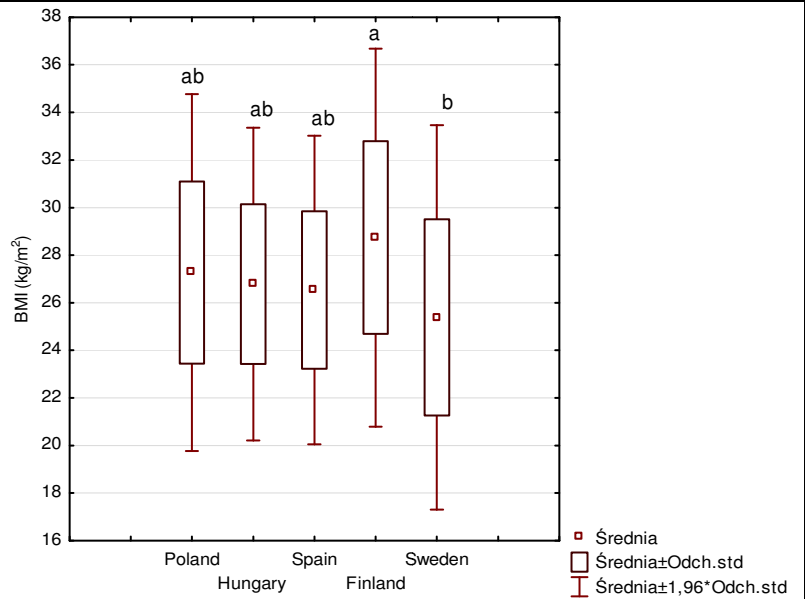


Figure 7b: The research group by BMI (mean, standard deviation)

The respondents **included 68% of women and 32% of men**. In all six countries the amount of woman was bigger than man. The available data (EUROSTAT) confirm around 40% more women than men among the EU population aged 65 and over. **Almost half (49%) of the study population included the people in age 55-65**. This situation looks similar among five countries, only in Finland the largest age group was 76-85 and extremely larger group of people were over 86 (26%). Such age structure may cause significantly different results for Finland compared to other countries. Moreover the Finish group was classified in 100% like a village population, but in Poland 54% of group declared as **place of living** the city with population over 500 thousand inhabitants. In Hungary, Spain, Finland and Sweden nobody indicated this response. Similar situation was noticed in question of **education**. 90% of the Finish group indicated basic education, when in others countries the division was more evenly. In total group, app. half population declared having a **monthly income** below the national average, and 20% above the national average. Once again, the Finish group seems to be different from others but simultaneously very homogeneous (91% - below the national average). Similar results obtained in Poland (72%) and France (71%). In Spain as much as 77% group declared their monthly income similar to the national average. The richest research group were Hungary and Sweden (accordingly 36 and 46% with income above the national average. But it has a direct connection with a **work status** data. Among the Swedish and the Hungarian group were the bigger amount of still professionally active respondents (accordingly 52% and 46%). Almost all (98%) of the Finish group, 75% of the Polish, 67% of the French and app. half the Hungarian, the Spanish and the Swedish group was not professionally active any more.

It is presumed the big influence for nutrition habits has a **household size**. 31% of study group there were people lived in single household (mostly in France, Hungary and Finland), 67% lived with other people in so-called “multi-generational” households (spouse/ partner, child/ children).

The assessment of nutritional status by **BMI (Body Mass Index)** indicated the largest group with optimal body weight in Swedish population (61%), and the smaller group in Finish (18%). There was not reveal any statistically significant differences between Poland, Spain, Hungary and Finland, as well as between Poland, Spain, Hungary and Sweden (chi square test,  $p < 0,0001$ ). Except Sweden, it was noticed the serious problem with overweight and

obesity among elderly population. The data collection method among the French population, did not allow for BMI index calculation and further analysis.

The study population is not statistically homogeneous. In all questions there were a statistically significant difference between countries ( $p < 0,0001$ ). Unfortunately it does not allow for generalization of results and inferences about the whole population of people +55 in studied countries.

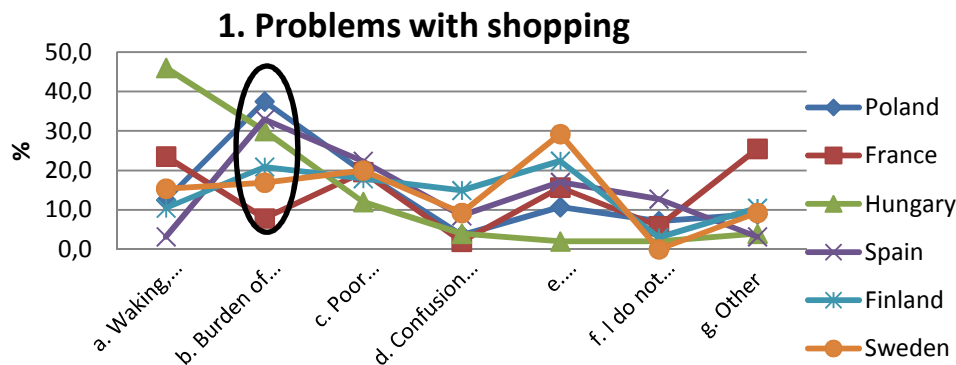
## 5.1. Results part II

1. What is your biggest problem during shopping?	a. Waking, reach to the shop	b. Burden of bags	c. Poor visibility of prices, labeling	d. Confusion in the store, insufficient knowledge about food	e. Excessively high prices	f. I do not make purchases	g. Other
<b>Poland</b>	12,5	37,5	19,6	3,6	10,7	7,1	8,9
<b>France</b>	23,5	7,8	19,6	2,0	15,7	5,9	25,5
<b>Hungary</b>	46,0	30,0	12,0	4,0	2,0	2,0	4,0
<b>Spain</b>	3,2	33,0	22,3	8,5	17,0	12,8	3,2
<b>Finland</b>	10,4	20,9	17,9	14,9	22,4	3,0	10,4
<b>Sweden</b>	15,4	16,9	20,0	9,2	29,2	0,0	9,2

Burden of bags was the biggest problem for the Polish and the Spanish population.

High prices of products indicated the most people in the Scandinavian countries, but to reach to the store came out problem for almost half Hungarian group.

Burden of bags can be notice like the problem of people living in cities and using public transport for shopping.



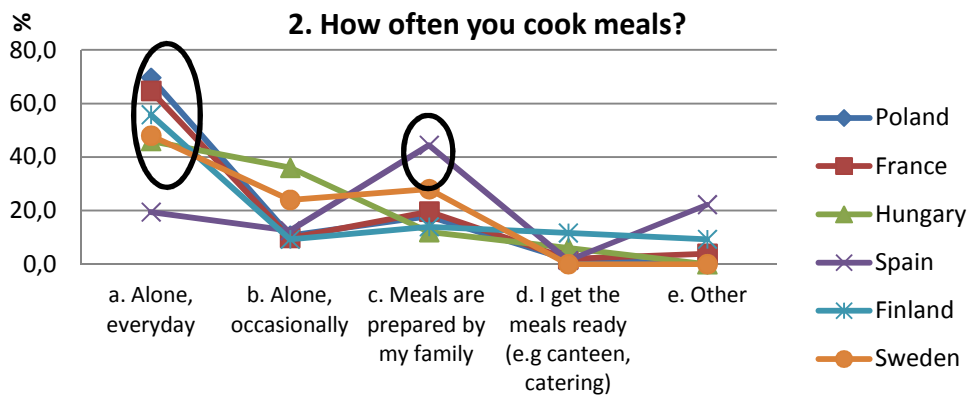


2. How often you cook meals:	a. Alone, everyday	b. Alone, occasionally	c. Meals are prepared by my family	d. I get the meals ready (e.g canteen, catering)	e. Other
Poland	69,6	10,7	17,9	1,8	0,0
France	64,7	9,8	19,6	2,0	3,9
Hungary	46,0	36,0	12,0	6,0	0,0
Spain	18,9	12,2	43,2	1,4	21,6
Finland	64,9	10,8	16,2	13,5	10,8
Sweden	48,0	24,0	28,0	0,0	0,0

In five countries out of six, the study groups prepared the meals everyday alone.

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The exception was Spain, where almost half group had meals prepared by family members. It is not correlated with gender or number of people in household.

