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# REPORT
# ON THE RESEARCH REGARDING NUTRITIONAL STATUS OF RA POPULATION

Within the Framework of “Improving Regional Food Security in South Caucasus through National Strategies and Smallholder Production” Project

Armenia 2015

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# ACRONYMS

| | |
|---|---|
| WHO | World Health Organization |
| DCS | Disease of the Circulatory System |
| CHIS | Center for Healthcare Information Statistics |
| HBP | High Blood Pressure |
| HUI | High University Institution |
| ED | European Directive |
| MF | Milk Formula |
| BM | Breast Milk |
| DHS | Demographic and Health Survey of Armenia |
| RA | Republic of Armenia |
| NA RA | National Assembly of the Republic of Armenia |
| MoH RA | Ministry of Healthcare of the Republic of Armenia |
| MoA RA | Ministry of Agriculture of the Republic of Armenia |
| AIDS | Acquired Immune-Deficiency Syndrome |
| UN | United Nations |
| HIV | Human Immune-Deficiency Virus |
| DM | Diabetes Mellitus |
| NCD | Non-communicable diseases |
| MN | Malignant Neoplasms/tumors |
| RF | Risk factor |
| IHD | Ischemic Heart Disease |

# INTRODUCTION

In April 2015, the Advanced Research Group NGO started research, initiated by OXFAM, on the nutritional state of the RA population. The research was conducted as part of the Food Security Project funded by the European Union. The research was carried out using qualitative and quantitative methods of data collection among 1,600 respondents (citizens) and key informants / experts. The research was tasked with uncovering issues characterizing the state of nutrition of the RA population as well as identifying national policy priorities and a number of other issues in this area through policy analysis and qualitative interviews with experts/key informants.

Throughout the research, the APR Group was in active cooperation with OXFAM in Armenia, the Ministry of Healthcare, the Center for Disease Control and Prevention of MoH, the State Service for Food Safety, RA National Statistical Service, and representatives of their agencies who greatly contributed to the research with information or technical guidance.

The current report contains sections that describe the research methodology, its goal and objectives, methods of data collection, research sampling, as well as a brief summary on the general state of health of the RA population. The main content of the report is presented in the “Results of the Quantitative Research on the Nutritional State of the Population” section and includes the national nutritional policy framework with a review of the main strategies and existing legislation.

## Executive summary

"Advanced Public Research Group" (APR Group) NGO conducted research on the nutritional state of the Armenian population in cooperation with OXFAM in Armenia.

The goal of the research was to identify the current state of the nutrition among the population as well as mechanisms for implementation of current national policies. The main objectives were:

1. To identify the current state of food accessibility for the RA population as well as possible changes,
2. To study the population's food consumption and purchase patterns,
3. To study the knowledge, attitude and practical approaches of healthy nutrition,
4. Describe national nutrition policies, including strategies and existing legislation as well as their implementation mechanisms.

***Quantitative interviews*** were organized in 1,600 households in all 10 regions of Armenia and the capital Yerevan. The questionnaire consisted of 3 main parts:

- Information on the household - what they pay attention to when buying food, how and where they buy food from (road and transportation, availability of stores), what food products are available during each season of the year, what food the household consumes, household budget, family income, water accessibility, hygiene, state of health, etc.
- Information on individuals - how often does an individual eat at home and outside, what type of food he/she uses, whether he/she uses additives in food, state of healthcare, knowledge, etc.
- Information on children 0-59 months old: what do children less than 6 months old eat; what do children eat from between the age of 6 months to 5 years.

In addition, ***qualitative methods*** such as interviews with key informants and policy analysis were applied

The policy analysis and interviews with key informants revealed that *unhealthy nutrition* has an essential role in the development of non-communicable diseases. The bases of unhealthy nutrition habits are insufficient campaigning on healthy lifestyle and healthy nutrition, (including educational and child entertainment facilities) and enticement conditioned by frequently broadcasted advertisement etc. Currently, the member states of the World Health Organization have developed several effective mechanisms for the prevention of unhealthy nutrition that considerably reduce risks for consequences and complications resulting from chronic diseases. During recent years, Armenia has adopted laws on food safety, veterinary medicine, phytosanitary issues, as well as a number of other bylaws and legal acts contributing to gradual institutional improvements, an increase of the efficiency of the risk assessment, improved responsibility of business structures in fulfilling food safety requirements, as well as the expansion of public monitoring of food safety. However, the food safety system in the country doesn't fully guarantee the prevention of the negative impact of food related factors on human health.

The quantitative research revealed the following:

➢ Accessibility for the majority of vegetables and fruits has an extremely seasonal character. For the rest of food products, seasonality has a lower impact.

- Pumpkin, red sweet pepper, herbs used as ingredients in food, green beans, squash, green pepper, corn, cauliflowers and mushrooms are extremely seasonal vegetables. The inaccessibility ratio for those vegetables ranges from 1.1% to 39.8%. However, inaccessibility is much higher in rural, border and mountainous/high mountainous areas and varies from 0.9% to 74.4%.
- On an annual basis, food accessibility for seasonal and non-seasonal food stuffs is quite different. Thus, during the high season, accessibility figures are almost equal in rural and urban, border and non-border, mountainous/high mountainous and lowland communities (it hasn't exceeded 10%). However, during off season (depending on specific food products in winter or spring), figures of rural, border and mountainous/high mountainous communities essentially differ from urban, non-border and lowland communities. (The difference between rural and urban communities has reached 70%, while the difference between mountainous/high mountainous and lowland communities made up 40% and 35% for border and non-border communities).
- The fruit inaccessibility level varies between 1.8% and 65.4% (out of Vitamin A rich fruits: apricot - 5.4% - 65.4%; peach - 4.3% - 57.8%; melon - 3.1%-53.2%; persimmon - 7% - 48.2%). *As in case of vegetables, inaccessibility in rural, border and mountainous/high mountainous communities is higher, and during off season sometimes increases to 95.3%*[1].
- There are only 3 types of fruits that are equally accessible all year round; apples, bananas, lemons (inaccessibility rate varies from 0.5% to 3.8%). Only apples are equally accessible in all types of communities. In case of bananas and lemons, inaccessibility in rural, border and mountainous/high mountainous communities reaches 11.6%.
- Of Vitamin A rich vegetables, only carrots and herbs used as spices are accessible for the majority of the population all year round. As for Vitamin A rich fruits, only dried apricot and peach accessibility is not that much conditioned according to the season.
- Especially during the off-season, inaccessibility of both vegetables and fruits in rural, border and mountainous/high mountainous communities is higher.

➢ Independent of community status, the main part of everyday trade takes place within the community. In this regard, what's important is how easy or difficult it is for the community residents to move about within the community. Thus, the condition and accessibility of roads and transport were studied.

- Roads coming to the community are in better condition than inner-community roads. Roads in border communities have received lower scores than in non-border communities. Road problems mostly occur during winter months. Thus, only 28.8% of the rural population stated they have inner-community transport and 87.5% stated they have inter-community transport services. The picture is the same for mountainous/high mountainous and border communities.

[1] In some cases this rate can, in reality, reach up to 100% however many of respondents haven't outlined extremely seasonal fruits which are not only inaccessible their community but also everywhere during off-season (e.g. apricot).

- In addition, the other important factor is the availability of infrastructure such as markets and trade facilities. 5.6% of rural communities don't have supermarkets, markets, or stores. The picture is more challenging for mountainous and border communities.

➢ Parallel with the physical access to food, issues related to financial accessibility were also identified;

- 46.4% of respondents stated there have been months during last 12 months when food was insufficient for their family. According to respondents, those months are January - 11.1%, February - 14.4%, March - 17%, April - 14.3% and May- 10.5%.
- It's worth noting that a majority of respondents (70.4%) stated that their average monthly household salary was less than 200,000 AMD; 29.6% - 100-200,000 AMD; 27% - 54-100,000 AMD and 13.8% - below 54,000 AMD.
- 49% of respondents mentioned that the amount they spent on food has increased over the last year and, in the case of 26.1%, the amount has remained the same. (In the same period incomes for 39.1% of households have decreased and for 45.5% incomes haven't changed.)
- To the question whether there were cases when respondents purchased food on credit, 17.8% mentioned almost always, 16.9% - very frequently, 18.8% - sometimes, 9.2% - rarely, and 36.6% - never.
- When describing their household situation, 27.4% stated that their money is not enough for food; 40.7% - money is enough only to buy food, but not clothes; and only 23.6% can afford food and clothes but not other long-term use goods. Only 1.4% can also afford to buy household appliances and furniture, and 0.3% can buy expensive cars, apartments, etc.

➢ Bread and potatoes are the most popular food products in Armenia and the number of limited users of these products doesn't exceed 6%.

- Out of Vitamin A rich vegetables, carrots, red sweet peppers and pumpkins are consumed in Armenia. In the case of pumpkins, in both during high and low seasons, there is a considerable share are people who don't use them (correspondingly 31.3% and 74.2%). In both cases the reason given was the lack of desire (correspondingly 94.7% and 76.6%), which proves the lack of a pumpkin consuming culture.
- Vitamin A rich dark green leafy vegetables (mostly used as ingredients) are very popular in Armenia.
- The most popular Vitamin A rich fruits in Armenia are apricots, peaches, melons and persimmons. The use of all these fruits is purely conditional on the season and the number of people who don't use these fruits during the low season comprises 88.4%-95.6%. The lack of trust regarding food during the off-season is explained by respondents that *each fruit/vegetable should be used only during its season.*
- Meat of animal organs is considered an important source of iron. In Armenia it doesn't have any seasonal character. However, about 1/3 of interviewed respondents (33.2%) either limits or doesn't use meat of animal organs at all. Respondents note high price and low purchasing power as the main reason.
- The number of households with a limited use of meat and fish products is considerably high (23.4%-34.1%), which is mostly conditioned by high prices and low purchasing power (42%-53%). About 15.5% does not consume sausages and the majority (89%) states that they simply don't want to.

➢ The dietary diversity rate of the Armenian population is 8.66.

- More than 90% of households have access (use) to wheat/cereals, spices and drinks, other vegetables, dairy, fats and oils. Fish and seafood and meat of animal organs come in last place. Out of Vitamin A rich products, dairy products were used by 91.81% of households, dark green leafy vegetables by 77.44%, eggs by 55.81%, Vitamin A rich vegetables and tubers by 42.38%, Vitamin A rich fruits by 39.19% and meats of animal organs by 3.38%.
- Meat and meat products as a source of iron are accessible to about 50% of the population. Less than 10% mentioned fish and meat of animal organs.
- The average dietary diversity rate among women aged 15-49 is 5.11. This means that women use 5 food types per day. Out of Vitamin A rich food products, dairy and dark green leafy vegetables have been mentioned by a majority of respondents. However, no one mentioned any product rich in iron.
- The average score of the dietary diversity among children aged 6-59 months is 4.44. The diversity score increases parallel to the age of the children up until 24-29 months-old. This rate depends on the administrative status of the community and to some extent on the mother's education level.
- The percentage of purely breast-fed children for the relevant age group is 61.43%. However, the percentage of children not consuming breast milk is 14.29%. On average, breast milk makes up 86.97% of their food, 8.19% - milk formula (powder) and 4.84% - other food.

➢ When buying food, respondents mostly pay attention to the design, production/storing conditions, and label/manufacturer. With a slight difference the price of food has also noted by respondents.

➢ The hygiene and health section revealed that:

- 65.9% of respondents use vegetable oil in their households most frequently and 33.2% use butter and ghee.
- To the question, what type of water do they use, 87.7% of respondents mentioned tap water. Moreover, a majority of respondents who do not use tap water are from rural and border communities. 2.3% drink water brought by tanker, 2.85% - spring water, 1.6% - well water, 2.56% - bottled water and 1.9% - tap and filtered water. Only 69.6% of respondents have a permanent water supply in their households.
- 86.4% of respondents say they wash their hands 8 times and more per day. The share of people almost always using soap is 72.2%, while at the same time only 69.6% of respondents have a permanent water supply. Water is always insufficient for household needs for 15.3% of respondents.
- As to the question whether respondents experienced food poisoning, 89.2% said never, 6.6% - once every few years, 3.4% - once or twice per year. As for steps taken following food poisoning, 4.76% (out of respondents who had cases of food poisoning) mentioned that they stopped using specific food products, 3.6% changed nothing in their diets, 0.3% started paying more attention to food labels, 0.3% stopped eating at specific facilities (e.g. restaurants, cafes), 0.1% changed cooking methods, and 0.1% stopped using tap water.
- In urban communities, people follow specific diets more than in villages. The share of those following a specific diet increases parallel to age. Another reason for dieting was medical treatment. Following a diet as a way of weight management was mentioned more by women than men, but in case of medical treatment the picture is the opposite.

- As the main source of information on healthy nutrition, hygiene and other important issues, respondents mostly noted television programs. However, it's worth stating that both men and women need such knowledge.

These were the main findings of the research. (More details are presented below)

To summarize existing strategies, concepts, legislation on food security and nutrition of the RA population, as well as statistical data and information collected through interviews with key informants/experts, the following issues should be outlined:

- Improper implementation of child feeding in pre-school facilities and kindergarten and lack of control mechanisms,
- Lack of an operation system for periodical data collection and assessment of teenagers and school age children,
- Lack of materials/reports/broadcasts by mass media regarding healthy lifestyles and promotion of healthy nutrition,
- Lack of a campaign on unhealthy nutrition habits of teenagers and school-age children,
- Low level of engagement of the public and educational facilities in the formation of healthy nutrition behavior,
- Lack of assessments on the Healthy Lifestyle Education Program in public schools,
- Sale of unhealthy food with high fat, trans-fat, free sugar and salt content at schools and child entertainment facilities,
- Insufficient level of consultancy on child and healthy nutrition issues,
- Lack of appropriate human resources, particularly infant nutrition specialists,
- Lack of implementation of national legislation in terms of violations of the International Code on Marketing of artificial milk formulas,
- Lack of a punishment/accountability mechanism in case of violations of the Law on Advertising,
- Lack of a ban on advertisement of food and alcohol harmful to public and children health defined by the Law on Advertising.

There is incomplete fulfillment control of sanitary norm requirements and regulations issued by physical and legal entities involved in the food safety sector.

# 1. METHODOLOGY

## Goal and objectives of the research

The goal of the research is to identify the current nutritional state of the population of Armenia, as well as mechanisms of implementation of current national policies. Main objectives are:

5. Identify the current state of and changes in food accessibility for the population of RA,
6. Study food consumption patterns of the population,
7. Identify characteristics for food purchase,
8. Study the knowledge, attitude and practical approaches on healthy nutrition,
9. Identify national policies related to nutrition - existing strategies and legislation as well as their implementation mechanisms.

In order to achieve these objectives a quantitative and qualitative study was conducted. Results of the quantitative research were analyzed, taking into account the following:

1. Geography - mountainous and lowland areas,
2. Administrative location of the community - regional center, urban, rural and border communities,
3. Age groups,
4. Gender groups.