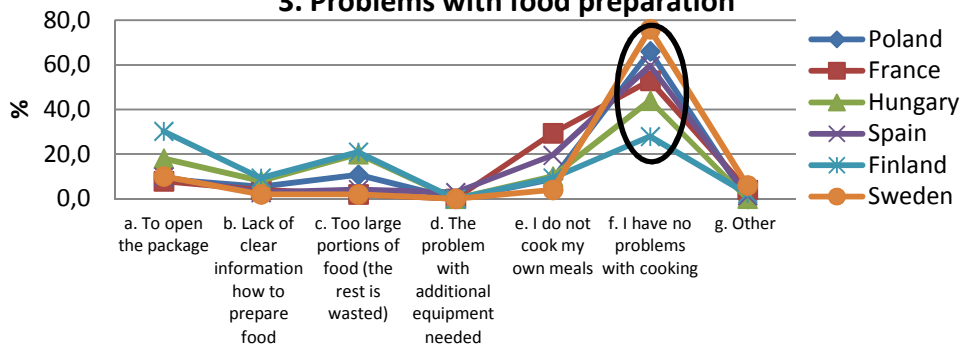


3. What problems do you have during preparing meals?	a. To open the package	b. Lack of clear information how to prepare food	c. Too large portions of food (the rest is wasted)	d. The problem with additional equipment needed	e. I do not cook myself	f. I have no problems with cooking	g. Other
Poland	8,9	5,4	10,7	0,0	8,9	66,1	0,0
France	7,8	3,9	2,0	0,0	29,4	52,9	3,9
Hungary	18,0	8,0	20,0	0,0	10,0	44,0	0,0
Spain	9,7	2,8	4,2	2,8	19,4	59,7	1,4
Finland	30,2	9,3	20,9	0,0	9,3	27,9	2,3
Sweden	10,0	2,0	2,0	0,0	4,0	76,0	6,0





### 3. Problems with food preparation



In five countries out of six, the majority of seniors declared not having any difficulties with cooking.

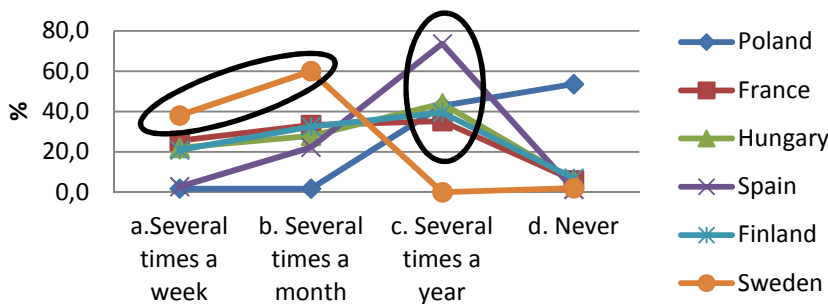
However, in Hungary and Finland, the respondents

who prepared their meals by themselves indicated that they had problems with using excessively large food portions and with opening the package.

4. How often do you eat your meals outside? (restaurant, bar)	a. Several times a week	b. Several times a month	c. Several times a year	d. Never
<b>Poland</b>	1,8	1,8	42,9	53,6
<b>France</b>	25,5	33,3	35,3	5,9
<b>Hungary</b>	22,0	28,0	44,0	6,0
<b>Spain</b>	2,8	22,2	73,6	1,4
<b>Finland</b>	20,9	32,6	39,5	7,0
<b>Sweden</b>	38,0	60,0	0,0	2,0

Mostly of study groups indicated eating outside no more than several times a year.

### 4. How often do you eat meals outside?

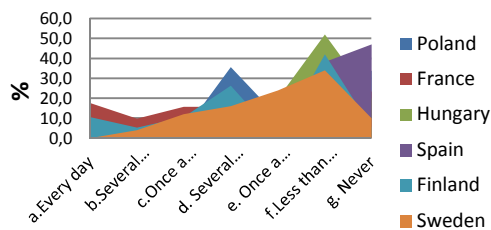


The most often eating outside the Swedish population, but the most seldom: the Polish one.

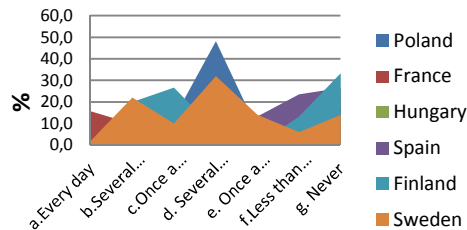
## 1. Frequency regarding different kinds of meals

5a. Products only to reheat at home (e.g., frozen dumplings)	a. Every day	b. Several times a week	c. Once a week	d. Several times a month	e. Once a month	f. Less than once a month	g. Never
<b>Poland</b>	0,0	0,0	3,6	35,7	10,7	16,1	33,9
<b>France</b>	17,6	9,8	15,7	15,7	3,9	13,7	23,5
<b>Hungary</b>	0,0	0,0	2,0	6,0	20,0	52,0	20,0
<b>Spain</b>	0,0	1,5	2,9	2,9	7,4	38,2	47,1
<b>Finland</b>	10,5	5,3	10,5	26,3	0,0	42,1	5,3
<b>Sweden</b>	0,0	4,0	12,0	16,0	24,0	34,0	10,0

5a. Products to reheat at home



5b. Intermediate products



5b. Intermediate products (e.g. minced meat, peeled carrots)	a. Every day	b. Several times a week	c. Once a week	d. Several times a month	e. Once a month	f. Less than once a month	g. Never
<b>Poland</b>	0,0	12,5	12,5	48,2	7,1	7,1	12,5
<b>France</b>	15,7	9,8	7,8	25,5	5,9	17,6	17,6
<b>Hungary</b>	0,0	2,0	0,0	14,0	13,0	21,0	0,0
<b>Spain</b>	0,0	8,8	11,8	16,2	13,2	23,5	26,5
<b>Finland</b>	0,0	20,0	26,7	6,7	0,0	13,3	33,3
<b>Sweden</b>	2,0	22,0	10,0	32,0	14,0	6,0	14,0

5c. Fresh products	a. Every day	b. Several times a week	c. Once a week	d. Several times a month	e. Once a month	f. Less than once a month	g. Never
<b>Poland</b>	28,6	51,8	1,8	7,1	1,8	3,6	5,4
<b>France</b>	78,4	7,8	2,0	2,0	3,9	2,0	3,9
<b>Hungary</b>	15,0	25,0	6,0	1,0	0,0	3,0	0,0
<b>Spain</b>	80,6	19,4	0,0	0,0	0,0	0,0	0,0
<b>Finland</b>	78,1	6,3	3,1	6,3	0,0	0,0	6,3
<b>Sweden</b>	34,0	48,0	2,0	6,0	4,0	6,0	0,0

People +55 in all six countries very seldom (or never) used the products ready to eat (to reheat at home).

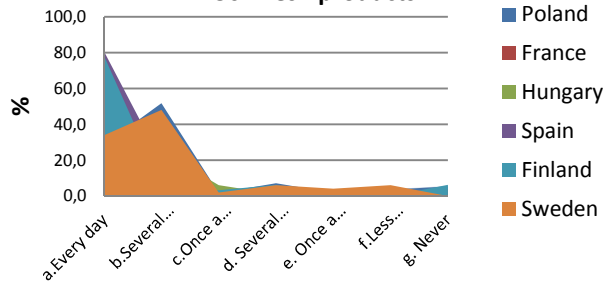
Much more likely they reached for fresh products, which were almost every day.

Moreover people +55 did not use often the intermediate products (usually few times per monthly or more seldom).

The reason for this may be greater attachment to the tradition, unwillingness to accept the new products and more leisure time which can be devote to cooking.

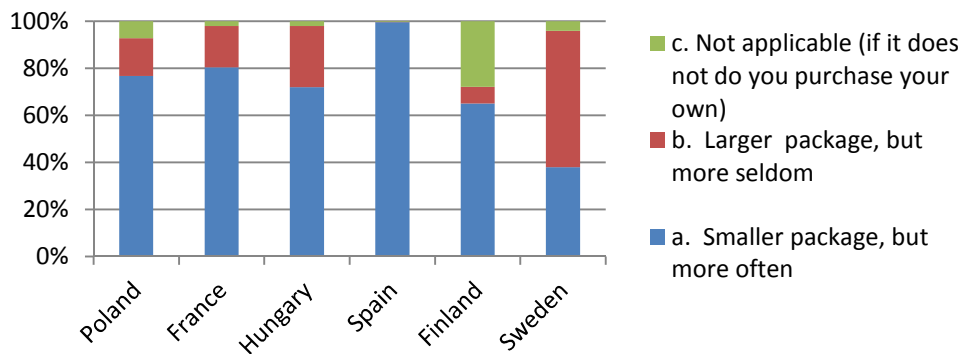


5c. Fresh products



6. Do you prefer buy food:	a. Smaller package, but more often	b. Larger package, but more seldom	c. Not applicable (if it does not do you purchase your own)
Poland	76,8	16,1	7,1
France	80,4	17,6	2,0
Hungary	72,0	26,0	2,0
Spain	70,8	0,1	0,2
Finland	82,4	8,8	35,3
Sweden	38,0	58,0	4,0

6. Which kind of food package you prefer to buy the most?



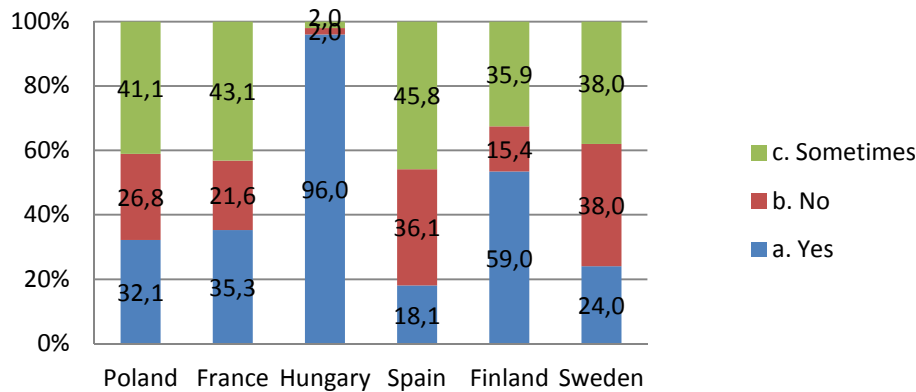
In five countries out of six, people +55 much more preferred to buy smaller package of food but more often. This kind of food can be more expensive than packed in larger portions.

These results show that for older people comfort (bags weight) is more important than the lower price. It can be also associated with reduced mobility among some +55 people, as well as the treatment of shopping like amusement and a reason to go out of the house.



7. Do you like to eat snacks between meals?	a. Yes	b. No	c. Sometimes
Poland	32,1	26,8	41,1
France	35,3	21,6	43,1
Hungary	96,0	2,0	2,0
Spain	18,1	36,1	45,8
Finland	59,0	15,4	35,9
Sweden	24,0	38,0	38,0

7. Do you like to eat snack between meals?



The vast majority of study participants declared to reach for snacks between main meals.

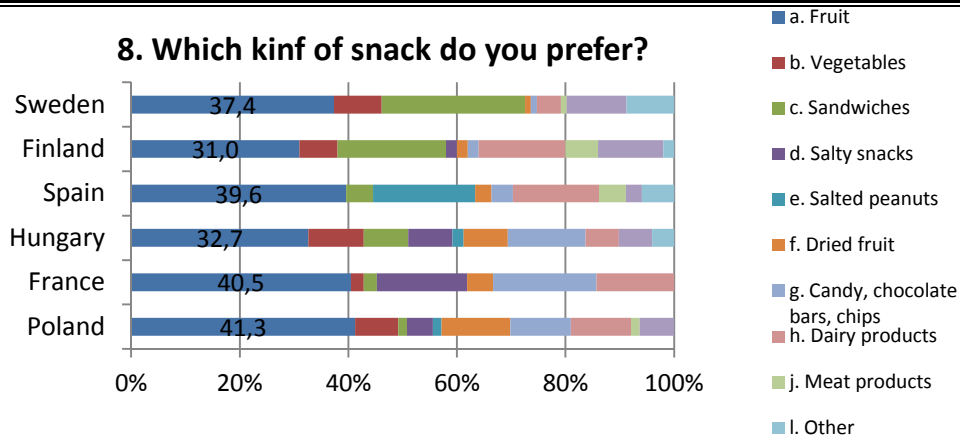
Only one out of six **20** population (Spain) denied having the habit of eating between meals in 36% and 47% declared to do it time to time.

8. Which kind of snacks do you prefer?	a. Fruit	b. Vegetables	c. Sandwiches	d. Salty snacks	e. Salted peanuts	f. Dried fruit	g. Candy, chocolate bars, chips	h. Dairy products	j. Meat products	k. Sweet bread	l. Other
Poland	41,3	7,9	1,6	4,8	1,6	12,7	11,1	11,1	1,6	6,3	0,0
France	40,5	2,4	2,4	16,7	0,0	4,8	19,0	14,3	0,0	0,0	0,0
Hungary	32,7	10,2	8,2	8,2	2,0	8,2	14,3	6,1	0,0	6,1	4,1
Spain	39,6	0,0	5,0	0,0	18,8	3,0	4,0	15,8	5,0	3,0	5,9
Finland	31,0	7,0	20,0	2,0	0,0	2,0	2,0	16,0	6,0	12,0	2,0
Sweden	37,4	8,8	26,4	0,0	0,0	1,1	1,1	4,4	1,1	11,0	8,8

Very positive results were obtained by asking about the most common snacks. In all six countries, the vast majority of respondents indicated fruits.

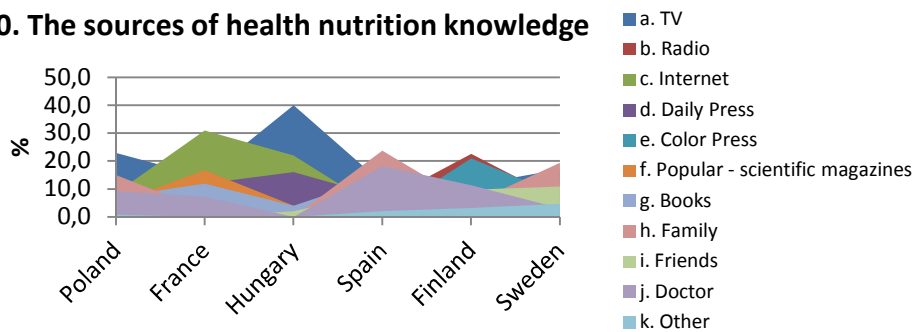
Dairy products (!) were chosen often in France, Spain and Finland.

### 8. Which kind of snack do you prefer?



10. What is the source of your health nutrition knowledge	a. TV	b. Radio	c. Internet	d. Daily Press	e. Color Press	f. Pop. – scientific magazine	g. Books	h. Family	i. Friends	j. Doctor	k. Other
<b>Poland</b>	22,9	8,6	8,6	5,0	11,4	5,0	7,1	15,0	6,4	9,3	0,7
<b>France</b>	14,3	4,8	31,0	11,9	0,0	16,7	11,9	2,4	0,0	7,1	0,0
<b>Hungary</b>	40,0	10,0	22,0	16,0	2,0	4,0	4,0	0,0	2,0	0,0	0,0
<b>Spain</b>	12,1	5,6	2,0	7,1	0,5	5,1	14,6	23,7	9,1	18,2	2,0
<b>Finland</b>	11,3	22,6	1,6	1,6	21,0	9,7	3,2	4,8	9,7	11,3	3,2
<b>Sweden</b>	17,1	6,2	5,4	10,9	7,8	2,3	12,4	19,4	10,9	3,1	4,7

### 10. The sources of health nutrition knowledge



The respondents were asked about the source of knowledge of healthy nutrition. The Poles and Hungarians

were most often influenced by television, Finns by radio, whereas the Swedish and Spanish followed the most often the recommendations and opinion of family.

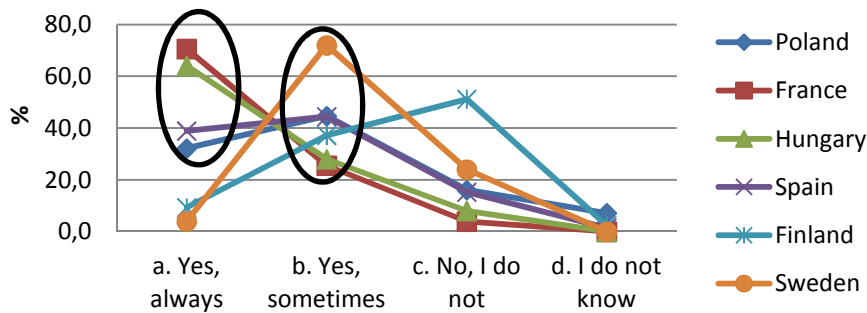
In five countries out of six,

senior consumers read the labels of food products always or at least time to time.