During the study, the following main issues were looked at:

1. Types of food consumed by the RA population,
2. Physical and financial accessibility of food for the population conditioned by the availability/lack of communications (roads, transport), infrastructures (markets, stores, etc), and other relevant factors,
3. The level of malnutrition of the population, the content of the food, and availability of micro-nutrients,
4. The amount spent on food by the population as well as changes compared to the previous year,
5. Types of food that have become less accessible or inaccessible,
6. Linkages between malnutrition and chronic diseases,
7. The level of education of the population in terms of using healthy food, attitude and practical approaches, criteria for food selection, etc,
8. National policies, nutrition strategies and legislative fundamentals,
9. Other issues.

## Research methods

1. ***Quantitative research methods***. A survey research with representative sampling was conducted to identify quantitative characteristics of the set objectives such as inter-dependency of different parameters, cause-and-effect connections, etc. The quantitative research tool is a questionnaire with open-ended, structured and semi-structured questions that were completed within households via face-to-face interviews. Participants of interviews were household members over 18. However, the developed methodology allowed for the collecting of information about the entire family and not only one person. Furthermore, information on each member was separated so data could be analyzed from age and gender perspectives. This also allowed for the collecting of information on children who couldn't be direct interview participants. The research questionnaire consisted of two main sections - households (which also covered 0-6 and 6-59 month-old children) and individuals. Due to the applied methodology, it became possible to get a comprehensive picture on the role of women in nutrition from the perspective of the family and society.

2. ***Policy analysis method.*** Content analysis of existing legal documents was conducted to clarify specific policies. Official documents, strategic programs, challenges and strategic direction, laws and bylaws regulating the nutrition sector were analyzed. The list of analyzed documents is presented in the Annex 1.

3. ***Method of interviews with key informants***. Qualitative interviews were conducted with experts well aware of national policies regarding RA population nutrition issues and those involved in involved in implementing those policies. The qualitative interviews provided data on implementation mechanisms of current strategies, their specifications as well as existing

challenges. A questionnaire included open-ended questions developed in advance. However, their sequence, formulation and depth were subject to change depending on the awareness of the respondent and the sphere of employment. Key informants represented the following structures:

- RA Ministry of Healthcare
- State Healthcare Agency of the RA MoH Administration
- State Service for Food Safety of the Ministry of Agriculture of RA
- "Center for Disease Control and Prevention" State Non-Profit Organization of the RA MoH
- State Hygiene and Anti-epidemic Agency of the RA MoH
- Scientific and Practice Center for the Security of Food and Non-Food Products of the National Healthcare Institute (HNI) of RA MoH
- National Statistical Service of RA
- Independent Expert

## Quantitative Survey Sampling

The calculation of the sampling conglomerate is based on the following formula.

$$n = \frac{t^2 NPQ}{(d^2 (N\text{-}1) + t^2 PQ)}$$

Where:

- "n" is the sampling conglomerate;
- "N" is the size of the main conglomerate (the number of households is 754275),
- "P" and "Q" are constant values and are equal to 0.5 (availability or lack of any parameter),
- "T" equals to 1,96 in case when it's necessary to ensure 95% of reliability of results;
- "d" is the value of statistical error which makes up ±2.4%.

The sampling size is 1,600 households. Interviews were conducted in all 10 *marzes* (provinces) of Armenia and capital Yerevan.

The random sampling method[2] was applied to ensure the statistical essence of the data collected as well as data segregation based on following criteria:

1. Geography - mountainous and lowland areas,
2. Administrative location of the community - regional center, urban, rural and border community,
3. Age groups,
4. Gender groups.

Formation of the household sampling combination was developed based on the multilevel self-weighted sampling method[3] according to which the probability of selecting territorial unit is proportional to its size.

[2] http://www.socialresearchmethods.net/kb/sampprob.php

*At the first phase of sampling*, cluster stratification was developed according to the population (households) of *marzes*. Thus, the sampling of 1,600 was distributed among all regions of the RA in proportion to the regional population (households) by dividing the number of households involved in the sampling into the size of the cluster. The size of the cluster is 8. The quantity of clusters was defined for each *marz*. The number of respondents in each *marz* is presented below in the Table 1:

Table 1

| Marz | Number of households involved in the sampling | Number of clusters |
|---|---|---|
| Aragatzotn | 72 | 9 |
| Ararat | 136 | 17 |
| Armavir | 144 | 18 |
| Gegharkunik | 128 | 16 |
| Lori | 120 | 15 |
| Kotayk | 136 | 17 |
| Shirak | 120 | 15 |
| Syunik | 72 | 9 |
| Vayots Dzor | 40 | 5 |
| Tavush | 64 | 8 |
| Yerevan | 568 | 71 |
| Total | 1600 | 200 |

*In the second phase of the cluster development,* communities in all regions were selected. Clusters were distributed in proportion to the number of households in communities. In each *marz* provincial center, urban and rural communities were selected. The list of electoral precincts served as a basis for selection of communities which are enumerated and categorized according to *marzes*. Precincts were selected from the lists through random coordinated step[4] (which will serve as starting points for interviews). Each precinct is one cluster. As a result of the random sampling, bigger communities got more than one cluster. Cities/towns from each *marz* of the RA included in the sampling and the number of clusters is presented in Table 2 below.

Table 2

| Marz | Regional Center | Urban community |
|---|---|---|
| Aragatzotn | 2. Ashtarak (L) | 1. Aparan (M) |
| Ararat | 2. Artashat (L) | 2. Masis (L), 1. Ararat (H) |
| Armavir | 2. Armavir (L) | 2. Vagharshapat (L), 2. Metzamor (L) |
| Gegharkunik | 2. Gavar (HM) | 2. Martuni (HM), 1. Vardenis (HM, border community) |
| Lori | 4. Vanadzor (L) | 2. Alaverdi (L), 2. Tashir (L), 1. Spitak (L) |

[3] Ядов В.А. Социологическое исследование: методология программа методы, http://socioline.ru/_seminar/library/metod/yadov/met_SI.php

[4] For instance, if the Aragatzotn (electoral) list has 75 electoral precincts and the number of clusters in the given community is 9; 75 is divided into 9. In that case the number of step will be 8. As this *marz* is the first one in the alphabetical order, we have conditionally numbered it 1 (for Ararat it is 2, Armavir - 3 etc). Afterwards, through adding 8 to 1 we get the next number - 9, then 17, then 25 etc. Thus 9 precincts are selected which served as starting points interviews of 9 clusters will be conducted.

| | | |
|---|---|---|
| Kotayk | 3. Hrazdan (M) | 3. Abovyan (L), 2. Charentsavan (L), 1. Nor Hatchn |
| Shirak | 6. Gyumri (L) | 1. Maralik (M), 2. Artik (M) |
| Syunik | 3. Kapan (L, border community) | 2. Sisian (L), 1. Goris (L, border community) |
| Vayots Dzor | 1. Yeghegnadzor (M) | 1.Jermuk (M) |
| Tavush | 1. Ijevan (L) | 1. Noyemberyan (border community), 1. Dilijan (L) |

In the table, lowland communities are marked with "L" and mountainous communities – "M" (high mountainous communities are also considered mountainous). Thus the number of urban communities involved in the sampling is:

- Regional centers -10
- Other cities -19

Selection of rural communities was also done through random selection from lists. Lists of electoral precincts were categorized according to 2 main criteria

- (high mountainous and mountainous communities[5]; other rural communities)
- Border communities[6].

Random sampling allowed proportional involvement of all types of communities in the sampling. Here again each selected precinct is considered as 1 cluster (8 interviews). The selected rural communities according to their types and number of clusters are presented in Table 3 below.

**Table 3**

| Marz | Mountainous, high mountainous | Lowland | Border community |
|---|---|---|---|
| Aragatzotn | 1.Katnaghbyur, 1.Hartavan, 1.Ara | 1.Ujan, 1.Arteni | 1.Getap (L) |
| Ararat | 1.Lanjanist, 1.Lusashogh | 1.Ghukasyan, 1.Nor Ughi, 1.Urtsadzor, 1.Aygepat, 1.Dalar, 1.Mkhchyan, 1.Arevshat, 1.Byurakan | 1.Ranchpar (L), 1.Zangakatun (M), |
| Armavir | | 1.Haykashen, 1.Aknalich, 1.Khoronk, 1.Hatsik, 1.Nalbandyan, 1.Haykavan, 1.Jrashen, 1.Taronik, 1.Aratashen, 1.Getashen | 1.Pshatavan (L), 1.Berkashat (L) |
| Gegharkunik | 1.Norakert, 1.Artsvanist, 1.Sarukhan, 1.Gegharkunik, 1.Vardadzor, 1.Lichk, 1.Zolakar, 1.Vardenik | | 1.Avazan (M), 1.Shatvan (M), 1.Arpunk (M) |
| Lori | 1.Katnajur, 1.Sarahart | 1.Gugark, 1.Odzun, 1.Shamlugh | 1.Dzoramut (M) |
| Kotayk | 1.Getashen, 1.Zovk, 1.Jraber, 1.Kaputan | 1.Nor Geghi, 1.Byureghavan, 1.Nor Gyugh, 1.Akunk | |
| Shirak | 1.Panik, 1.Lernakert, 1.Getap | 1.Beniamin | 1.Yerazgavors (L), 1.Bayandur (L) |
| Syunik | 1.Shaki | 1.Darabas | 1.Syunik (L) |
| Vayots | 1.Gndevaz | 1.Arpi | 1.Areni (L) |

[5] http://www.arlis.am/DocumentView.aspx?DocID=38400
[6] http://tavush.gov.am/files/legislation/1752.pdf, http://www.arlis.am/DocumentView.aspx?DocID=37360

| | | | |
|---|---|---|---|
| Tavush | 1.Geghatap[7] | 1.Koghb (B), 1.Khashtarak | 1.Sevqar (L), Kirants (L) |

In the table, border communities are marked with “B”, lowland communities – “L” and mountainous communities – “M” (high mountainous communities are also considered mountainous) and the number before the community shows how many clusters have been included in the community.

The number of communities included in the sampling:

- Mountainous, high mountainous - 25
- Lowland - 32
- Border communities -15 (10 of which are lowland areas and 5 - mountainous and high mountainous)

The number of interviews and clusters in urban and rural communities is presented in Table 4.

Table 4

| | Number of clusters | | Number of interviews | |
|---|---|---|---|---|
| | Urban | Rural | Urban | Rural |
| Aragatzotn | 3 | 6 | 24 | 48 |
| Ararat | 5 | 12 | 40 | 96 |
| Armavir | 6 | 12 | 48 | 96 |
| Gegharkunik | 5 | 11 | 40 | 88 |
| Lori | 9 | 6 | 72 | 48 |
| Kotayk | 9 | 8 | 72 | 64 |
| Shirak | 9 | 6 | 72 | 48 |
| Syunik | 6 | 3 | 48 | 24 |
| Vayots Dzor | 2 | 3 | 16 | 24 |
| Tavush | 3 | 5 | 24 | 40 |
| Yerevan | 71 | 0 | 568 | 0 |
| **Total** | **128** | **72** | **1024** | **576** |

Random distribution allowed to proportionally include all types of communities in the sampling[8]. In the case of Yerevan, all 12 administrative units/districts were included in the samplings.

*In the third phase,* households for interviews were selected. The selection of households was done by random coordinated steps. Interviewers were provided with the starting points for

[7] Geghatap was replaced with Aghavnavank community as the number of population in Getap community was not sufficient for interviews.

[8] % of mountainous/high mountainous, lowland and border communities in all RA marzes in comparison to all communities of the *marz* are presented in the Annex 2 in the form of a table.

interviews (precincts from voter lists) and, through the "right turn" method[9], interviewers selected residences for interviews.

*In the fourth stage, persons* from households who were well aware of food related issues were selected. In order to ensure proportional distribution, another selection of respondents was done to get answers on the second and individual questions of the questionnaire. If a respondent of the first part of the interview was the person informed of the issue, respondents for the second part of the interview were selected based on the principle of "the upcoming birthday".

## Field work and challenges occurred during interviews

Field work activities were undertaken by interviewers of the Advanced Public Research Group NGO. More than 30 interviewers (in 3 groups) were involved. Each group was coordinated and overseen by a supervisor. Supervisors did the monitoring both through direct participation in interviews and back visits and back calls. Supervisors checked all questionnaires.

Questionnaire checks were also done by the project sociologist and monitoring specialist. The mechanisms for monitoring (at least 10%) of the field work were:

- Direct participation in interviews,
- Back visits,
- Calls.

The average duration of interviews was 40 minutes. In a few (1-2) cases of interrupted interviews, the questionnaire was immediately completed in another household.

The main challenges that occurred during the fieldwork were:

- The main issue stemming from the content of the questionnaire was the difficulty to recall what food had been consumed the day before.
- Accessibility of communities (as the sampling involved border communities which were insecure because of escalation of military action) – interviews were conducted in those communities with a delay.

[9] From the starting point, the interviewer moves to the right until she/he finds an apartment block or a house. If she/he appears at a crossroad she turns right and continues searching for a residence.

## 2. BRIEF SUMMARY ON THE STATE OF HEALTH OF THE POPULATION AND CHALLENGES

(Desk research)

Morbidity and mortality rates reflect the state of health of the population and directly depend on different factors such as genetic predisposition, sex, age (30%), lifestyle, behavioral and biological risk factors (RF) (***unhealthy diet,*** smoking, alcohol abuse, moderate physical activity, high blood pressure (HBP), high level of glucose and cholesterol in the blood (40%), social-economic status (namely low level social and economic security), lack of social support, intense situation at workplace and family, depression, anxiety, hostility, education (15%), environment (5%), and operation of the healthcare system (10%).

Physical and intellectual development, metabolic balance, normal functioning of immune, hormonal, fermentative and other vital systems of the population are only possible in case of ensuring comprehensive healthy and secure food/nutrition.

The diets followed by the public reflect the level of their social-economic welfare and education.

According to the data of the World Health Organization (WHO), some of the wide spread diseases are non-communicable diseases (NCD) particularly - diseases of the circulatory system (DCS), malignant neoplasm/tumors (MN), diabetes mellitus (DM), injuries and cases of poisoning. According to the data more than 36 million people die every year; 87% of which consists of NCD (31-32 million), which, according expert forecasts, will increase to 41 million in 2016 in case of the lack or incomplete implementation of preventive measures. It's worth noting that 80% of mortality cases (28-29 million) is registered in developing countries. Moreover, 82% of mortality cases (16 million) are premature (among people up to 70 years old); in other words that could be prevented (WHO 2014).

The structure of the prevailing NCD mortality rate in Armenia follows the same picture as in the European region. As to the structure of the total population mortality, NCD mortality makes up 80%, where DCS mortality has the highest rate (48%), second is MNs (20.6%), third - DM (4.8%), and fourth - injuries and cases of poisoning (4.7%).