This activity did not declared the highest percentage of seniors in Finland (51%) and Sweden (24%)

11. Do you read the products label during shopping?	a. Yes, always	b. Yes, sometimes	c. No, i do not	d. I do not know
<b>Poland</b>	32,1	44,6	16,1	7,1
<b>France</b>	70,6	25,5	3,9	0,0
<b>Hungary</b>	64,0	28,0	8,0	0,0
<b>Spain</b>	38,9	44,4	15,3	1,4
<b>Finland</b>	9,3	37,2	51,2	2,3
<b>Sweden</b>	4,0	72,0	24,0	0,0

### 11. Do you read the products label during shopping?



12. The most important inf. on product's label?	a. Calories	b. Composition	c. Health promoting properties	d. Natural ingredient	e. Presence or absence of preservatives	f. The degree of product processing	g. The origin of the product	h. I do not pay attention to any information	i. Others
Poland	13	32	3	9	17	5	10	10	0
France	15	42	6	13	10	0	13	0	0
Hungary	26,0	20,0	16,0	20,0	12,0	0,0	4,0	2,0	0,0
Spain	8,0	16,6	12,6	19,4	14,9	1,7	16,6	8,0	2,3
Finland	8,6	17,1	17,1	14,3	10,0	0,0	25,7	7,1	0,0
Sweden	8,4	21,8	10,1	17,6	6,7	0,8	31,1	3,4	0,0

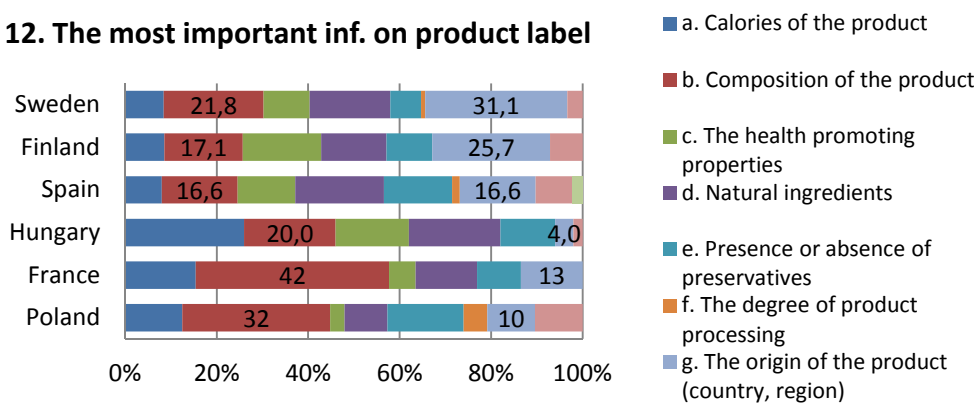
The elderly paid special attention to the composition, health properties (four countries), natural ingredients and the origin of the products (Spain, Finland, Sweden).

It seems that this situation is caused by the fact that the elderly are attached to traditional tastes and pay special attention to their health.

The results indicated that for elderly the origin of the product is important (region, country). It is anticipated that this information may be more important for older people than younger.

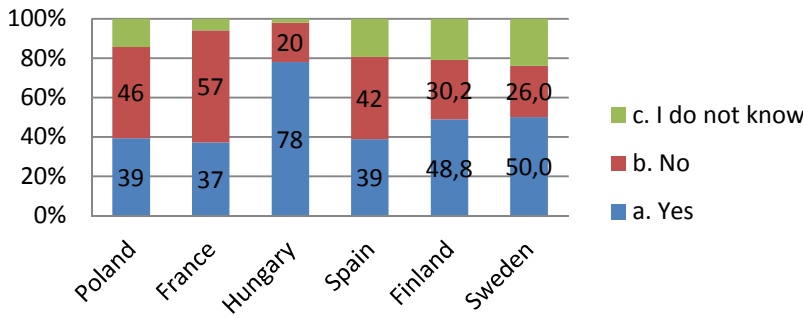
The information on products label were good enough for both

### 12. The most important inf. on product label



13. Do you think that food is labeled well enough?	a. Yes	b. No	c. I do not know
Poland	39	46	14
France	37	57	6
Hungary	78	20	2
Spain	39	42	19
Finland	48,8	30,2	20,9
Sweden	50,0	26,0	24,0

### 13. Do you think food is labeled well enough?



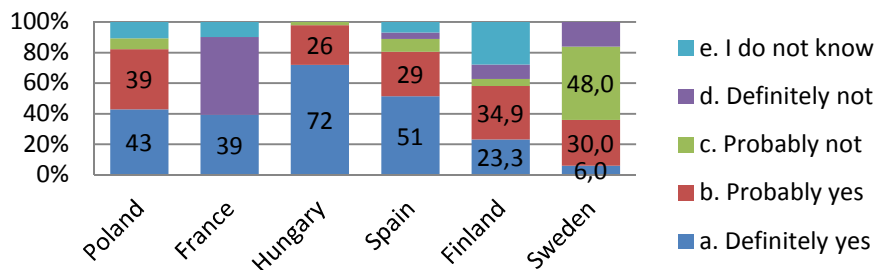
Scandinavian countries and Hungary.

Simultaneously in the other three countries (Poland, France, Spain), app. half of respondents expressed the opinion about insufficient food product labeled. In addition in Finland and Sweden also the large percentage of respondents confirmed this opinion.

14. Should the products label contain the inf. about target group? (e.g. for elderly)	a. Definitely yes	b. Probably yes	c. Probably not	d. Definitely not	e. I do not know
Poland	43	39	7	0	11
France	39	0	0	51	10
Hungary	72	26	2	0	0
Spain	51	29	8	4	7
Finland	23,3	34,9	4,7	9,3	27,9
Sweden	6,0	30,0	48,0	16,0	0,0

In our studies, two different attitudes of seniors towards the possibility of placing target group information on the product (e.g. “product recommended for people over 60 years of age”) were reported.

### 14. Should the products label contains inf. about target group?



Especially in France (51%) the results showed an expressively negative attitude.

This discrepancy may result from a different approach to the senior stage of life and cultural differences.

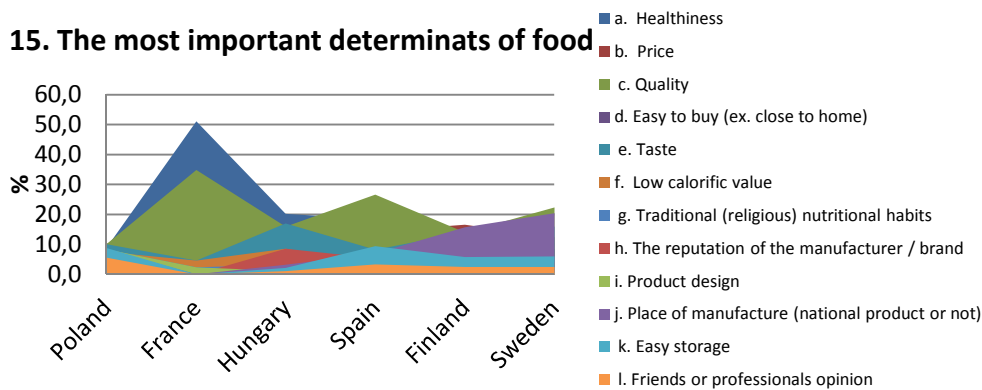


15. What is important for you concerning food?	a. Healthiness	b. Price	c. Quality	d. Easy to buy	e. Taste	f. Low calorific value	g. Traditional, nutritional habits	h. The reputation of the manufacturer / brand	i. Products design	j. Place of manufacture	k. Easy storage	l. Friends or professionals opinion
Poland	9,0	8,4	10,2	8,2	10,1	7,5	8,2	7,5	8,3	8,2	8,8	5,6
France	51,2	0,0	34,9	0,0	4,7	4,7	2,3	0,0	2,3	0,0	0,0	0,0
Hungary	20,2	14,9	16,0	4,3	17,0	8,5	3,2	8,5	1,1	3,2	2,1	1,1
Spain	18,4	14,3	26,6	4,1	8,2	3,3	0,0	5,3	0,0	7,0	9,4	3,3
Finland	11,6	16,5	14,0	6,6	14,0	4,1	0,8	5,0	3,3	15,7	5,8	2,5
Sweden	8,5	12,4	22,4	3,5	15,9	4,0	0,0	4,0	0,5	20,4	6,0	2,5

The results of this question confirm the data from q. 12.

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15. The most important determinants of food

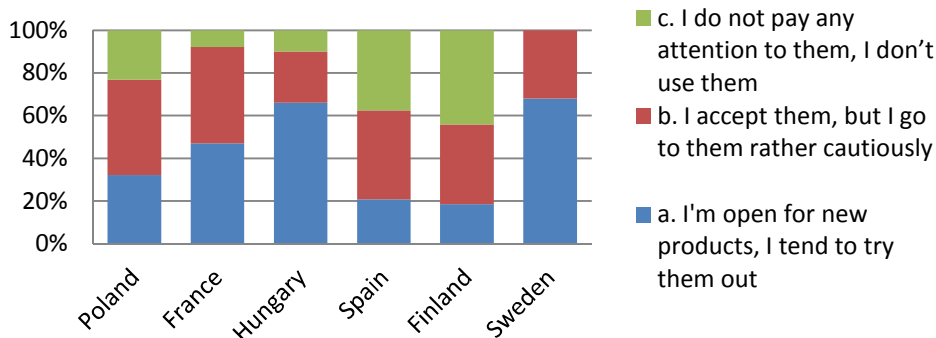


It seems that elderly paid special attention to quality and healthiness of food in all six countries. Moreover, the price and taste were also important factor in choosing the products.

16. What is your approach to new products?	a. I'm open for new products, I tend to try them out	b. I accept them, but I go to them rather cautiously	c. I do not pay any attention to them, I don't use them
Poland	32,1	44,6	23,2
France	47,1	45,1	7,8
Hungary	66,0	24,0	10,0
Spain	20,8	41,7	37,5
Finland	24,2	48,5	57,6
Sweden	68,0	32,0	0,0

The Hungarian, Swedish and French study groups seem the most open for new products.

16. The approach to new products



Among the Polish, French, Spanish and Finnish seniors, almost half declared an acceptance of novelties on the market, but they approached them with caution.

The Finish population



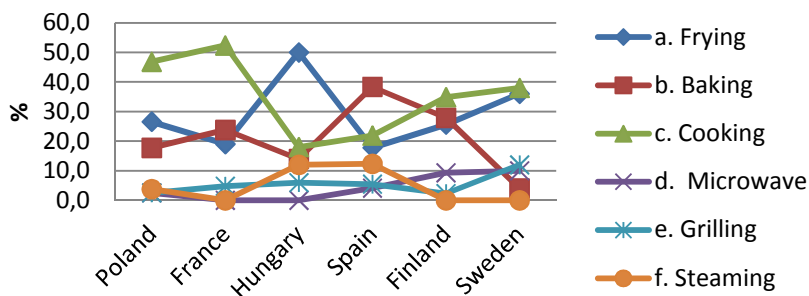
seems the most indifferent on new products appeared on food market.

17. What heat treatment method do you use most often?	a. Frying	b. Baking	c. Cooking	d. Microwave	e. Grilling	f. Steaming
<b>Poland</b>	26,6	17,7	46,8	2,5	2,5	3,8
<b>France</b>	19,0	23,8	52,4	0,0	4,8	0,0
<b>Hungary</b>	50,0	14,0	18,0	0,0	6,0	12,0
<b>Spain</b>	17,8	38,4	21,9	4,1	5,5	12,3
<b>Finland</b>	25,6	27,9	34,9	9,3	2,3	0,0
<b>Sweden</b>	36,0	4,0	38,0	10,0	12,0	0,0

25

The most unhealthy food preparation methods (frying) was chosen by half the Hungarian group, 36% of the Swedish and about 1/4 of the Polish and Finnish populations.

**17. The most popular heat treatment method**



The most modern heat treatment methods (microwave, grilling, steaming), which allow to prepare meals with limited nutrients loss were used by the seniors very occasionally.

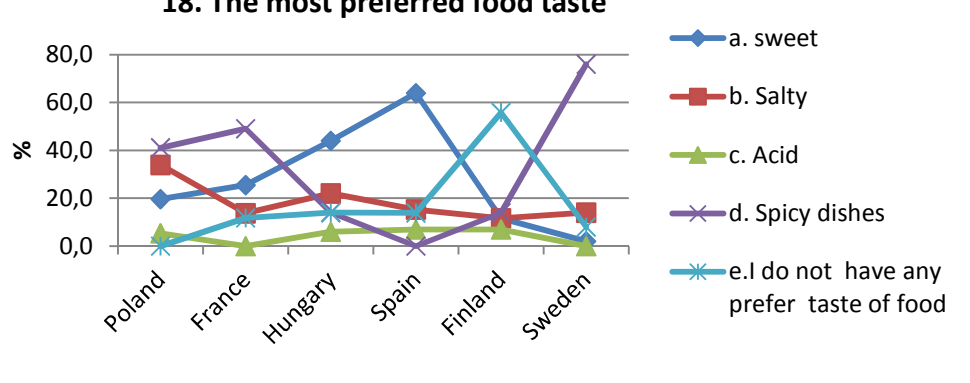
18. What is your the most preferred food taste?	a. sweet	b. Salty	c. Acid	d. Spicy dishes	e. I do not have any prefer taste of food
<b>Poland</b>	19,6	33,9	5,4	41,1	0,0
<b>France</b>	25,5	13,7	0,0	49,0	11,8

The respondents declared preferring dishes with a distinct and strong taste (Poland,

<b>Hungary</b>	44,0	22,0	6,0	14,0	14,0	France, Sweden).  The Hungarian and Spanish seniors most often were chosen a sweet dishes.  Surprisingly, more than half of Finnish respondents (56%) could not indicate favorite dishes taste.
<b>Spain</b>	63,9	15,3	6,9	0,0	13,9	
<b>Finland</b>	11,6	11,6	7,0	14,0	55,8	
<b>Sweden</b>	2,0	14,0	0,0	76,0	8,0	

**18. The most preferred food taste**



The graph shows the following approximate data points:

Country	a. sweet	b. Salty	c. Acid	d. Spicy dishes	e. I do not have any prefer taste of food
Poland	20	35	5	45	15
France	25	15	5	50	5
Hungary	45	20	5	15	15
Spain	65	15	5	5	10
Finland	15	15	5	15	56
Sweden	10	15	5	75	15

The statistical analysis (Chi square test,  $p < 0,001$ ) indicated the statistically significant differences between countries for all the questions. **The consequence is the need for consideration the data for each country separately, and no possibility of creating a homogeneous portrait of person over +55 in Europe. It is important information for companies who want to produce for more than one European region and for elderly European policy.** However, the obtained data give some picture about +55 consumer on the European food market.

People +55 definitely the **most often cook by themselves**. Mostly they eat outside no more than several times per year. Presumably they are not used to it and prefer meals cooked at home in traditional way (without food ready-to-eat and intermediates).

It seems that consumers +55 pay special attention to quality, healthiness and composition of food. The natural ingredients and the origin of the products are also important for them.

Seniors **are interested of information labelled on food products**. Therefore it is important that products dedicated for elderly has extremely **readable and accessible labels**. Seniors mostly have positively attitude towards the **indication of the target group of consumers (e. g. "for people aged +55") on the product labelling (except of the French population)**. Such information might facilitate purchasing the appropriate and recommended food products. Elderly people declared themselves mostly as being **open to novelties** on the market but with approach this with caution. The Finish population seems the most indifferent on new products appeared on food market.

The data yielded by the questionnaire indicated that while purchasing food products, the greatest **obstacle was burden of bags and the distance from the shopping** facilities. It has **influence** on elderly choices of the products in **smaller packages**, which is needed to buy more often (even with

higher price). The comfort and quality of shopping seems more important for the elderly than food price. It can be connected with decrease the mobility among +55 people, problems with health, as well as it may be due to the treatment of everyday shopping as amusement and the reason to go out of the house.

To create the guidelines for small and medium-sized companies interested in food production for the elderly it may be helpful to pay **special attention to snacking habit** among majority of +55 population. The interesting and very helpful solution would be to create **the high nutritive snacks for the elderly which it could reach by them between meals**. Moreover it has to be remembered about the distinct and strong taste preferences of elderly.

## 6. Needs for food for elderly

Now these results could be faced to the state of art made in each region concerning food for elderly. When we deal with food, the first point to know is the regulation. Are there any pieces of legislation specific to seniors? Are there regulatory differences between the different regions? Then we will see what the nutritional needs in each region are? Are there any specific nutritional needs due to special eating habits or different living conditions? Finally, examples of solutions that have been made in different region could be seen.

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### **6.1. Regulation**

There are lots of laws about food but nothing especially for elderly. Although there are no laws, for example in Finland, Sweden or France, there are national recommendations for the nutrition of elderly. According to regulations, elderly are considered a consumer like others. If the use of food supplement is authorized in all the country, a medical control is always advised.

Therefore, the regulation is not a brake for the innovation on food for elderly.

Regarding packaging design, a new standard ISO (International Organization for standardization) which title is “Packaging-Accessible design- General Requirements”, was published during 2011. The ISO 11156:2011 provides a framework for design and evaluation of packages so that more people, including persons from different cultural linguistic backgrounds, older persons and persons whose sensory, physical, and cognitive functions have been weakened, can appropriately identify handle and use the contents.

The standard design recommendations are based on ergonomic principles necessary for increasing accessibility in designing packages, encountered in all aspects of the packaging such as information, identification, handling, opening and removal of contents, storage, separation and disposal.

The accessible design of packages is a worldwide concern as long as it allows everybody to use products safety and comfortably, irrespective of age, perceptual and cognitive ability, level of physical functioning, language and culture.

### **6.2. Nutritional needs**

The result of our study is that the recommendations concerning the nutritional needs for elderly are nearly the same in each country. This result seems to be logical since we are all some human beings with similar needs for our physical and mental wellbeing. The globalization tends to level off the different way of life in each region.