As mentioned above, according to the data of the evidential medicine, NCD depends on lifestyle and specifications of existing RFs which can provoke aggressive clinical behavior. Moreover, according to WHO data, the major factor provoking NCD is conditioned by ***unhealthy diet,*** insufficient physical activity, and the negative impact of high blood pressure.

Healthy nutrition promotes healthcare and helps to avoid malnutrition as well as prevent NCD. Unhealthy nutrition and insufficient physical activity are recognized as main risk factors for healthcare problems in the world.

A correct nutrition regime starts from the beginning of life. Furthermore, breast feeding of children can have a positive impact on the future. In particular, it will promote child health as well as decrease the overweight risk during the childhood and teenage period.

An insufficient campaign regarding healthy lifestyle and healthy food, wide accessibility of unhealthy food and drinks, including at educational facilities and child entertainment areas, as well as the attraction conditioned by frequent advertisement, also become a basis for unhealthy eating habits.

During the day an active person spends a specific amount of energy. The energy spent is compensated through balanced food. Correct food, in its turn, promotes human health and efficient employability.

According to the agreement among WHO member states, in order to suspend annual increases in rates of diabetes and obesity by 2025, it was agreed to reach a 30% decrease of salt use by the population. As mentioned, healthy nutrition during the one's entire life helps to prevent a number of NCDs, as well as subsequent complications and clinical developments. However, an increase in the production of processed food, sharp urbanization and changes in lifestyle lead to dietary changes. The population is consuming more high caloric, fat and trans-fat rich food, as well as monosaccharide food and more natrium/salt. Many don't eat sufficient quantity of fruits and nutritional fiber, such as whole grains. A healthy balanced diet also depends on individual needs taking into account several criteria - age, sex, livelihood, employment and physical activity.

A survey conducted among the population of the Russian Federation (RF) revealed that the major causes for premature mortality are HBP (35%), high level of cholesterol in the blood (23%), smoking (17.2%), insufficient use of fruits and vegetables (12.9%), overweight (12.5%), abuse of alcohol (11.9%) and insufficient physical activity (9%). Based on the above mentioned data it could be stated that one of the key causes for premature mortality conditioned with chronic diseases is unhealthy nutrition which, in its turn, provokes an increase of cholesterol level in the blood and atherosclerosis.

Currently a number of efficient mechanisms preventing unhealthy nutrition have been developed which lead to mitigation of risks of serious impact and complications caused by chronic diseases. In the 1960s Finland launched the "Northern Karelia" project with the overall objective to decrease the negative impact of risk factors caused by NCD and relevant diseases on the population through implementation of preventive projects and promoting healthy lifestyle.

Following the project implementation in 1972-1992 in Finland, an 80% decrease of mortality from IHD complications was attained mostly by the decrease of RF conditioned with rejecting unhealthy eating habits. Moreover, that positive tendency was visible starting from 1970 leading to a 2-3 fold increase of the consumption of fruits and vegetables, seafood, as well as a 38% decrease in fat consumption, 10% - saturated fatty acid, 10-15% - monosaturated fatty acid, 5-10% - polysaturated fatty acid; thus resulting in the replacement of oils of animal origin with vegetable oil. The consumption of salt dropped by 20%.

Due to similar projects in Ireland in 1985-2000, a decrease in NCD mortality rate among those aged between 25 and 84 led to almost two-fold decrease (48.1%) in RFs.

Referring to Armenia's data and situation, it's worth stating that during recent years the outbreak of unhealthy nutrition has become evident, which is considerably high among

children aged 10-14 and teenagers which, in its turn, leads to the development of chronic diseases.

In regard to food safety, positive trends for consumer's life and health have been recorded. Namely, new laws on "Food Safety", "Veterinary Medicine" and "Phytosanitary" as well as relevant bylaws have been adopted, thus gradually leading to an improvement in the operation of institutional structures, an increase of efficiency of administration based on risk assessment, an increase of accountability by business structures in fulfilling technological requirements ensuring safe food, as well as an expansion of public participation opportunities in food safety monitoring.

However, the food safety system in Armenia still doesn't ensure the prevention of the negative impact of food on consumer's health, and there are still important issues that need to be addressed. Therefore, the need for having unified policy development and implementation mechanisms has become evident.

The increasing demand of the Armenian population for nutrition and food safety has become a serious challenge for agricultural and healthcare sectors of Armenia.

Currently, Armenia, as a member of WHO, does not possess enough capacities to solve issues related to food and agrarian security, sanitary and phytosanitary issues.

In this regard, the priority objectives regarding the primary healthcare of the population become the monitoring of important issues related to population, nutrition and efficiency assessment of ongoing projects, as well as the development of strategies aimed at improving the state of nutrition.

## Risks of development of chronic diseases among the RA population

The harmful effects of RFs on the health of the population are not revealed immediately but comparably over the long-term. The decrease of RFs over a period of time promoted the improvement of the health rate; particularly the increase in life expectancy and the fall in NCD rates and mortality.

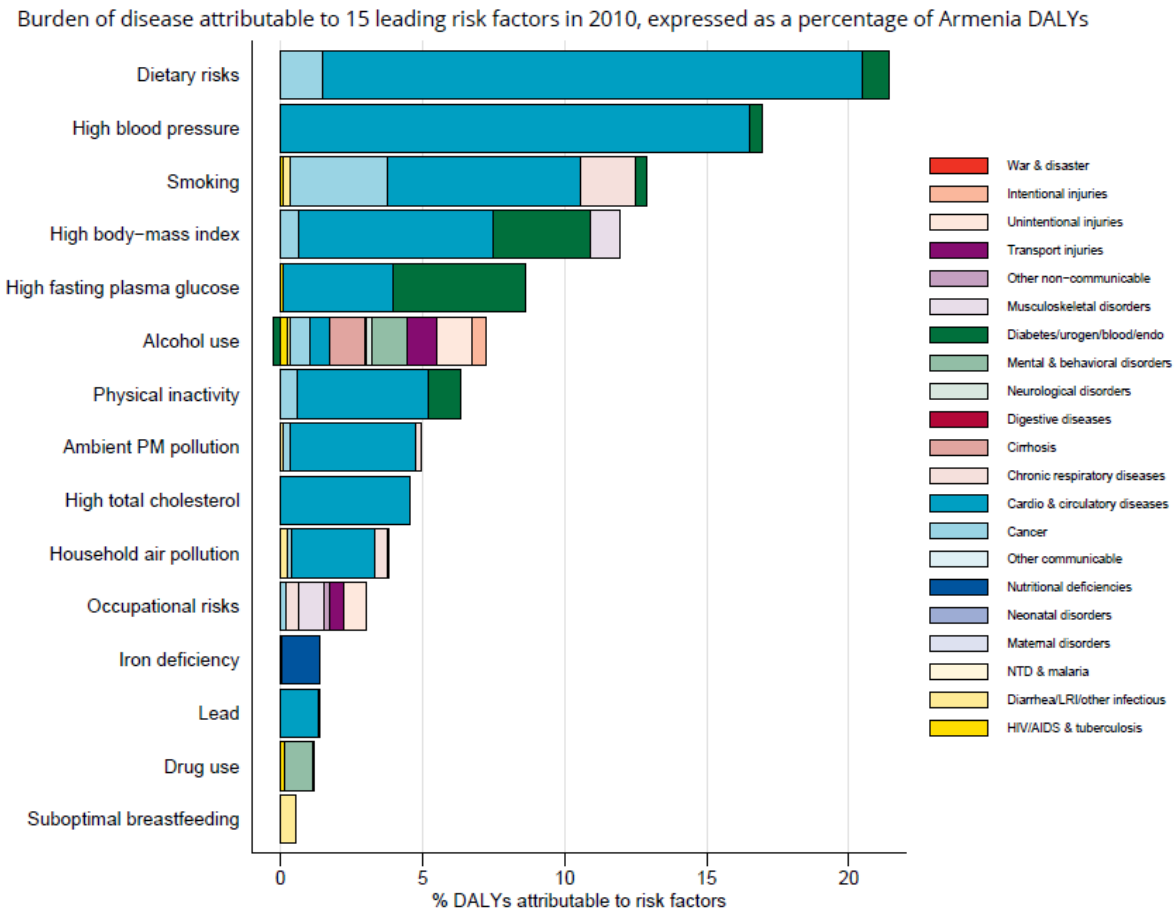
The above mentioned trends also refer to Armenia. In Armenia, as throughout the world, the rise in NCD rates continues to be one of the high priority challenges to be addressed.

With a view to assessing the share of diseases among the population of Armenia, the impact of risk factors and their inter-connections are also monitored.

Chart 1 shows the share of wide spread diseases (recalculated based on the % of "disability-adjusted life year") and the inter-connection of 15 risk factors leading to the development of those diseases. The presented data proves that especially in Armenia, three of wide spread NCDs are conditioned with unhealthy nutrition, high blood pressure and smoking.

Moreover, diseases among children up to 5 and people aged between 15 and 49 are mostly conditioned by unhealthy nutrition and air pollution.

**Chart 1 - The share of widespread diseases among the population of Armenia and the inter-connection of 15 risks factors (2010, percentage of disability-adjusted life years (DALYs))**




According to the assessment of the operation of the healthcare system in Armenia, as of 2007, 2009 and 2012 and sampling research data, the prevalence of overweight and insufficient physical activity among the population over 15 has a tendency to increase and in 2012 the respective rates were 56.5% and 50% (Chart 2).

## Prevalence of obesity

The prevalence of obesity among the population of RA[10] over 15, and namely for 15-19, 20-29 and 30-39 male and female age groups, doesn't essentially differ from one another. Differences arise later, after 40, when the number of women being overweight, as compared to men, has sharply increased. In particular, the number of women being overweight in the 40-49 and 50-59 age groups was10% higher than men; for the 60-69 age group the

[10] In case of excessive food intake, the surplus of calories leads to fat generation, thus accelerating the process of fat generation synthesis and their further accumulation in the fat storage. Development of technologies and more relaxed working conditions, such as office work, reduce the level of human physical/muscular activity thus leading to decreasing functional abilities of the human muscular system, resulting, in the end, in atherosclerosis, hypertonic diseases and myocardial infarction. Anthropometric data (weight and height) are used to calculate nutrition status based on 3 indicators – height according to age (stunting), weight according to height (under-nutrition) and weight according to age (underweight).

difference is 26%, and starts decreasing after 70. Overweight teenagers are still an issue of concern as each 11th child or teenager suffers from being overweight.

## Issues of child nutrition

In terms of child health issues, healthcare and nutrition remain priorities. Growth and development setbacks during early childhood can't be recovered in the future; even through the best nutritional methods or care.

Correct nutrition is very essential for child development. The first 2 years after birth are the most vital period for child development and healthcare. Unfortunately, during that period of life, children suffer from an insufficiency of food rich with micro-nutrients, from insufficient growth, and the development of childhood diseases, such as diarrhea and acute respiratory infections.

In spite of international efforts and progress achieved in the sphere of child health, there are several unsolved issues.

According to 2012 WHO data, some **8 million** children died throughout the world. **48%** of the deaths were related to malnutrition.

As of **2013, 165 million** children under 5 were stunted. **51 million children** suffered from acute malnutrition and **41.7 million children** from obesity. 7,500 children under 5 die every day in developing countries due to malnutrition.

## The state of child nutrition in the Republic of Armenia

**The continuing low level (35% according to 2010 DHS data) of exclusively breast fed children up to 6 months-old is an issue of concern.**

**This shows that breast feeding picture has only slightly improved for the 0-4 months age group (45% in 2000, 37% in 2005 and 48% in 2010), as well as 0-6 months age group (30% in 2000, 33% in 2005 and 35% in 2010).**

The issue of child stunting and obesity during the early years of life continues to remain a double burden. Moreover, according to the research, the prevalence of stunting, although at a small percentage, continues to increase from 17% in 2000 to 18% in 2005 and 19% in 2010. The ratio of children with obesity has increased from 11% in 2005 to 15% in 2010. In both cases, the reason is a diet with low protein and/or high carbohydrates content which can be a consequence of poverty and a shortage of food, as well as an insufficient knowledge and incorrect practical approach regarding healthy nutrition by mothers.

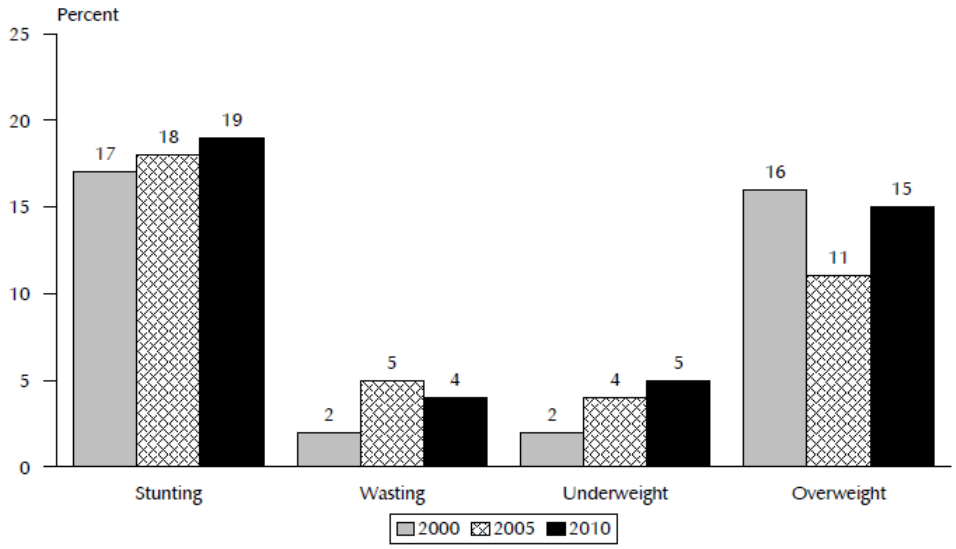
The prevalence of anemia among children in the 0-5 age group is considered an essential responsibility of public healthcare. According to the DHS, anemia in this age group stood at 37% in 2005 while 19% had the medium and 1% the heavy form of anemia. Findings of the DHS for 2015 would be very important for an assessment and potential further actions in this regard.

According to DHS 2010 data, 19% of children younger than 5 are stunted (undersized), and 8% are extremely stunted and undersized. Stunting is more prevalent in rural areas (22% in villages and 17% in towns), among women with low level of education (22%) and children from extremely poor households (26%).

There is a significant difference in rates of stunted children from *marz* to *marz* - from 11% in Yerevan to 37% in Syunik. The share of stunting among children younger than 5 has increased from 17% in 2000, to 18% in 2005, and 19% in 2010. During the study, malnutrition was registered in 4% of children under 5, and acute malnutrition among 2%. While the malnutrition rate is low, it's high among mothers with a low level of education (14%), children up to 6 months old (12.3%), and children from extremely poor families (7.8%). The highest level of malnutrition in Armenia's provinces was registered among children living in Ararat *marz* (12%).