Therefore, we will describe the nutritional needs and recommendations for elderly in general. The needs are mainly linked to the appearance of an illness and the recommendations given to avoid their appearance or their development.

This group of the population formed by the elderly is very heterogeneous. However, the mainly risks they have to avoid are:

- Malnutrition
- Osteoporosis
- Diabetes
- Dehydration
- Hypertension or cardiovascular disease
- Digestive disorder
- Cognitive disorder
- Osteoarthritis
- Hypercholesterolemia

To avoid malnutrition which may further accelerate the process of ageing and results in reduced quality of life for the individual, it is important to achieve and maintain a healthy nutritional status. Ageing usually reduces appetite and meals therefore need to be more energy-and nutrition dense in order to decrease portion size. The energy needed when we become older is usually less compared to younger adults due to changes in body composition (less muscle/more fat) and a "reduced" physical activity. However, since elderly are a heterogeneous group the actual energy need is highly individual. A person at risk of malnutrition needs less fiber to reduce portion size but at the same time more fat to increase the energy content. Fat quality is of importance where less saturated fat and more mono-and poly unsaturated fatty acids are recommended in order to avoid, for instance cardiovascular diseases and hypercholesterolemia. One has to be aware of that a diet with less fiber might increase the frequency of obstipation. Carbohydrate intake should be controlled not only due to fiber content but also in order to reduce intake of sugar. A controlled diet for salt and sugar is of importance for hypertension and diabetic control. It has been shown that elderly who are able to maintain an adequate intake of energy and protein will have a decreased risk of ill health and a reduced process of sarcopenia (age-related loss of skeletal muscle mass and consequently, strength and mobility), especially in conjunction with exercise. However, it is important to keep in mind that elderly may have a decreased renal function. A high protein intake might therefore possibly result in kidney damages. Vitamins and micronutrients of special importance for elderly are:

- Vitamin D – Usually difficult to achieve the recommendations only with food since elderly often have a low intake in conjunction with a high requirement in order to avoid osteoporosis.

- Vitamin B's (B12) - Elderly people frequently have low levels which may affect cognitive function and in worst cases result in dementia-like symptoms.
- Vitamin C - Elderly people frequently have low levels due to a low consumption of fruit and vegetables
- Calcium - The absorption of calcium decreases with age. A low intake of dairy products also aggravates the condition and may increase the risk of osteoporosis.
- Zink – Studies have shown that deficiency in zink may be common among elderly

Since elderly are more prone to dehydration the recommendations for fluids are higher for this group of individuals compared with young adults.

Even healthy seniors may need to change their diet in order to avoid development of diseases while ill seniors need to change their diet in order to increase their quality of life. Figure 4 summarizes the recommendations identified and promoted in order to avoid development of diseases.

Recommendations / Nutritional needs identified	Effect on:
Energetic and protein diet	Malnutrition and sarcopenia
Adequate intake of dairy	Osteoporosis
Adequate intake of water	Dehydration
Controlled carbohydrate intake	Diabetes,
Fiber (carbohydrate)	Meal size, obstipation
Limited power in salt	Hypertension
Limited power in saturated fatty acids	Cardiovascular disease and hypercholesterolemia
Vitamin and minerals	Osteoporosis, cognitive disorders etc
Antioxidants	Removal of free oxygen radicals

Figure 4: Summary of nutritional needs and recommendations identified to avoid diseases and promote healthy ageing.

Despite that all these recommendations are known, the products with these qualities are rarely found. Even if the nutritional needs are known, there exists several other factors of importance these diseases and there are lots of relationships between physical activity, socioeconomic constraint, psychological state and the nutritional status.

## 6.2.1. Examples of solutions found

Nutritional needs have been studied by lot of companies and we find actually ever some products for example in all Bio Life project countries:



Danone Activia Low Fat, the texture is between milk and yoghurt and fat<2% ( dec 2010)

31







HALLES MANDAR in FRUIT, the product is rich in fiber and natural nutrients (may 2010)

✓ PRODUCTS (ASTURIAS)	
	<p>This product contains royal jelly, which is a natural ingredient that helps to increase vitality and energy. In addition, it also provides the vitamins and minerals dose that the body needs daily.</p>
	<p>This milk allows incorporating the 40 % of fiber that the body needs a day. It also contains “Regulaplus” that is a supplement very recommendable in cases of constipation.</p>

	<p>It is fiber milk with “Regulaplus” and chocolate flavour ideal for taking away (200 ml) and consuming outside.</p>
	<p>Naturcol contains phytosterols, an ingredient from vegetable origin that lowers cholesterol levels by competing with cholesterol for absorption in the intestine.</p>
	<p>Milks with a high content of calcium and D vitamin. It provides 50 % recommended quantity of Calcium in each glass. In addition, the D vitamin facilitates the absorption of calcium and helps to strengthen the bones and teeth.</p>
	<p>AlproSoja products have all the nutritional properties of soy that is low in saturated fat and source of calcium and vitamins.</p> <p>They are also made from non-GM soybeans and manufactured in an unit specifically for soy products. They are suitable for allergy to lactose, coeliacs and vegetarians as they contain no cholesterol, lactose and gluten and are easy to digest.</p>
<p>✓ OTHER SPANISH PRODUCTS</p>	



	<p>Skimmed milk enriched with Omega 3 fatty acids and antioxidant vitamins. It is suitable for osteoarthritis cases.</p>
	<p>It is a combination of a family of juices with different flavours (orange, mango, peach, etc) with all the properties and benefits of the soya.</p>
	<p>It is a new Chicken stock, low in salt and fat. It contains a new ingredient called "Vital +", especially developed for this company like a salt alternative. It is suitable in cases of hypertension, deglutition and chewing.</p>
	<p>It is a new line of sliced products: ham and turkey low in salt. It is suitable in cases of hypertension, deglutition and chewing.</p>
	<p>These meat products do not contain any lactose, gluten and egg. The company has developed a new brand of products called "Equilibra" low in salt and enriched with fiber.</p>

The number of innovations based on the nutritional needs is practically without a limit. Therefore this is an axis of development and innovation for SMEs, because they could modify their product either in changing ingredients either in adding supplements, to create a product to the elderly.

## 4.3. Packaging needs

### 4.3.1. General comments

With ageing, the adequate supply of food is sometimes limited by several factors: decreasing physical ability to go shopping, overcoming the obstacles of housing (e.g. lack of lift) or transport, the declining purchasing power; lack of information and advice to achieve balanced diets or therapeutic enjoyable and affordable, and so on.

The shortages in the capacity to carry out activities of daily living, often affecting the handling and food preparation and the handling of some dishes (for example, eat soup, cut meat, etc.) and are factors that contribute to the consumption of restrictive or unbalanced diets or unbalanced.

The culinary habits and cooking manipulation that elderly have are often not adequate to preserve the wealth of nutrients from food (vegetables prolonged maintenance of soaking, boiling too long and exposure to light, and so on.).

Some innovations or some changes in the packaging of the product could improve the capacity of the elderly to stay at home in a good health.

### 4.3.2. Example of solutions found

Packaging is an important axis of improvement too.

Today, packaging manufacturers offer new solutions for packaging facilities for the elderly. Here are some non-exhaustive examples of solutions found:

- Usability



The use of a **doypack** with an “easy open” instead of a can for corn



The **Bapco Closures Company**

The composition of the system is a sheet of aluminum welded to a plastic collar (see photo). Pulling the collar, the aluminum sheet reveals the product. It has a tin that open easily.

Date offering for sale January 2010

35



**Peel-open lids on the cans**, which can adapt to the physical condition of any person, because it decreases the difficulty of gripping and the strength and dexterity required to open, which are the main difficulties to open a tin.



Classic ring pull



New kind of ring pull easier to use



Improved ring pull canned

➤ Labeling

Labeling is often a problem for elderly because they are not able to read the information given by the label. Therefore, we search which kind of thing have been done to solve this issue.

Packagers need to pay attention to both aspects of the label, color and type of the label.

Certain colors are easier on the eyes for people who have macular degeneration or glaucoma. Bold labels with a contrasting color background are easier to read. Seniors are going to pay attention to the coloring, not only the color of the package itself but also the lettering. So one has to make sure the font size is right, the coloring is right and not to put one color on top of another.

The font of the words on packaging label should be bigger and easier to be seen and understood.

Also, as eyes age, seniors perceive colors differently, eyesight yellows, white looks yellow. Legibility is also an issue for seniors losing part of their sight. Regulations require the inclusion of more and more type on labels, yet the labels cannot expand to allow the size of the type to increase. More type means smaller point size and a greater risk for the seniors not to read the labels.