***Thus,*** during the last 10 years, the malnutrition rate also increased from 2% in 2000 to 4% in 2010. Another challenge is obesity, at a rate of **15% among children.** The ratio of overweight children is high in the12-17 and 48-59 age groups, where every fifth child is overweight in comparison to their height.

**Chart 2: Trends in the nutritional status of children under 5**




Note: Data are based on children whose mothers were interviewed and calculated according to the new WHO Child Growth Standard adopted in 2006.

As mentioned above, from the perspective of the share of NCD mortality among adults and the decrease in disability-adjusted life years (DALYs), it's becoming more important to

prevent risk factors provoking the development of non-communicable diseases among teenagers.

According to CHIS data, during the last 20 years decreases in diseases among children and teenagers registers in annual growth. This primarily refers to such diseases as inborn metabolic symptom, obesity, diabetes mellitus, bronchial asthma and other allergic diseases.

According to the official data, the number of children with different chronic diseases continues to grow. Diabetes mellitus among children aged 0-14 increased from 197 (18.2/100,000) in 1990 to 248 in 2014 (48.2/100,000).

Referring to risk factors provoking non-communicable diseases, effect and risk behavior is formed in the infantile and teen-age period. The impact of these factors is felt throughout the individual's entire life.

In accordance with the 2005 research on the health behavior of school-age teens of Armenia, teenagers practice unhealthy eating habits such as skipping breakfasts; 8 out of 10 teenagers mentioned that they don't have breakfasts. Some teenagers who don't have breakfast at home have their meal at school (approx 20%). Teenagers having no breakfast very often have their meals outside. These meals usually consist of foods rich in high fat and sugar content, with poor fiber levels, as well as carbonated drinks and sweets. Poor quality fat and high sugar content food replaces fruits and vegetable for a considerable part of youth. 30% of children (the majority from Yerevan) prefer fast food; in smaller towns and villages the picture is more favorable conditioned by comparably less accessibility of this kind of food. Contrary to fast food centers, carbonated drinks are accessible everywhere even in remote villages. 43.1% of respondents use carbonated drinks at least once per day, and 76% use sweets more than once per day. The other risk factor for the development of non-communicable diseases is the low physical activity level. About one quarter of children spend more time watching TV or on the computer - 5 hours and more. Another factor hindering physical activity among high school children are the private lessons they take after school. 1/3 of teenagers residing in urban areas spend at least 5 hours on university entrance exam preparation. In all communities about 1/3 of children spend 3-4 hours daily on homework. About 10% of respondents didn't attend physical training classes. 41.3% of boys and 46% of girls attended physical training classes two days per week. In rural areas physical training classes follow a more regular schedule. 30% of children residing in Yerevan and other urban communities said they didn't exercise at all during the week preceding the interview. 31% of boys and 44% of girls (differences between children from urban and rural communities is very small) haven't taken sport classes during last twelve months. Taking the above into account, the natural trend over the past ten years has been to spend more time watching TV and on the computer, thus replacing physical activity. 29.5% of boys and 20.4% of girls spent more than 5 hours daily at the TV or computer. Computer usage considerably differs depending on sex and location. Up to 70% of village school-age children haven't ever used a computer. However, 51.9% of children living in Yerevan spend a half an hour or more (5.5% out of them 5 hours or more daily) on the computer every day.

## 3. NATIONAL POLICY FRAMEWORK ON FOOD SECURITY AND NUTRITION

During the period between 1992 and 1999, RA laws on “Food Safety” (adopted by the National Assembly on December 8 1992) and on “Veterinary Medicine” have been regulating relations connected with food related activities, particularly food safety (including non-processed) and raw food.

It’s worth mentioning that the safety requirement had, in the past, been regulated only by one legal act – the Law on “Ensuring Sanitary-Epidemiological Safety of the RA Population” (adopted by RA Supreme Council on November 16 1992). This law defined the legal, economic and organizational basis of sanitary-epidemiological safety of the population as well as anticipated guarantees by the state which exclude the impact of harmful and dangerous factors of the environment on human organism and ensures favorable conditions for the population and viability of future generations.

In 1992, RA laws on food safety and veterinary medicine dealt with the prevention of animal diseases and their subsequent transmission to human beings.

State hygiene and anti-epidemiological service operations ensured the sanitary-epidemiological safety of the population.

Thus, state control over food safety in RA has been fulfilled by the Ministry of Healthcare since 2006. During this period, the Ministry of Agriculture was dealing with veterinary as well as phytosanitary oversight functions defined by the law on “Plant Protection and Plant Quarantine”.

In 2006, a new RA law on “Food Safety” was adopted which defined the main principles and issues of State Food Safety Policy:

1) Ensuring implementation of legal acts on food safety as well as consumption of safe food for the sake of the human life and the health and protection of consumer rights.
2) Provision of safety guarantees for human life, health and environment during functions fulfilled at all phases of food chain.
3) Ensuring cooperation and exchange of information on food safety with relevant international and regional organizations.
4) Ensuring introduction of international standards and requirements on food safety.
5) Adopting decisions on changes within the state policy based on scientifically justified risk assessment on food safety as well as on risk management.

According to the Government decision, as of June 5 2008, on “Recognition of authorized bodies implementing state oversight over food safety and food additives at all phases of production and circulation”, the State Service for Food Safety was recognized as an authorized body implementing state oversight over food safety.

Based on the RA Government decision, as of 30.12.2010 “The Staff of the State Service for Food Safety” governmental facility of the Ministry of Agriculture of RA was founded, which is currently the state regulator in the spheres of food safety, veterinary medicine and

phytosanitary. The main goal of the service is to ensure state control over food production and circulation at all phases of the food chain. The same Government decision re-organized the State Hygienic and Sanitary-Epidemiological Service of the Ministry of Healthcare and its subdivisions, as well as the structure and charter, thus removing from the Service's functions control over the fulfillment of sanitary norms and requirements by physical and legal entities.

As a result, food processing organizations were left out from control, from an oversight perspective, regarding the working conditions of employees, particularly harmful factors in the production environment (such as physical factors /thermal radiation, non-ionizing radiation, industrial noise, ultrasound, infrasound, vibration, aerosols with intensive fibrogen impact / various types of dust /, chemical factors / chemical agents, acids, antibiotics, vitamins, hormones, enzymes, protein preparations, biological factors /preparations containing bacteria, spores and living cells, pathogenic bacteria), as well as tension and stress of the working process and hygienic assessment of the work place. This can result in harmful impacts on the human organism and lead to healthcare problems, including "occupational diseases".

Depending on their chemical content and mechanisms of impact on organisms, substances used during the production are disaggregated as substances causing poisoning, irritation, as well as containing carcinogenic substances, various allergens, hormones, drugs, chemical agents, biological factors, aerosols etc. Raw materials, substances and preparations with such content have continuous impact on human activity leading to disorders in cardio-vascular, respiratory, central nervous and other systems. In this context it's highly important to ensure hygienic risk assessment monitoring of produced/imported technologies and the introduction and use of substances to prevent their possible future negative impact.

According to the RA Law on Food Safety, the State Service for Food Safety of the RA MoA also implements oversight of food safety for special and medicinal purposes.

Food for special purpose differs from the general consumption food in terms of its specific content or food specifications, and is designed for groups with special health issues such as pregnant women, people with gastroenteric and metabolic disorders etc. More importantly, regulation of food allergens is out of the purview of the RA Law on Food Safety as they are not indicators for food quality and safety. Allergens are antigens that provoke allergic reactions among people hypersensitive to those antigens. Depending on the specifics of the organism, any ingredient of food could become a food allergen and their quantitative limitations in food products are not defined.

Requirements defined by directives of the Codex Alimentarius, World Health Organization and European Commission refer only to the list of food allergens and labeling related issues.

It's worth mentioning that the list of food allergens should be defined by the authorized state governing body based on scientifically proved data and a study on the state of human health, as only specific groups of people need consumption of food with a specific quantity of ingredients which also includes special purpose food which is not regulated until now.

The food safety sector is regulated by RA Laws on Food Safety, Veterinary Medicine, Phytosantitary, Forage, Standardization, Protection of Consumers Rights, Organization of

and Undertaking Inspections in the Republic of Armenia, the Code on Administrative Violations as well as other bylaws and legal acts. The Government has adopted technical regulations requiring minimum standards for food safety. Development of food safety technical regulations and their compliance to international standards is an ongoing process promoted by WHO and Codex Alimentarius. Until today, 15 technical regulations on food safety have been adopted, particularly:

- Technical regulations on meat and meat products
- Technical regulations on milk, dairy products and their production requirements
- Technical regulations on food hygiene requirements
- Technical regulations on juices and juice production requirements
- Technical regulations on requirements to bottled mineral water
- Technical regulations on polymer and plastic products in contact with food.

However, RA Government decision N 594-A limited inspections (between the period of January 1 2009 and January 1 2011) by authorized bodies defined by the RA Law on Organization of and Undertaking Inspections in the Republic of Armenia (except for the State Revenue Committee) among business structures that had turnover of up to 70 million AMD in 2008 (including VAT). This decision was made within the scope of the anti-crisis program, to mitigate the negative impact of financial crisis and promote small and medium enterprises.

According to the RA Law on "Law on Ensuring Sanitary-Epidemiological Safety of the Population" sanitary-epidemiological safety, within the food safety and state oversight, is defined by the RA Law on Food Safety.

Based on the RA Law on Sanitary-Epidemiological Security of the Population of the Republic of Armenia on August 12, 2013, the healthcare minister issued a decree on "Hygienic requirements for the organization of child feeding at pre-school facilities", sanitary norms and rules as well as "Hygienic requirements for the organization of feeding at public educational facilities" (in 2014) and its sanitary rules and norms.

According to the RA Government decision, inspections at business structures are prohibited until January 1, 2016.

Issues related to the organization of child feeding at pre-school and public educational facilities were also not included in control/oversight. No study has been conducted on the organization of balanced food, food ingredients (protein, fat, carbohydrates etc), caloric energy, vitaminization and preparation methods of food.

## Strategic programs and concepts on public nutrition and food safety adopted by the RA Government

Expert interviews helped to clarify the framework of documentation to be studied. Speaking about strategies and existing legislation, respondents only outlined documents and activities that directly refer to their professional activity. In their view the national nutrition policy is in line with best international practice and complies with international standards, or is in the process of becoming so. The policies are usually guided by the WHO, Codex Alimentarius, ISO standards, etc.

As obstacles for policy implementation, some respondents noted insufficiency of resources and funds, and quantity and methods of tests. Respondents also emphasized the importance of inter-ministerial cooperation.

Results of the qualitative interviews supplemented with the policy analysis are presented below:

1. *Strategic Development Plan of the Republic of Armenia for 2014-2025 (adopted by the Government in 2014)*

Government decision N 442-N as of March 27 2014 adopted “Strategic Development Plan of the Republic of Armenia 2014-2025”. The “Healthcare” section of the strategy in its “Priorities and Objectives” subsection pays special attention to prevention, early detection and timely treatment of non-communicable diseases (NCDs) to reduce the number of diseases and mortality tendencies.

An important precondition for a drop in NCD levels is early detection and risk analysis through comprehensive research and, if necessary, to proceed with the development and implementation of relevant programs promoting public *healthy lifestyle and nutrition.*

The strategy plans an update of hygienic and production regulations of food ***production*** with state support and an analysis of risk sources, in addition to capacity building of ***food safety laboratories,*** and an improvement of rules on genetically modified organism within ***food*** at the legislatives level.

2. *“UN-Armenia: 2016-2020 Development Assistance Framework” (adopted on July 31, 2015)*

The goal of the project is to ensure cooperation in country development sectors, promotion of economic growth, improvement of environmental management, and the provision of high quality social services between 2016 and 2020.

Priorities in the **healthcare sector** are reproductive, mother, child and teenager healthcare, preventing transmission of HIV viruses from mother to child, prevention of and control over NCDs, as well as the ***promotion of a healthy lifestyle.***

One of the primary goals of the framework is the *improvement of child growth and development, particularly:*

- *Decrease in the number of stunted and undernourished children from 0 to 5 years old,*
- *Development of a national school feeding program.*

3. *«Strategic program promoting healthy lifestyle and action plan ensuring implementation of the program» (adopted by the Government on 27 November 2014).*

The project aims at the implementation of activities promoting a healthy lifestyle by 2020 which reflect NCD issues.

The goal of the project is to develop and introduce structural mechanisms for the legislative framework and inter-ministerial cooperation aimed at the promotion of a healthy lifestyle which contribute to the decrease of premature mortality and the number of diseases caused by NCD.

For the implementation of the program measures, the prime minister issued a decree on January 29, 2015 on the establishment of a Committee on Healthy Lifestyles.

*Activities planned for the improvement of nutrition issues within the Healthy Lifestyle strategic program are:*

- Submission of an amendment package to the RA Government on "Advertisement", "TV and Radio", for the regulation of social advertisement broadcasts,
- Submission of recommendations on legislative amendments to the RA Government regulating the sale of food and drinks designed for children and teenagers at educational, medical and other facilities,
- Development of specialized services promoting a healthy lifestyle campaign including a campaign on nutrition of children at early age as well as implementation of educational projects also for parents and the establishment of consultation centers.
- Development of guides on issues related to the limitation of *unhealthy nutrition and promoting healthy nutrition among children* of preschool and school age as well as the introduction to pedagogues of public educational facilities based on defined regulations.
- Development and introduction of monitoring mechanisms for implementation of activities aiming at the limitation of *unhealthy nutrition,* as well as the development of a methodological guide.

4. *Mother and Child Healthcare Strategy for 2003-2015 (adopted by the RA Government on August 8 2003). Development of new draft is in process.*

*Challenges with children and teenagers' nutrition:*

- *Continuous drop in the nutritional state of children, prevalence of malnutrition and anemia.*

- *Increase in the proportion of children born with low weight.*

5. *National program on fight against and prevention of consequences of iodine deficiency in food of the population of the Republic of Armenia (adopted on December 31 2000 and amended by the Government on February 12 2004).*

As a mountainous and sub-mountainous country, Armenia is ranked as an endemic region in terms of iodine deficiency causing public health disorders.

The program was developed by the Ministry of Healthcare of RA as a requirement of the law on Sanitary-Epidemiological Security of the Population of the Republic of Armenia, the Declaration adopted during the international symposia on nutrition (Rome, 1992) and "Prevention of iodine deficiency among the population of participating members of the Commonwealth of Independent States (CIS)" signed by CIS members and ratified by the president of Armenia.

The goal of the program is the reduction and prevention of disorders caused by iodine deficiency in food consumed by the population of the country.