So a regulation or a more stringent standard for the labeling and in particular the design of the characters would allow easing the readability of the information on labels.

The development of packaging solutions allowing for easy opening, reclosable opening systems for splitting volumes, gripping systems facilities by adding handles... are solutions that most of time exist but are not incorporated into the design product because the senior target has not been taken into account. In addition, these systems are not necessarily known and no communication to raise awareness of these issues has been made with food SMEs. It would be an important area for improvement to provide a support to SMEs in their product development that integrates the target senior and features. This is all the more an area of development that these products are often more functional and easier to use than competing products. This type of innovation may be the cause of a real gain for senior consumers but also for consumers in general. It may give advance for the company that has developed or used this kind of solution. For example, For example, the remote for the TV was invented for the disabled at the origin and now all have a television. In the early years, the remote was an added value to the industrial market of this product.

#### **4.4. Others needs of the elderly**

After the nutritional needs we have to study the specificity of the needs of elderly because of their age, for example:

➤ Sensory decrease

Gradually, a decrease of sensory perception can affect the smell, sight and taste, all affecting the stimulation of the appetite. Although the taste sensitivity declines with age, there are variations depending on the quality of taste and considered mouth area; it is also found an increased appetite for sweet and savoury flavours, relative to younger ages. Disturbances of smell result in a decrease in olfactory sensitivity and a reduced ability to identify smells.

➤ Oral changes

The mouth is a core area for the first phase of digestion of food (chewing and swallowing) and at this stage the teeth and saliva play a vital role. With age the integrity of the teeth and jaws insert into the alveoli begins to damage, the deterioration of aging can be produced, on numerous occasions, by bad oral hygiene habits.

Aging leads to a decrease in the secretion of digestive juices and saliva among them, and this often leads to the sensation of dry mouth (often increased by the use of some medications, for example, of ant cholinergic action) and makes both chewing and swallowing difficult.

➤ Modifications of the digestive function

Special mention of the changes outlined in the previous section, with aging can see a number of changes which tend to slow but that, overall, have little impact on the process of digestion and utilization of nutrients. The decrease of peristalsis, hypoquyilia and hypochlorhydria requires an adequate distribution of food in a larger number of intakes per day, avoiding large meals.

The decrease in gut motility produces constipation and may allow the emergence of diarrheal rebound phase, with consequent reductions in nutrient absorption. For that reason, it is very important to instil dietary and hygiene habits which help the proper bowel movement and defecation habits into people of advanced age.

➤ Interaction drug nutrient

Although not to be confused with the process of aging, it is true that the elderly have an increased incidence of diseases, many of them of long duration, requiring drug treatment. Consequently, many seniors are people polypharmacy, which increases the risk of interactions not only between drug-drug, but also among drug-food, drug-nutrient and drug-nutritional status. These interactions can affect both the nutritional status of the patient and the therapeutic effect of some drugs, i.e., ultimately the quality of life.

➤ Sarcopenia ( loss of muscle)

One of the most important changes in body composition that usually accompanies aging is the decrease in lean metabolically activity, especially caused by loss of muscle mass (sarcopenia) and cells from different organs and tissues. It is unclear to what extent these

changes are due to age or a sedentary lifestyle at this stage. This produces a lower basal metabolic rate and consequently, lower energy requirements, compromising the food intake and therefore the energy and nutrients. The reduction of muscle mass affects the mobility increases the risk of falls and adverse changes in functional capacity. It also indicates a loss of protein stores, most at risk of malnutrition and immune system dysfunction, conditions that are prevalent among the elderly

➤ Presence of disease

In the elderly there is a greater prevalence of diseases and especially long-term illnesses or chronic conditions that require dietary treatment. The establishment of therapeutic diets in a general way and without regarding to the habits and desires of each individual can help increase the monotony and lack of appetite for food, contributing to increase the risk of malnutrition.

With aging the incidence of lactose intolerance increases, a fact that causes many elderly refuse dairy foods without proper guidance, with the consequent risk of a deficit in calcium intake.

The depression and dementia are two diseases that, at a cognitive level, favour the risk of malnutrition in this group, not only by the losses in the ability to feed themselves, but also by the inability often have to remind yourself and when they have eaten or drunk. It requires attention and careful monitoring.

➤ Psychosocial factors, economic and cultural rights

Food tends to cover a series of requirements that the elderly person has, like the rest of the components of our society. These needs fall into the areas of *security, satisfaction, respect and coexistence, self-esteem and esteem from others*. The contribution of different rewards to each of these areas, through the act of eating, stimulates the habit of feeding.

The losses suffered by many elderly are increased over the years (at an emotional level by the loss of colleagues and friends, financial difficulties, low self-esteem for non-acceptance of old age, etc.) increase the need before mentioned, the lack of incentives and necessary support to the characteristics of each individual involved, in many cases, loss of interest in food, with consequent nutritional risk, this may increase further in the case of elderly living alone and those who suffer depressive tendencies.

#### 4.4.1. Example of solutions

##### 4.4.1.1. Some products

- Digestive comfort

Products enhanced with :

##### Fibers



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##### Magnesium

##### Probiotics



- Presence of disease



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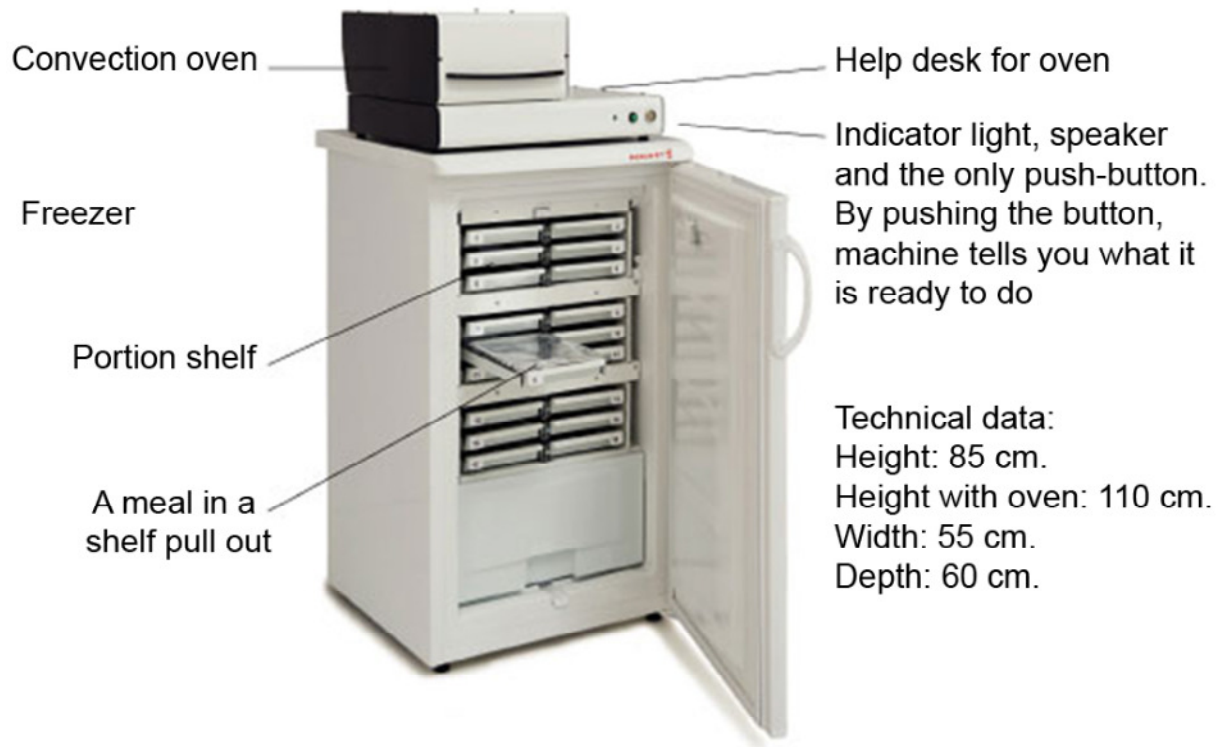
Memory is protected by certain fatty acids

#### 4.4.1.2. Home carried food services

Home carried food services exist and try to solve these issues for example:

In Finland, for example the "MenuMAT Meal Equipment and Catering Service" is developed for the elderly living at home. The meals are frozen and pre-ordered from the MenuMAT catering menu and after that home carried by the distribution system once a week or twice a month. MenuMAT Meal Equipment (Figure 5) and Catering Service helps the elderly to eat regularly and healthy. The elderly person only presses the button and after that the fresh and warm meal is served. Additionally, the system helps the public and private sector to provide home carried food service for the elderly living at home. MenuMAT Meal Equipment and Catering Service is provided by several municipalities in Finland and the benefit of the use of it for a single elderly person living at home is assessed by the home care professionals (figure3)





**Figure 4. Menumat Meal Equipment**

Menumat meal equipment is a combination of a convection oven, a freezer, an intelligent shelving system and a control and steering unit. The control unit is a Linux machine with wireless Internet connectivity. To work the meal equipment needs a catering service which takes care of the food deliveries.

The use of Menumat meal equipment is easy and safe. Meals are pre-ordered from the Menumat catering menu. The meal equipment identifies what kind of meal is carried by each case. Meals can be selected through manually pulling appropriate case or choosing it from the list. The oven automatically identifies the meal and heats it up accordingly. The machine announces with a speaker when the meal is ready. The oven shuts itself down automatically.

Menumat Meal Equipment and Catering Service allow the seniors to save time and trouble in shopping and cooking. The system helps the public and private sector to provide a better and more versatile service for the seniors living at home. Menumat Meal Equipment and Catering Service is provided by several municipalities in Finland including Forssa town located in Häme region.

In France companies specializing in the management of nursing homes or real estate developers are beginning to create living spaces where older people are independent but

which carrier services of meals are possible. They build like a big residence where elderly can buy a house or a flat and in this residence you could find some services like nurse, meals on wheels.... This kind of residence is very rare and very new in France but it is a solution to help elderly to live older at home. The problem of this kind of residence is the price even if the concentration of the needs and of the offer tends to decrease the price of these services.

In Sweden, "meals on wheels" exist too. "Meals on wheels" are prepared by private companies or publicly owned kitchens, distributed by specific distributors or via home help staff. The distribution is done on a daily basis and or once a week. In France, there are the same kind of services done either by companies or by publicly owned kitchen, but these services are most of time provided in the urban area and not in the countryside. Like in Sweden, these services receive a financial help provided by public body if some conditions are filled but the conditions are totally different.

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These services, should be local services, could be developed by regional SMEs to providing and distributing the meals.

In Asturias, there was an initiative called "Rompiendo Distancias" (Breaking Distances) focused on the improvement the standard of living of elderly people helping the stay at home. This service consisted of the home delivery of complete and well-balanced meals that they do not need any other preparation. The elaboration and the packaging of the meals will be made through the "cold link". In this case, the cooling unit will allow the temperature to be between 3° and – 5° C for not longer than two hours in order to avoid that the food is contaminated by bacteria and the expiration date will be fixed in five days. From 2002 to 2009, the total number of users has been around 70, whose average age is close to 76 years old and the 64% of them required an adapted diet. During this period, there have been 24 leaves, mainly by disease or address change and 14.713 home menus were served. (Location: The Commonwealth Cider Shire of Asturias, which is formed by six municipalities of the oriental centre zone of Asturias: Bimenes, Cabranes, Colunga, Nava, Sariego and Villaviciosa.)

## 5. Best Practices founded during the project

Number	Title	Description	Region
1	National Nutrition Recommendations for the Elderly	Nutrition recommendations about the healthy and balanced food for the elderly	Sweden, France, Finland
2	“MenuMat Meal Equipment and Catering Service” for the elderly living at home	MenuMat meal equipment is a combination of a convection oven, a freezer, an intelligent shelving system and a control and steering unit. To work the meal equipment also needs a catering service which takes care of the food delivers.	Häme, Finland
3	“Meals on Wheels Service” for the elderly living at home in the sparsely populated area	Home carried warm and/or cold meals. The meals are prepared in the public or private kitchens and delivered by the home care staff or the specific distribution networks on a daily basis or once a week	Västerbotten, Sweden
4	“University of Third Age”, seminars and practice for the seniors	Seniors can choose from many courses given by specialists from different fields of studies. One of the courses is connected with nutrition education, planning diets and diets for individual diseases.	Wielkopolska, Poland
5	“Medical Town” for the seniors	A little town from there the seniors can buy a house with age specific services, e.g. home care services, meal services etc.	Lorraine, France
6	“Senior Act” for the food companies	A programme to help food companies to develop new products for elderly	Bourgogne, France
7	“Home Delivery Service” for the elderly	Home delivered complete and balanced meals which do not need any other preparation by Commonwealth Cider Shire of Asturias. The elaboration and packing of the meals are made through “cold link”.	Asturias, Spain
8	“Jagoten Programme”, courses and workshops for the elderly	Several courses and workshops about nutrition including both theory and practical parts in cooking. The courses and workshops are addressed at those who are older than 60 years old and who are the caregivers of dependant elderly people.	Basque, Spain
9	“Health Power Station” for the elderly living at home	An informative web service provided by CAPSA about the eating habits and nutrition recommendations for the elderly, e.g. the healthy menu plan for one week for the	Asturias, Spain

		elderly	
10	“Public Gardens” for the retired people	Retired people over 65 years old can access for free a public garden where they can cultivate vegetables and thus promote their own balanced and ecological diet and health.	Asturias, Spain
11	“Restaurant Check +65” for the restaurants	A programme to promote consumption of a balanced diet among elderly people and to promote social relationships in their environment. The programme of six restaurants offering daily menus with affordable costs for the persons over 65 years of old and living alone.	Galicia, Spain
12	“Community Support Services” for the elderly	Gerontology centres offering a wide variety of home care service for the elderly and their families to ensure care continuity without producing territorial uprooting.	Asturias
13	“Groceries Services”	A home carried groceries services called “a shopping bag”. The groceries service is designed for the seniors living at home. The groceries are ordered via Internet by the seniors and carrying to home doors by the specific distribution networks once a week.	Metropolitan area in Finland

Figure 6. Identified best practices in the Bio Life project

Currently, available epidemiological data show the relationship between diet and other lifestyle factors with the appearance of these chronic diseases. Therefore, in some countries like Sweden and France, some guidelines were published in order to give some good habits to this population (Figure 8).



Figure 7. One example of the guidelines published in France for the elderly

## 6. Recommendations

One of the goals of this white paper is to give some recommendations. These recommendations are global and do not give some examples of product for the elderly but how to manage to do it:

The first recommendation is to take into account the needs of senior citizens in the development of any product. This population target has specific needs, seen in Section 4. The dissemination of this white paper which describes the elderly needs, seems to be a first step towards a better understanding of the needs and expectations of seniors by the food industry. To develop a more precise needs and expectations of these populations, a study on the difficulties encountered when buying and using food items could support food manufacturers. Thus, developing the "senior act" in other regions and for specific product range could be relevant.

Other recommendations incorporate the first more accurately:

- A work of clarification and readability of the information on the label meet the expectations of seniors in particular, but also a large part of the population
- The use of ISO 11156 which recommends the use of the overall design for the development of new products would meet the one hand to meet expectations of older but more broadly the needs of all consumers who want the ease of use
- Financial aids for innovation should take into account the dimension below:  
"taking into account the elderly needs in your project"
- Research information on the nutritional needs of seniors by the food SMEs (- see Section 4.2) would better promote their products or would better segment their products according the target choosen.

## 7. Conclusion

This synthesis of studies done by the Bio Life consortium allows us to think that the food for elderly is an opportunity for regional SMEs. Indeed, studies about demography or about foods for elderly have been done and showed us that the elderly population is an opportunity for food SMEs because this population will improve during several decades.

As the regulation is the same for elderly and the rest of the population, SMEs could modify their products in order to answer to the elderly needs. We can imagine too that SMEs could develop new products with a global design approach. Taking in consideration nutritional needs or/and elderly needs about handling, readability ...Their products could answer to the elderly needs. Furthermore, this kind of approach will answer to problematic encountered by others target larger than the elderly population.

Therefore, we think that all the policies have to tend to promote the design of new product or services which take in consideration the elderly point of view and the elderly needs.

## 8. Annexes

1. State of art about Wielkopolska market, by Mrs. Czapka-Matyasik and Mrs. Fejfer
2. Demographics of Finland and Häme region, Nutrition recommendations for elderly in Finland, Regional map of the wellbeing and food companies in Finland and Häme region, by Mrs. HOMAN-HELENIUS and Mrs. TALKA
3. Bio Life document made for the Brescia meeting by Mrs. HOMAN-HELENIUS and Mrs. TALKA
4. Food for Elderly in Västerbotten, by Mrs. TIEVA
5. Nutrition of the elderly in North-Hungary, by Mr. BOBAL
6. State of art : food for elderly in Asturias, by Mr. PARRONDO
7. State of art: food packaging for elderly people, by Mrs. RODRIGUEZ VASQUEZ and Mr. SANTOS GONZALES
8. Regulation review and state of art for food for elderly in Lorraine, by Mrs. BOULLEE and Mr. FABRE

All these documents are on the website: <http://www.biolife.eu.com/>