The objectives of the program are:

- Development and implementation of a national policy tasked with fighting against and preventing disorders caused by iodine deficiency in food,
- Ensuring the use of purely iodinated salt in food,
- Improvement of the existing legal sector on table salt iodination,
- Early detection/diagnosis and treatment of disorders (thyroid overgrowth etc) conditioned by iodine deficiency,
- Training for medical staff and employees of the educational system,
- Implementation of a healthy lifestyle campaign, particularly spreading knowledge on the prevention of disorders caused by iodine deficiency,
- Assessment of the efficiency of measures preventing iodine deficiency related disorders.

In order to assess the efficiency of activities defined by the national program, a nation-wide survey on iodine deficiency was conducted in Yerevan and the *marzes* in 2005 with the support of UNICEF Armenia and the participation of an international expert.

Based on the research findings and work done in the country, Armenia was internationally recognized as a country which has overcome the challenges confirmed in 2006 by the WHO, UNICEF and other international organizations specialized in iodine deficiency through granting an appropriate certificate to Armenia.

With a view to ensuring the sustainability of achievements in the prevention of diseases caused by iodine deficiency in Armenia, preventive measures are of continuous nature.

6. *National program on improving reproductive health for 2007-2015 (adopted by the Government on July 26 2007). New draft is in the development process.*

**The key goal of the program** is to improve sexual and reproductive health of the population ensuring performance of rights in the sphere of reproductive and sexual health throughout the life of the population.

*Issues of food and nutrition within the program:*

1) High rate of mortality among children up to 1 year old and high mortality share conditioned with perinatal reasons,
2) Increase in the number of underweight newborns.

### *7. National strategy on child and teenager health and development and its action plan (adopted by the Government on 10.09.2009).*

**The goal of the Strategy** is the implementation of activities ensuring child and teenager health and development.

**Priorities of the strategy are:**

1. Health of newborns
2. Health and development of children of early age, including nutrition and immunization
3. Child development disorders and infantile disability,
4. Health and development of children of school age and teenagers
5. Psychological health
6. Chronic diseases
7. Injuries and violence
8. Environment.

Listed priorities and action plan foresee:

- Promotion of breastfeeding ensuring an increase of the rate of exclusively breast feeding of children up to 6 months old for at least 50% thus making 60% and more in 2015 (the rate for 2005 made up 33%).
- 1/3 decrease of chronic malnutrition among children of early age,
- The share of stunted children of 0-5 age group should not exceed 5% in 2015,
- Establishment of the assessment and monitoring system for infant development, the adoption of national growth and development standards, and the improvement of assessment practice.

*In accordance with the Healthcare Information and Analytical Center, the breastfeeding rate in 2015 was 68.7%, thus exceeding the target rate set for 2020.*

Since the1990s, Armenia has registered huge progress in terms of improving breastfeeding and the official breastfeeding rate has increased by 3.5 times. However, in spite of these positive developments, there are still challenges related to breastfeeding of babies and children of early age as well as feeding practices.

*Issues of child feeding are:*

1) Continued insufficient level of breast feeding,

2) Insufficient knowledge of mothers on the advantages of breastfeeding and wrong practices, particularly in rural areas and women with low education levels,
3) Wrong practices and insufficient knowledge on organization of supplementary feeding not only among mothers but also medical staff,
4) Continuous deterioration of the state of child nutrition with high prevalence of chronic malnutrition,
5) High prevalence of anemia both among children at early age and women of reproductive age.
6) Issues related to the violation of international code on marketing of artificial milk formula and imperfection of national legislation:
   - Misinformation technologies and advertisement promoting milk formulas by producers and/or distributing organizations,
   - Lack of accountably mechanisms defined by the legislation for violations of the RA Law on Advertisement,
   - Lack of practical mechanisms affecting practices of facilities and medical personnel cooperating with distributing organizations and/or producers of artificial milk formula.

*Issues of assessment of child growth and development:*

1) Continuous deterioration of the nutritional state of children, fall in breastfeeding rates, and wrong practices on supplementary feeding,
2) High prevalence of malnutrition and anemia among children of early age, as well as increasing share of underweight newborns,
3) High prevalence of anemia among women of reproductive age and high tendencies for increases among pregnant women,
4) Lack of assessment and monitoring system of infant development, as well as imperfection national growth and development standards and approaches.

*Actions tasked with solving the above issues:*

1) As an overall goal, a reduction of the mortality of at least 30% among children of 0-1 age group and up to 5 years old,
2) Promotion of breastfeeding ensuring at least a 50% increase in exclusively breastfeeding of children up to 6 months old
3) 1/3 decrease of chronic malnutrition among children of early age,
4) 1/3 decrease of anemia among women and children,
5) Ensuring current 97% level of iodination of table salt as well as the eradication of iodine deficiency related diseases,
6) Establishment of assessment and monitoring system for infant development as well as the adoption of national growth and development standards and improving assessment approaches.
7) Increase of the awareness level regarding child care and health among mothers, fathers and caregivers.

### *8. Concept on improving child nutrition (September 25, 2014)*

*The key goal of the concept* is the introduction of appropriate practices on child nutrition aimed at their healthcare, reduction of diseases and mortality, as well as improving infant

nutrition through promoting breastfeeding.

**Strategic directions and outcome indicators of the concept:**

1) For children of early age:
   - 1/4 increase in breastfeeding rate among children up to 6 months old,

*In accordance with the Healthcare Information and Analytical Center, the breastfeeding rate in 2015 was 68.7%, thus exceeding the target rate set for 2020.*

   - Improving the rate of early start of breastfeeding by 30%. This rate should be 47% in 2020 as opposed to 36% in 2010.
   - ½ increase of the "median" rate of exclusively breastfeeding. By 2020, it should be 3 months as opposed to 1 month in 2010.
   - Improving the number of children, under the age of 1, receiving timely and appropriate supplementary feeding: by at least 20%. In 2020, it should be 40% and over, versus 34% in 2010.
   - 1/3 decrease in use of bottles and nipples among children under 6 months old. In 2020, this rate should not exceed 36% versus 51% in 2010.
   - ¼ decrease of prevalence of chronic malnutrition/stunting among children of early age, as well as an in-depth study of the reasons of malnutrition/stunting. In 2020, age-weight deviation among children up to 5 should not exceed 15% versus 19% in 2010.
   - At least a ¼ decrease in the anemia rate among children up to 5. In 2020, the rate should not exceed 25% versus 37% in 2005.
   - 1/3 decrease of rate of underweight newborns. In 2020, it should not exceed 6% versus 7.6% in 2010.
   - Improvement of knowledge of mothers on feeding sick children by 15%. In 2020, the rate of mothers who applied appropriate practices should be 90% versus 77% in 2010.
   - Ensuring 95% and more use of iodinated salt in households with children aged 0-5.

***Health problems conditioned by child nutrition and insufficiency of micro-elements:***

1) Continuous deterioration in the state of child nutrition, trends in increasing chronic malnutrition/stunting rates,
2) Low level efficiency of measures against anemia provoking high exposure both among children of early age and women of reproductive health
3) Obvious trend in increase of the number of underweight newborns.

***Issues related to gaps in assessment of the state of child nutrition and continuous oversight:***

1) System lack regarding monitoring assessment of the state of child nutrition, growth and development,
2) Lack of reliable and new data on malnutrition related to the deficiency of nutritional micro-elements
3) Challenges with ensuring the sustainability of achievements within the scope of the fight against iodine deficiency

***Inappropriate medical practices on child nutrition issues:***

1) Insufficient level of knowledge among medical personnel and shortage of literature on modern principles of child and teenager nutrition and
2) Lack of a system for the assessment of medical practices on child nutrition, birth assistance and infant prophylactic institutions,
3) Inappropriate level of specialized consultations on child nutrition and particularly healthy nutrition,
4) Lack of appropriate human resources, including nutrition specialist,
5) Need for education on child nutrition based on evidential medicine through pre and post-graduate educational programs.

*Issues related to the state of nutrition of children of school age, as well as negative eating habits:*

1) Lack of functioning system for the assessment and official information on the state of nutrition of school-age children,
2) High prevalence of unhealthy eating habits and low level of healthy behavior and physical activity among school-age children,
3) Lack of guidelines on school-age children nutrition
4) Shortage of guides on physical activity among pre-school and school-age children, and particularly children with health problems and needs, as well as insufficient level of knowledge among school trainers,
5) Low level of engagement of schools in the formation of healthy nutrition habits as well as unfavorable conditions for healthy nutrition at schools,
6) Sales of unhealthy food with high concentrations of fats, trans-fats, free sugars and salt in child education and entertainment facilities,
7) Lack of media broadcasts on healthy lifestyle,

*Implementation of the projects on child healthcare and improved nutrition needs inter-ministerial and international cooperation.*

*Taking into account the above, child nutrition should become not only be an issue for the healthcare system but also for public awareness and inter-ministerial cooperation which requires more effort and resources.*

## *9. "Healthy lifestyle" educational concept at public schools (adopted by the Ministry of Education on July 31 2008)*

Until the adoption of state regulations on public education and state standards for secondary education in 2004, no school had separate healthy lifestyle curricula.

Based on the Government decision, as of January 10 2008, healthy lifestyle educational courses were incorporated into school curricula for 8$^{th}$ and 9$^{th}$ grade students. "Healthy lifestyle" concept, curricula and guides for teachers were developed.

The goal of the course is to effect appropriate habits among students for their own health and that of others; regarding such habits as the most valuable.

The curricula includes issues on promoting healthy lifestyles, the prevention of harmful habits, HIV/AIDs and information on sexual and reproductive health of teenagers taking into account the specifics of 8th and 9th grade students, knowledge and national/cultural characteristics.

According to the curricula, students shall be able to disaggregate food products according to their content, to choose the most optimal ration, calculate the quantity of used and burnt calories and regulate energy consumption.

To assess the efficiency and knowledge of children, a separate monitoring project should be undertaken.

*It's worth stating that the Strategy for mother and child healthcare for 2003-2015, the National Program on improving reproductive health for 2007-2015, and Concept on improving child nutrition, defined the same indicators but with different target values.*

*At the strategic and concept levels, indicators and their target values should be the same. Moreover, those indicators should comply with MDG and defined values.*

Considerable work has been done in Armenia aimed at the prevention of the harmful impact of NCDs and their risk factors (particularly alcohol abuse, overweight, obesity, unhealthy diet, abuse of table salt, physical inactivity, high blood pressure etc). As a result, national strategic programs were developed for 3 types of diseases with lethal outcome, namely cardio-vascular diseases, diabetes mellitus and malignant tumors.

It's worth mentioning that the Concept on prevention, early detection and treatment of wide spread non-communicable diseases doesn't include cardio-vascular diseases, tumors, diabetes mellitus and the impact of unhealthy nutrition and physical inactivity, which leads to metabolic disorders.

### *10. Strategic program on fight against the most common non-communicable diseases for 2016-2020 (in the adoption process)*

The goal of the program is the improvement of inter-ministerial cooperation, as well as efforts at the national, provincial and community levels aimed at the improvement of the population's health. One of the strategic objectives of the program is the development of a national policy regarding the fight against and prevention of overweight issues and obesity.

*Key objectives and activities on the limitation of unhealthy nutrition developed by the MoH were included in the Healthy Lifestyle Strategy and the Strategy on the Fight against Non-Communicable Diseases.*

### *11. The Action Plan of the Ministry of Healthcare contributing to the national security of the Republic of Armenia (adopted by the Government on April 15, 2010)*

In terms of the RA national security, the objectives of the Ministry of Healthcare are:

- Development of an effective healthcare system
- Mother and child healthcare

- Reduction and, where possible, eradication of harmful and dangerous factors affecting the population's health
- Prevention of import and expansion of communicable diseases in the territory of RA, ensuring public health security through sanitary protection of the territory and state borders of the country,
- Fight against most common diseases with high mortality rates,
- Accessibility of high quality medical services, regulation of drug circulation and the reduction of financial risks among the population related to healthcare services.

In order to prevent the import and expansion of communicable diseases in Armenia (bird flu, cholera, plague, yellow fever, anthrax etc), the following sanitary-epidemiological and anti-epidemiological measures should be undertaken:

Directions:

1) Adopt the RA Law on Public Health Safety,
2) Improve and strengthen state hygienic and anti-epidemiological control,
3) Undertake sanitary-hygienic and anti-epidemiological activities to resist and prevent the import and expansion of communicable diseases in the territory of Armenia,
4) Organization of preventive, medical and limitation actions by sanitary-quarantine centers on border control areas,
5) Implementation of projects on environmental hygiene,
6) Improve preventive actions against most dangerous viruses,
7) *Improve and expand* monitoring, studies, analysis and assessment of harmful risks affecting human health connected with food consumption,
8) Develop programs aiming at healthy lifestyles and involve civil society and non-governmental organizations.

<u>The Ministry of Healthcare has developed guides on healthy food and nutrition, as well as NCD management and treatment for the staff of primary healthcare institutions</u>

12. *Nutrition intake reference for adults (adopted by the MoH on 16.02.2010)*
    The goal of the guide is to increase the awareness of the public nutrition intake and healthy lifestyle.

13. *Practical guide on the management and treatment of non-communicable diseases for the staff of primary healthcare facilities (adopted on16.04.2014).*

14. *"Anti-epidemiological research on food poisoning" methodological guide (31.08.2012)*

    The guide presents:

    - Sources of food poisoning according to pathogens as well as epidemiology,
    - Epidemiological study of food poisoning cases,
    - Organization of anti-epidemiological measures in exposure areas,
    - Main clinical symptoms of poisoning with heavy metals
    - Sampling of suspicious food products,

- Registration and reporting on food poisoning cases.

The guide hasn't reflected epidemiological issues of tularemia, brucellosis and anthrax as part of these diseases is conditioned by the use of infected food such as milk, meat, etc.

### *15. Specialized guides on nutrition of children of early age and public awareness raising materials to pregnant women and nursing mothers (March 7, 2013)*

The guide was developed to reduce problems related to child nutrition, to improve medical procedures on organizing child nutrition for early age children, to improve professional skills, as well to strengthen public awareness measures in the sector.

In 2008, the Ministry of Healthcare adopted the National Strategy improving nutrition for children of early age and the promotion of breastfeeding. The main messages of the strategy are:

- Breastfeeding is the best and only natural means of baby feeding.
- Breastfeeding is possible in the majority of cases from the day of birth (about 97%) except for medical indications.
- Early start of breastfeeding (30-60 minutes after the birth).
- Infant should be fed exclusively with breast milk up to the $6^{th}$ month.
- Feeding should be frequent according to infant's need (including night hours).
- Supplementary feeding should start not later than at the age of 6 months.
- Mothers should be provided with appropriate practical and psychological support as well as professional consultations by medical staff.
- During the pregnancy period, women should be prepared and get enough information on the advantages of breastfeeding.
- Favorable and supporting social environments should be created for pregnant women and nursing mothers within medical facility, family and workplace.
- Mothers should be well aware of appropriate child feeding practices, preparation of supplementary food, as well as food safety and hygiene rules.

### *16. Hygienic requirements, sanitary norms and rules for the organization of feeding at public educational facilities (adopted in 2014).*

These sanitary rules and norms define hygienic requirements on school feeding for public educational facilities (i.e. public schools, specialized public schools, public schools for children with special needs including elementary, secondary and high schools, and colleges).

### *17. Hygienic requirements, sanitary rules and norms for feeding at pre-school educational facilities (adopted in 2013)*

These sanitary rules and norms define hygienic requirements on school feeding for pre-school educational facilities.

Daily dietary norms for students/children of educational facilities include balanced nutrition according to the main food ingredient ensuring a 1:1.4 ratio of proteins, fats and

carbohydrates (depending on the age and physical activity the ration can be 1:1, 2:4, 6). Otherwise, 10-15% of the energetic value of the daily dietary norm is compensated at the expense of proteins, 30-32% - fats, and 55-60% - carbohydrates. The correlation of calcium (Ca) and Phosphor should be 1:1.5.

To prevent mass infections and food poisoning as well as NDCs conditioned by food factors, educational facilities are prohibited from using the following food products, those including cream, pastries and fried foods (fried with fat and oil), pies, donuts, potatoes, pancakes, chips, trans-fats, carbonated beverages, food with high sugar and salt content, as well as caramel and ice cream.

## Laws and by-laws on public nutrition and food safety adopted by the Government of RA

### *1. RA Law on Advertising (adopted 1996)*

The Law defines the legal basis of creating and disseminating advertisements on the territory of the Republic of Armenia and aims at:

a) Providing the necessary conditions for the creation and dissemination of advertisements corresponding to the interests of the public, advertisement consumers, advertisers, commercial producers, and commercial transmitters;

b) Preventing the spread of unreliable information through advertising that may cause damage to legal and physical entities, to their honor, dignity, business reputation and the interests of citizens;

In March 1999, the Law on Advertisement was amended with the following content that prohibits:

a) To advertise any food or liquid, as well as feeding bottles and nipples replacing breast milk for children up to 6 months old,
b) To place advertising notes and images on breast milk substitutes
c) To sell breast milk substitutes without notifications on the advantages of breast-feeding on the package
d) To disseminate breast milk substitutes free of charge for advertising purposes

The law includes some provisions of the international code on marketing of breast milk substitutes.

Monitoring results show that companies distributing milk formula succeed in bypassing the international code on the marketing of breast milk substitutes and the RA Law on Advertising, since the legislation lacks specific punishment mechanisms/sanctions and medical staffs are mainly not aware of provisions of the international code and their responsibilities in this regard. Public awareness on this issue is also limited.

The laboratory network of the State Service for Food Safety of the RA Ministry of Agriculture undertakes the inspection of food safety parameters and only after safety certification are products allowed to clear customs for further distribution.

The law doesn't reflect the ban on advertising food and alcohol harmful to public health.

## *2. The RA Law on Food Safety (adopted 27.10. 2006)*

The law regulates relations with respect to food safety at the stages of import, export, manufacture, processing, packaging, labeling, transport, storage and placing on the market of food, materials in contact with food and food additives, as well as at the stages of trading and mass catering.

This Law shall not apply to:

a) Domestic preparation, handling or storage of food for private or domestic consumption;
b) Transit transfers of foodstuffs through the Republic of Armenia, except for cases when the transit transfer may imply a hazard to the health of the population and the environment.
c) Foodstuffs prepared as a result of scientific and educational processing of food which is not a subject for marketing.

The law defined the legislation on food safety, principles and issues of the state policy on food safety as well as the power of the Government of the Republic of Armenia regarding food safety.

The law defined requirements on food safety, particularly:

- unsafe food, materials in contact with foodstuffs and their management,
- requirements on food production,
- requirements on safety of materials in contact with foodstuffs, labeling and packaging,
- hazards analysis and critical control points (HACCP)
- circulation of foodstuffs,
- circulation of new foodstuffs processed with irradiation as well as produced for special purpose,
- responsibilities of food operators on fulfillment of hygiene requirements
- hygienic requirements posed to processes related to initial food production,
- procedures to prove the safety of materials in contact with foodstuff at all stages of production, processing and circulation,
- requirements for all food chain stages,
- registration of operators involved in the food chain,
- provision of conclusion on the operation of food chain operators producing food of animal origin,
- traceability,
- limitations in import, use and sale of hazardous foodstuffs and hazardous materials in contact with foodstuffs,
- requirements on food advertisement,
- rights and responsibilities of food chain operators,

For the first time, this law provided a definition of the term “genetically modified food”. This is food generated as a result of adding an alien gen to living organisms or changes of the genetic structure through the combination of genes to produce foodstuffs of other specifications.

### *3. RA Law on Promoting Breastfeeding of Children and the Distribution of Baby Food*

The law has incorporated a majority of the International Code on Marketing of Breast-Milk Substitutes. Separate provisions of the code were included in the RA laws on Advertising and Food Safety. These laws, however, are not implemented effectively due to the lack of control mechanisms and punishment/sanctions in cases of violation.

As of 1993, the MoH of RA has undertaken several initiatives resulting in the adoption of the Program on Promoting Breastfeeding. As a result, 20% and 35% breast feeding rates for 1994 and 2010 have increased for 3-4 times reaching 82% in 2012. However, DHS 2010 data revealed several gaps in this regard.

During the period 1994 - 2011, the low level of breastfeeding was partly conditioned by the aggressive advertisement campaign and negative marketing impact of companies producing milk formula. Those companies “targeted” medical facilities and started cooperation with medical staff in maternity hospitals, offering free of charge samples etc. It’s difficult to eliminate such phenomena due to the lack of appropriate tools and punishment measures/sanctions.

The International Code on Breast-Milk Substitutes is a non-binding document for member states. However, the majority of member states and companies producing milk formula have accepted and signed the document.

**The subject of the regulation of the law**
The law regulates relations regarding the promotion of breast-feeding of children, circulation, production, labeling, sales, and distribution, advertisement of baby food and relevant products, as well as awareness-raising and dissemination of information on products.

**The goal of the law** is to ensure the healthy and secure nutrition of infants and children of early age through the promotion of breastfeeding, as well as the regulation of the sale of baby food and associated products.

**Objectives of the law:**

1) Promote and advocate breastfeeding,
2) Promote timely and appropriate supplementary feeding,
3) Inform the public, including pregnant women, their families and children caregivers, on advantages of breastfeeding, as well as risks for health related to the use and inappropriate use of breast-milk substitutes through the provision of relevant, accurate and accessible information,
4) Promote and support the establishment of favorable environment in medical facilities and public facilities and workplace for mothers, infants and children of early age,

5) Ensure compliance of the legislation related to promotion of breastfeeding, as well as the circulation of baby food and associated products to international standards,
6) Promote and advocate breastfeeding as effective means of poverty reduction,

*As a UN member, Armenia has joined and signed international conventions and declarations related to women and children, thus assuming relevant commitments reflected in national policies adopted by the RA Government and the Ministry of Healthcare, particularly*

- *The RA Government decision of 08.08.2003 on the adoption of the Strategy of Mother and Child Healthcare for 2003-2015*
- *Adoption of the Action Plan and the Strategic Program on the Protection of Children's Rights for 2013-2016*
- *The Strategic Development Program of the RA for 2014-2025*

## *4. RA Law on Food Security (adopted 07.05.2002)*

Food security is one of the essential components of national security. Its importance is recognized by both national and international policies.

In each country, food security exists when the economy of the state ensures physical and economic accessibility of healthy food for the population during both peacetime and states of emergency.

Due to socio-economic reforms in the country, some preconditions have been formed for the improvement of the level of food security. Sustainability, however, needs solutions on several issues.

A solution of those issues is possible only as a result of a unified state policy that would guarantee the establishment of competitive agricultural and food systems, proportional territorial development, prevention of food crises during states of emergency, macro-economic stability, comprehensive population nutrition, required levels of food sufficiency, as well as the protection of socially vulnerable groups excluding the negative impact on the environment and a balanced use of natural resources.

This verifies the high priority and complexity of the food security issue; an issue that requires solutions both throughout world and within the country.

The law regulated relations in the sphere of food security in the Republic of Armenia, as well as defined the main directions of state policies.

### Main directions of national food security policy:

a) promotion of local production; most importantly raw material food products
b) ensuring quality standards of food products in accordance with regulations defined by the legislation of the Republic of Armenia,
c) Implementation of activities improving the macro-economic state of the RA and increasing the population's purchasing capacity,
d) accumulation of food in state reserves of the RA and their effective use,
e) implementation of activities targeting the regulation of the food market,

f) development of a balance between locally produced and imported food included in the minimal food basket structure, and ensuring data collection and analysis on the basket.

## *5. Strategy for Sustainable Agricultural and Rural Development 2010-2020 (adopted November 4, 2010)*

The strategy outlines the main directions of the national policy on rural and agricultural development for 2010-2020. It's aimed at the formation of a legal basis for agriculture, the establishment of favorable conditions for agricultural business and investments, the development of rural and agricultural infrastructures, promotion of the export of agricultural products, the introduction of new technologies, as well as the development of food safety and extension services.

At the same time, the strategy defines priorities and preferred specialization conditioned by market factors that become the starting points for targeted projects by state and local authorities, the donor community, investors and business structures.

This strategy is also linked to the RA Government Sustainable Development Strategy and ensures the sustainability of reforms in agriculture and is aimed at poverty eradication and a decrease in the migration of the rural population.

### Food safety

In terms of local market accessibility for import, Armenia is classified as a country with one of the most liberal (open) markets. Diversity of importers, as well as companies producing fresh and processed food, the applications of different technologies and the lack of an appropriate food safety control system create serious risks for the consumer health.

Compliance with food safety standards would increase the competitiveness of agriculture in Armenia. In this context, agriculture and the food sector should be able to effectively respond to consumer requirements on food safety and compete with imported and exported products.

Currently, the internal demand of producers and processors is dictated by food safety and quality improvement requirements. Availability of imported and quality products requires stricter standards, the introduction of quality management and internal security control systems, the adoption of internationally recognized security indicators thus ensuring internal market, replacing imported products with local production, and expanding export opportunities.

### Consumer health security within the food chain requires:

- Compliance of the legislation on food safety with the relevant directives of the European Union, including changes and amendments in the Law on Food Safety, relevant bylaws which regulate import, export, production, processing, packaging, labeling, transportation and storage of food products as well as materials and food additives in contact with foodstuff.

Improvement of the food safety system would contribute to:

- Increase of the competitiveness of food products, thus promoting export and improving foreign turnover balance for food products, as well as safety and quality of services provided at trade and public food facilities,
- Clarification of principles and issues of national food safety policy and their subsequent implementation.

The Government also pays special attention to the improvement of the veterinary and anti-epidemiological sector through the "Vaccination of Farm Animals" project.

### *6. National action program on the hygiene of the environment of the Republic of Armenia (adopted on 01.08. 2002)*

The goal of the program is to reveal issues and priorities related to the unfavorable impact of environmental factors on the population's health, offer activities aimed their reduction, and prevention of unfavorable conditions.

### *7. RA Water Code (adopted on 04.06.2002 )*

The main goals of this Code are:

- conserving the national water reserve,
- satisfying the water needs of citizens and the economy through the effective management of useable water resources, securing ecological sustainability of the environment as well as the provision of a legal basis to achieve the objectives of this Code.

The Code defines state ownership over water resources and water systems, as well as the main principles of water resource and system management, utilization and conservation.

The objectives of this Code are:

1. establishment of appropriate water resources management mechanisms,
2. conservation and protection of water resources, including the mitigation of pollution, maintenance and supervision of water standards and water level of the national water reserve,
3. prevention of water's harmful impact,
4. ensuring water resources assessment,
5. ensuring water supply to the population and economy in necessary quantity and quality by regulated tariffs,
6. safe and smooth work of water supply and waste water systems provision of normal conditions for their use and maintenance and supervision,
7. provision of conditions for HTSs safe and smooth use and maintenance and supervision,
8. organization of the management, protection and development of water systems.

### *8. RA Law on Rights of Children (adopted 29.05.1996)*

According to the law, children are under the protection and sponsorship of the society and the state.

This defines the right of child healthcare, particularly:

- Each child shall have the right to healthcare,
- Relevant state bodies shall ensure the accessibility of free of charge medical services for children with concessionary conditions and within the scope of annual healthcare target projects.

During recent years, positive progress has been recorded on the development of the legal systems on food safety. Particularly, laws on Forage, Veterinary Medicine, Phytosanitary and relevant bylaws have been adopted.

### *9. RA Law on Phytosanitary (adopted 27.11.2006)*

The law defines the powers of the RA Government in phytosanitary, which are:

- Ensuring the implementation of the state policy,
- Adoption of state phytosanitary programs,
- Definition of state registration regulation for plant protection means,
- Definition of regulations for expertise of plant protection means and fertilizers as well as summary form for import or export of plant protection means,
- Definition of the plant quarantine and lifting quarantine etc,

The law defines:

- Regulations for issues on import of plant protection means and fertilizers,
- Responsibilities of physical and legal entities involved in agribusiness in Armenia,
- Rights and responsibilities of physical and legal entities involved in phytosanitary,
- Oversight over phytosanitary,
- Procedures for announcing and lifting plant quarantine,
- Phytosanitary control over import, export, transit and re-export from RA of plants, plant products.

### *10. RA Law on Forage (adopted 21.06.2014)*

The law regulates relations related to import and export, production (including primary), production safety, storage, transportation, utilization, sale, labeling, packaging and advertisement of forage and forage additives.

The law defines:

- Requirements for forage safety,
- Rights and responsibilities of operators providing services related to the production and circulation of forage and forage additives,
- Responsibilities/punishment for violations of the law.

### *11. RA Law on Veterinary Medicine (adopted 21.06.2014)*

Main principles and issues of the state policy on veterinary medicine are:

1) Ensuring implementation of legal acts in the veterinary sector,
2) Cooperation with international and regional organizations and exchange of information,
3) Introduction of international standards and requirements on health and wellbeing of animals in Armenia,
4) Revision of the state policy based on scientifically proved risk assessment, consultancy, and scientifically proved assessment on risk management.

In terms of veterinary medicine the RA Government defines:

1) List of products subject to veterinary inspection,
2) General requirements on hygiene of foodstuffs of animal origin.
3) Requirements on forage hygiene,
4) Requirements on other products of animal origin, etc.

The law defines:

- Compensation for animals killed or subject to compulsory slaughter within the framework of the fight against infectious animal diseases,
- Veterinary activity, veterinary training and laboratory operation,
- Rights and responsibilities of physical and legal entities involved in veterinary activities,
- Requirements for anti-epidemiological measures,
- Requirements for animal inventory, numbering and registration, animal husbandry, products subject to veterinary inspection during the circulation stage, animal exhibition, and participation of animals in competitions and market,
- Requirements on raw materials, food products and veterinary drugs of animal origin,
- Requirements on the management of products of animal origin not designed for human consumption,
- Requirements on protection of animal health,
- Experiments on animals,
- Animal slaughter.

# 4. NUTRITIONAL STATE OF THE POPULATION

(Quantitative research findings)

## Research framework

The goal of the research is to assess the nutritional state of the population in the context of food security, outline main tendencies, issues and risks, which would help develop programs and measures aimed at improving food security and nutrition.

According to the definition of the World Health Organization, the pillars of food security are food availability, food accessibility and food use[11]. The UN Food and Agriculture Organization defines another pillar - food stability[12]. Food security and nutrition are closely inter-connected with the state of health of the population.

***Food Availability:*** *permanent availability of a sufficient quantity of food conditioned by the following factors:*

- Food production/import
- Distribution network

***Food accessibility:*** *availability of appropriate resources for acquiring food conditioned by the following factors:*

- Economic accessibility - whether the population is able to acquire or produce food in conditions of existing prices and income
- Physical accessibility - distribution network/distance, road and transport factors

***Food use****: right use of available and accessible as well as appropriate quality and quantity of food required for effective functioning of organs and health. Food use is conditioned with following factors:*

- Knowledge of nutrition and healthy food
- Use of sufficient quality water
- Assurance of food safety norms and hygiene
- Customs and culture related to acquiring, processing and use of food

***Stability****: Stability of above mentioned pillars over time and conditioned by the following factors:*

- Seasonality
- Stability of sources of food
- Volatility in food availability, accessibility and use, conditioned by weather, socio-economic and other macro level factors

In this context, the quantitative research studies several issues that more or less covered one or several pillars of food security and possible linkages with the state of health of the population.

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[11] WHO. *"Food Security".*

[12] *FAO Agricultural and Development Economics Division (June 2006)."Food Security" (PDF) (2)*

In addition to several tools and questions, a dietary diversity measurement tool was also applied during the survey[13]:

- To measure the level of food accessibility within households,
- To assess and measure the level of population nutrition and intake of necessary micro-elements at individual level,
- To assess and measure the level of child nutrition and intake of necessary micro-elements, as well as knowledge and practices of child nutrition.

A number of issues related to food availability, accessibility, use and stability were studied in accordance with food types in order to get a more realistic and precise picture. In all questions such a grouping was based on the structure of the food basket in Armenia and the dietary diversity measurement tool in order to be able to study different linkages among questions (see table 5).

Table 5

| Food basket | Diet diversity measurement[14] |
|---|---|
| Bread | 1. Grains/cereals |
| Potato | 2. White roots and tubers |
| Vegetables | 3. Vegetables and tubers rich in Vitamin A |
| | 4. Dark green leafy vegetables |
| | 5. Other vegetables |
| Fruits | 6. Fruits rich in Vitamin A |
| | 7. Other fruits and berries |
| Meat products | 8. Internal organs of animals and meat products |
| | 9. Meat and meat products |
| Eggs | 10. Eggs |
| Fish | 11. Fish and seafood |
| | 12. Nuts and seeds |
| Dairy | 13. Milk and dairy products |
| Oils and fats | 14. Oils and fats |
| Sugar | 15. Sweets |
| | 16. Spices and drinks |

The detailed list of food types for each group is presented in Annex 4.

In the context of the dietary diversity measurement, in addition to the general diversity assessment, a narrower disaggregation gives a clear picture on specific micro-elements, particularly intake and accessibility of Vitamin A and iron. Table 6 presents food groups rich with Vitamin A and iron.

Table 6

| Micro-element | Food Group |
|---|---|
| Vitamin A | Of vegetable origin<br>3. Vegetables and tubers rich in Vitamin A<br>4. Dark green leafy vegetables<br>6. Fruits rich in Vitamin A |

[13] Guidelines for measuring household and individual dietary diversity, 2013, Food and Agriculture Organization of the United Nations

[14] Food disaggregation according to groups is presented in Annex 4.

| | |
|---|---|
| | **Of animal origin**<br>8. Internal organs of animals and meat products<br>10. Eggs<br>13. Milk and dairy products |
| **Iron** | 8. Internal organs of animals and meat products<br>9. Meat and meat products<br>11. Fish and seafood |

*Glossary*

**Hunger** - Not having enough to eat to meet energy requirements. Hunger can lead to malnutrition, but the absence of hunger does not imply the absence of malnutrition.

**Malnutrition** - A condition resulting when a person's diet does not provide adequate nutrients for growth and maintenance, or when a person is not able to adequately utilize the food consumed due to illness. Malnutrition encompasses both 'undernutrition' (too thin, too short, micronutrient deficiencies) and 'overnutrition' (overweight and obesity), which should actually be considered 'unbalanced nutrition' as it often co-occurs with micronutrient deficiencies.

**Stunting** - Compared to wasting (or acute malnutrition), which can develop over a short period and is reversible, the development of stunting is a gradual and cumulative process during the 1,000 days window from conception through the first two years of a child's life. Stunting develops as a result of sustained poor dietary intake or repeated infections, or a combination of both. It has severe, irreversible consequences, beyond shortness of stature, including those for physical health (immediate and long-term morbidity and mortality) and cognitive functioning, which are intergenerational. The indicator for stunting is "low height-for-age", a measurement that is calculated by comparing the height of a child against the WHO international growth reference for a child of the same age. Globally, about one in four children younger than five are stunted, and a greater proportion of school-age children, adolescent and adults experience consequences of having been stunted during their early childhood.

**Undernourishment** - An indicator of inadequate dietary energy intake (based on FAO's definition of hunger, characterized as consuming less than a minimum level of kilocalories) that is assessed at the population level using national food balance sheets to determine the supply of dietary energy available to a given population and modeling of how that energy is distributed across the population. As of 2014, one in nine people in the world are undernourished.

**Underweight** - A low weight-for-age measurement calculated based on comparing the weight-for-age of a child with the WHO international growth reference. Underweight reflects both stunting and wasting.

**Wasting** - Acute malnutrition, or wasting, develops as a result of recent rapid weight loss or a failure to gain weight. In children, it is assessed by low weight-for-height compared to the WHO international growth reference or mid-upper arm circumference (MUAC). The degree of acute malnutrition is classified as moderate (MAM) or severe (SAM). Wasting is often used to assess the severity of an emergency because it is caused by illness and/or sudden, severe lack of food and is strongly related to mortality.

**Micronutrient deficiency** - A lack or shortage of a micronutrient (vitamins or minerals) that is essential in small amounts for proper growth and metabolism. People are often said to suffer from "hidden hunger" when they consume enough calories, but suffer from micronutrient deficiencies. This form of hunger may not be visibly apparent in an individual, but it increases morbidity and mortality and also has negative impacts on other aspects of health, cognitive development and economic development. Hidden hunger affects over 2 billion people worldwide.

## Food Accessibility and Use

### *Physical accessibility and infrastructures*

In order to assess physical accessibility of food, respondents were provided with a list of food where they outlined those foods that were inaccessible during specific seasons or the whole year. In addition they noted the closest places where they could purchase food when it was unavailable in their community. Within the scope of this analysis, "inaccessibility" of specific types of food will be named as a share of respondents who mentioned that the specific food products are inaccessible in their community. The main findings are presented below (the entire data is presented in the Annex 4):

#### Vegetables

Accessibility of main vegetable products used in Armenia has a purely seasonal character. In case of other products, seasonality plays a modest role.

#### *Purely seasonal vegetables*

*(3) pumpkins, red pepper, (4) herbs used as a food ingredient, (5) green beans, eggplant, squash, green pepper, corn, cauliflower, mushroom*[15]*.*

> Inaccessibility varies between 1.1-39.8%, while the highest accessibility was recorded for summer or autumn, lowest – in winter or spring. Inaccessibility in rural, border and mountainous/high mountainous communities is higher and varies from 0.9 to 74.4%.

[15] For more details on the Food Groups please see Annex 3.

*It's interesting that during the high season an equal level of accessibility was recorded almost everywhere. For instance, differences between rural and urban, border and non-border, mountainous/high mountainous and lowland communities mostly haven't exceeded 10%. However, during the low accessibility seasons (winter or spring depending on the type of food), the inaccessibility level of rural, border and mountainous/high mountainous communities was considerably higher (differences in rates between rural and urban areas make up almost 70%, 40% - between mountainous/high mountainous and lowland communities, and 35% - between border and non-border communities).*

*Vegetable with lower seasonality*

*(4) broccoli (5) radish, cucumber, tomato, mushrooms.*

Depending on the season, inaccessibility varies between 0.8%-22.1% and 1.1-47.8% - in rural, border and mountainous/high mountainous communities.

Here, it's worth stating that broccoli, rich in Vitamin A, should be assessed with some reservations as it has garnered popularity in Armenia during recent years and a considerable part of the population hasn't included it in their diets. Assessments of such respondents can be less objective conditioned by their lower awareness.

*Vegetables accessible full year*

*(3) carrots, (4) herbs used as ingredients, (5) onions, garlic, cabbage and beets.*

During the year, the inaccessibility level throughout the country varies from 0.8% to 6.8% and from 0.6% to 16.9% in rural, border and mountainous/high mountainous communities.

*Referring to vegetables rich in Vitamin A, herbs used as ingredients were accessible for the majority of the population for the full year.*

## Fruits

Accessibility of majority of fruits used in Armenia also has an extremely seasonal character. The inaccessibility level for this group fluctuates between 1.8% and 65.4% (for fruits rich in Vitamin A; apricot fluctuation range is 5.4%-65.4%; peach – 4.3%-57.8%; melon – 3.1% - 53.2%; persimmon 0 7%-48.2%). *As in case of vegetables, inaccessibility in rural, border and mountainous/high mountainous communities is higher and becomes extremely apparent during the off-season period (up to 95.3%)*[16]*.*

There are only 3 types of fruit that are almost equally accessibly full year – apples, bananas, lemons (inaccessibility level fluctuates between 0.5%- 3.8%). Only apple are equally accessible regardless of the type of community. In the case of bananas and lemons, their

[16] In some cases the level can reach 100%. However, many respondents sometimes didn't mention those extremely seasonal fruits that, according to them, are inaccessible not only in their community in the off-season but are inaccessible in general. (e.g. apricots)

inaccessibility level in rural, border and mountainous/high mountainous areas reaches 11.6%.

*In products of fruit origin rich in Vitamin A, only the accessibility of dried apricots and peaches is not conditioned by season.* However, in rural, border and mountainous/high mountainous areas, their inaccessibility can reach 30%.

### Other types of food

Inaccessibility of all the remaining food groups remains almost at the same level varying from 0% to 10 % during the year. Moreover, 5% and more inaccessibility levels have been recorded only for meat products and fish. However, it's important to emphasize that accessibility is not the same in terms of location. *The general tendency is that accessibility in rural, border and mountainous/high mountainous communities is lower. In particular, border communities face a challenge with inaccessibility of following types of food:*

Table 7

| Type of Food | Inaccessibility in border areas | Average inaccessibility level |
|---|---|---|
| Bread | 4.6%-8% | 0.6%-1.3% |
| Poultry | 4% | 1.3% |
| Sausages, smoked and other processed meat products | 5.1% | 1.3%-1.4% |
| Nuts and seeds | 1.7%-7.4% | 0.3%-3.5% |
| Oil, margarine, mayonnaise | 5.7%-6.9% | 0.6%-1.3% |
| Sweets | 6.3%-9.1% | 0.7%-1.8% |
| Spices and drinks | 5.1%-6.3% | 0.6%-0.7% |

Inaccessibility levels in rural communities are higher for following types of food:

Table 8

| Type of Food | Inaccessibility in border areas | Average inaccessibility level |
|---|---|---|
| Internal organs of animals and meat products | 11.1%-11.8% | 4.7%-5% |
| Beef, pork and lamb | 6.9%-8.6% | 3%-3.8% |
| Fish and seafood | 13.9%-25% | 5.2%-10.4% |

### Sales networks

Accessibility of food products within the community highly depends on existing sales networks. Therefore, respondents were asked where they get food in their community. As Table 9 shows, the highest figures were recorded for stores (97.4%), which is a bit less in rural, mountainous/high mountainous and border communities. Such areas have a lower level of supermarket accessibility. However, there are high number of responses for individuals/households, and particularly mobile sellers.

Table 9

| | Total | Administrative status | Altitude above sea level | Distance from border |
|---|---|---|---|---|

| | | Urban | Rural | Lowland | Mountainous/ high mountainous | Non-border | Border |
|---|---|---|---|---|---|---|---|
| From mobile sellers | **69.3%** | 66.1% | 75.0% | 64.1% | 88.4% | 68.0% | 80.1% |
| From individuals / households | **44.7%** | 32.3% | 66.8% | 41.4% | 57.1% | 42.4% | 63.6% |
| From farms | **20.6%** | 19.0% | 23.3% | 20.8% | 19.8% | 20.4% | 22.2% |
| From markets | **58.2%** | 72.9% | 31.9% | 60.5% | 49.7% | 61.3% | 33.0% |
| From stores | **97.4%** | 99.0% | 94.4% | 98.5% | 93.3% | 98.0% | 92.6% |
| From supermarkets | **67.1%** | 89.4% | 27.4% | 72.8% | 46.2% | 70.8% | 36.9% |

*Although this difference may not have a direct impact on the level of food accessibility it could, however, become a risk factor from the perspective of food stability (e.g. accessibility in stores and supermarkets is more or less stable in contrast to mobile sellers).*

In case of inaccessibility of food in the community the closest place to acquire food can be the neighboring community, closest town, regional center, other communities in the province/marz, and even the capital Yerevan. The next question tried to identify how often people purchase food in their community or other places.

Table 10

| | Administrative status | Every day | 3-6 times per week | 1-2 times per week | Biweekly |
|---|---|---|---|---|---|
| How often do you buy from your community? | Capital | 90.5% | 4.9% | 3.7% | .2% |
| | Regional center | 68.8% | 21.2% | 8.2% | 1.4% |
| | Other town | 64.1% | 21.0% | 9.7% | 2.8% |
| | Village | 36.8% | 25.2% | 24.1% | 4.3% |
| | **Average** | **64.3%** | **16.8%** | **12.6%** | **2.3%** |
| How often do you buy food from neighboring communities? | Capital | 2.3% | 6.7% | 16.0% | 8.1% |
| | Regional center | 1.4% | 3.4% | 7.7% | 4.3% |
| | Other town | 2.8% | 2.8% | 7.7% | 2.8% |
| | Village | 1.0% | 3.5% | 10.2% | 11.5% |
| | **Average** | **1.8%** | **4.5%** | **11.6%** | **8.0%** |
| How often do you buy food from the closest town? | Village | 1.4% | 17.0% | 29.2% | 18.3% |
| | **Average** | **1.4%** | **17.0%** | **29.2%** | **18.3%** |
| How often do you buy food from the provincial center? | Other town | 0.0% | 1.2% | 2.0% | 1.2% |
| | Village | 0.0% | 2.5% | 4.9% | 5.1% |
| | **Average** | **0.0%** | **2.1%** | **3.8%** | **3.7%** |
| How often do you buy food from other communities of the marz? | Regional center | 0.0% | 2.4% | 1.9% | 2.9% |
| | Other town | .4% | .4% | 1.6% | 1.6% |
| | Village | .2% | 1.6% | 2.1% | .9% |
| | **Average** | **.2%** | **1.5%** | **1.9%** | **1.5%** |
| How often do you buy food from other marzes? | Capital | 0.0% | 0.0% | 2.0% | .9% |
| | Regional Center | 0.0% | 0.0% | 0.0% | .5% |
| | Other towns | .4% | .4% | 1.6% | .4% |
| | Village | 0.0% | 0.0% | .3% | .9% |
| | **Average** | **.1%** | **.1%** | **1.1%** | **.8%** |
| How often do you buy food | Regional center | 0.0% | 1.4% | 3.4% | 1.9% |

| | | | | | |
|---|---|---|---|---|---|
| **from the capital?** | Other town | 0.0% | 1.2% | 3.2% | 1.2% |
| | Village | .7% | 3.8% | 4.0% | 6.9% |
| | **Average** | **.4%** | **2.7%** | **3.7%** | **4.6%** |

Regardless of community status, the bulk part of food purchase take place within the community. In this context it becomes important to understand how easy or difficult is for citizens to move about within the community.

The frequency of regular food purchase varies from “every day” to “biweekly”. Rarer food purchases have a casual character or are done in specific cases. As mentioned, purchases are mostly done within the community. In comparison to all options, purchases from neighboring communities as well as from urban communities for village residents have a slightly higher share. Here it’s important to understand how easy or difficult it is for community residents to travel to another community for food.

### Road and transport conditions

The difficulty or ease in transportation within or to another community is conditioned by the state of roads and operation of public transport.

Respondents living outside Yerevan were asked to assess roads within their community and roads coming to their community during all seasons on a scale of 4: where 1 means “very bad”, 2 - “bad”, 3 - “good” and 4 “very good”. *As expected, roads coming to the community have a higher score than inner-community roads. In seasonal terms, winter has always received the lowest scores. Scores for the border area roads were less than non-border ones.*

Table 11

| | Assess the roads in your village/town | | | | Assess the roads coming to your village/town | | | |
|---|---|---|---|---|---|---|---|---|
| | Spring | Summer | Autumn | Winter | Spring | Summer | Autumn | Winter |
| Total | 2.06 | 2.12 | 2.03 | 1.95 | 2.77 | 2.77 | 2.76 | 2.67 |
| Regional center | 1.77 | 1.86 | 1.75 | 1.67 | 2.73 | 2.71 | 2.71 | 2.59 |
| Other town | 2.06 | 2.11 | 2.06 | 1.98 | 2.74 | 2.74 | 2.73 | 2.66 |
| Village | 2.16 | 2.23 | 2.11 | 2.03 | 2.80 | 2.81 | 2.78 | 2.71 |
| Capital | 1.93 | 1.99 | 1.92 | 1.84 | 2.73 | 2.73 | 2.72 | 2.63 |
| | | | | | | | | |
| Lowland | 2.10 | 2.17 | 2.07 | 2.00 | 2.74 | 2.74 | 2.72 | 2.65 |
| Mountainous / high mountainous | 1.96 | 2.03 | 1.94 | 1.84 | 2.84 | 2.83 | 2.83 | 2.73 |
| Non-border | 2.08 | 2.14 | 2.05 | 1.96 | 2.80 | 2.79 | 2.78 | 2.70 |
| Border | 1.95 | 2.04 | 1.91 | 1.88 | 2.66 | 2.65 | 2.64 | 2.54 |

Similarly, respondents were asked to assess inner-community and inter-community public transportation; particularly its accessibility, frequency and price.

Table 12

| | Does your community have public transport? | | Is there public transport connecting your community with another one? | |
|---|---|---|---|---|
| | No | Yes | No | Yes |

| | | | | |
|---|---|---|---|---|
| **Average** | **34.5%** | **65.5%** | **7.2%** | **92.6%** |
| Capital | 1.1% | 98.9% | | |
| Regional center | 9.1% | 90.9% | 1.0% | 98.6% |
| Other city | 44.0% | 56.0% | .4% | 99.6% |
| Village | 71.7% | 28.3% | 12.3% | 87.5% |
| Lowlands | 24.2% | 75.8% | 4.4% | 95.3% |
| Mountainous / high mountainous | 71.5% | 28.5% | 12.8% | 87.2% |
| Non-Border | 31.0% | 69.0% | 4.9% | 94.9% |
| Border | 61.9% | 38.1% | 18.2% | 81.8% |

Although 65.5% of all respondents noted the availability of public transport in their community and 92.6% mentioned that they have inter-community transport, these numbers however vary depending on the type of community. *Thus, only 28.8% of the rural population noted the availability of inner-community, and 87.5% about inter-community transport. The picture is the same in mountainous and high mountainous communities.*

The frequency of transport was assessed on a scale of 5 (1 - "very bad", 2 - "bad", 3 - "normal", 4 - "good" and 5 - "very good"). Fares were assessed on a scale of 3 (1 - "quite cheap", 2 - "normal/reasonable" and 3 "quite expensive").

**Table13**

| | Public transport within community | | | | | Public transport connecting community with another one | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Average score | | | | Price | Average score | | | | Price |
| | Spring | Summer | Autumn | Winter | | Spring | Summer | Autumn | Winter | |
| **Average** | **3.54** | **3.55** | **3.53** | **3.40** | **2.04** | **3.57** | **3.58** | **3.58** | **3.50** | **2.11** |
| Town | 3.49 | 3.51 | 3.49 | 3.36 | 2.05 | 3.68 | 3.70 | 3.69 | 3.59 | 2.14 |
| Village | 3.77 | 3.76 | 3.77 | 3.65 | 2.02 | 3.48 | 3.48 | 3.49 | 3.42 | 2.08 |
| Lowland | 3.52 | 3.53 | 3.52 | 3.39 | 2.04 | 3.57 | 3.57 | 3.56 | 3.53 | 2.09 |
| Mountainous/high mountainous | 3.73 | 3.71 | 3.71 | 3.56 | 2.08 | 3.59 | 3.60 | 3.62 | 3.43 | 2.15 |
| Non-border | 3.53 | 3.54 | 3.52 | 3.38 | 2.05 | 3.61 | 3.62 | 3.62 | 3.53 | 2.10 |
| Border | 3.72 | 3.72 | 3.72 | 3.70 | 1.98 | 3.36 | 3.35 | 3.36 | 3.33 | 2.16 |

As can be seen above, the scores of transport frequency fall between "normal" and "good" with seasonal trends; high scores in summer and low in winter. Prices of both inner-community and intercommunity transport are considered "normal/reasonable". There were slight differences in assessments depending on the type of communities, but it wasn't sufficient to outline other tendencies.

### *Food use and tendencies conditioned by accessibility, seasonality and other factors*

With a view to identify the picture on the use of different types of food by the population conditioned by economic and physical accessibility, respondents were provided with a list of food products and asked to assess how often they (food products) are used within the household. The reply options were following:

1. Use as much as we wish / required
2. Use less / not as much as we'd wish
3. Don't use

This question tried to find out whether people limit themselves to the use of specific food products and, if yes, what are the reasons. Main sources of food products have been identified and the structure of the question has allowed disaggregating the accessibility of each food product according to season. Annex 4 provides complete data on the question. The general picture and main findings and patterns are described below.

As bread and potatoes are extremely popular food products in Armenia, which have almost no limitation for use. The number of households which use bread and potatoes less than they'd wish or don't use at all, doesn't exceed 6%.

Out of vegetable products rich in Vitamin A carrots, red pepper and pumpkins are used in Armenian households. Moreover, carrots are more popular than red pepper and pumpkin. In case of both red pepper and pumpkin, the rates for limited use or disuse are higher and there is a clear seasonal difference. Limited use of red pepper during high season was noted by 6.8% of respondents, and the most frequent explanations were: "low purchasing capacity" (51.4%), "high price" (28.6%) and "not available/sold" (20%). Out of the majority (85.1%) of households not using those products, (4.2%) simply don't want to use them. The main reason for limited use during off-season is "the high price" (40.4%). However, the nuance here is that due to a number of objective and subjective reasons (in many places outside the capital it's impossible to get red peppers during off season and all households don't have the habit of storing fresh vegetables in refrigerators), when speaking about red peppers during off-season respondents mostly consider not fresh, but canned pepper. That's conditioned by many comments regarding the fear of poisoning. In any case, use of red pepper during off-season is extremely limited. In the case of pumpkins, both during high and off-season the number of non-use households is considerably high (respectively 31.3% and 74.2%). In both cases, the main reason for disuse is "we don't want" (respectively 94.7% and 76.6%), which shows a lack of pumpkin use culture.

Most dark green leafy vegetables are very popular in Armenia. Taking into account their utilization methods they can be divided into two groups: 1) used as secondary ingredients, and 2) greens used as a main part of dish. Use of the first group is extremely popular and has no seasonal character. Use of the greens of the second group extremely falls during off-season (7.5% uses less than they'd wish and 38.8% don't use at all). Main reasons for disuse are: "don't want" (49.9%), "not available/sold" (29.4%) and "high price" (13.1%).

In regard to other types of vegetables, part of their consumption is more or less stable (onions, garlic, cabbage and beets), and others are used mostly during high season (green beans, eggplant, maize, etc):

The most popular Vitamin A rich fruits in Armenia are apricot, peach, melon and persimmon. All of them have extremely seasonal character and the share of disuse during off-season makes up 88.4% - 95.6%. The main reasons for disuse during off-season are: 1) "not available/sold", 2) "don't want" and 3) "high price" or "low purchasing capacity". The second answer is quite interesting which reflects the population's distrust in off-season fruits and thinking that *each fruit/vegetable should be used only during its high season. Trends are the same for the use of other fruits.*

In fact, only dried apricots and peaches as Vitamin A rich fruits are equally accessible all year. However, in this case, factors limiting use or disuse make up approximately 26.2%. The main reason for limited use is the high price (67.6%), for disuse - lack of need/wish (51.2%), followed by high price (37.2%).

Animal organs are considered an important source of iron for the human body. Their consumption in Armenia doesn't bear seasonal character; however about 1/3 of interviewed households (33.2%) either limit or don't use animal organs. The main reasons mentioned for limited were "high price" and "low purchasing capacity". *Those who don't use organ meat at all frequently point out the lack of need/wish (85.5%) which (taking into account that almost 15% doesn't use at all,) speaks about insufficient popularity of such meat products.*

The number of households with limited consumption of meat and fish is also high (23.4% - 34.1%) which is mostly conditioned by high price and low purchasing capacity (42% - 53%). The number of households not using sausages at all is also high (15.5%), the majority of which (89%) simple doesn't want to use sausages.

10.9% of respondents used butter less they they'd wish to - the main reasons being high price and low purchasing capacity. The share of households not using ghee is also high. 96% of respondent's simply don't wish to use it.

### Food sufficiency during the year

To the question whether there were months during the last 12 months when food wasn't sufficient for the family, 46.4% of respondents answered "yes" and 53.6% answered "no". The picture according to the provinces is:

Table 14

| | Yes | No |
|---|---|---|
| Yerevan | 42.60% | 57.40% |
| Aragatzotn | 47.20% | 52.80% |
| Ararat | 45.60% | 54.40% |
| Armavir | 36.80% | 63.20% |
| Gegharkunik | **76.60%** | 23.40% |
| Lori | 41.70% | 58.30% |
| Kotayk | 64.00% | 36.00% |
| Shirak | 46.70% | 53.30% |
| Syunik | 41.70% | 58.30% |
| Vayots Dzor | 35.00% | 65.00% |
| Tavush | 25.00% | 75.00% |

The issue was analyzed from the perspective of the administrative status and community's altitude above sea level.

Table 15

| | Administrative status | Altitude above sea level |
|---|---|---|

| | Town | Village | Lowland | Mountainous / high mountainous |
|---|---|---|---|---|
| Yes | 44.0% | 50.5% | 42.7% | 59.9% |
| No | 56.0% | 49.5% | 57.3% | 40.1% |

The research found out that the food is more insufficient during winter and spring months; 11.1% in January, 14.4% in February, 17% in March, 14.3% in April and 10.5% in May. The number of respondent who mentioned December made up 6.8%. For other months responses varied from 4.1% to 4.9%. The lowest insufficiency month was October with 3.6%.

For each household the number of months was calculated when food was insufficient. For the whole country, the average number is 1.85. However, further detailed analysis showed that this rate varies from marz to marz.

Table 16

| | Average number of months |
|---|---|
| Yerevan | 1.64 |
| Aragatzotn | 1.56 |
| Ararat | 1.32 |
| Armavir | 1.68 |
| Gegharkunik | **2.84** |
| Lori | 1.74 |
| Kotayk | **2.76** |
| Shirak | 2.13 |
| Syunik | 2.31 |
| Vayots Dzor | 1.77 |
| Tavush | .86 |

As evident the highest rate is in Gegharkunik marz (at marz level, in average food was insufficient for 2.84 months).

The rate was also considerably high in mountainous / high mountainous areas.

Table 17

| Altitude above sea level | Average number of month |
|---|---|
| Lowland | 1.69 |
| Mountainous / high mountainous | 2.44 |

### Changes in food consumption

To identify longer-term trends in food consumption, respondents were asked to list food products the volumes of which had changed over the last year and also note the reasons for change.

For almost all food groups, a decrease in consumption was slightly more than increase. However the difference was not sufficient to generalize about possible tendencies. This can be more conditioned by mentality and the habit of people to recall bad and negative aspects of any changes.

The picture is a bit different for fruit groups (6th and 7th) where an increase of consumption rates exceeded reduction rates. This was particularly obvious for fruits whose seasonality coincided or preceded the survey, which means that the assessment may not be objective given recent and fresh memories of respondents. In this context, a considerable increase in apricot consumption could be considered objectively conditioned by the high yield and reasonable price of apricots. This was proved by the analysis of reasons for change when about the half of respondents pointed out the change of price.

*Data on changes in meat and fish consumption is also interesting as reduction rates are considerably higher than increases, which can be considered as a more reliable trend.*
From the list of reasons for reduced consumption of meat products, the first one is the drop in purchasing capacity, 35-48% followed by the change of price, 26-36%.

*Household diet diversity*

Respondents were provided with the above list of 16 types of food products to measure the diversity of household food rationing. Respondents were asked to mention whether any of household members had used any of the food products from each group a day before. The question was formulated in the following way:

*Which of these food products were used by your household members yesterday? Please outline only those food products that were used at home or taken out from your home and used outside.*

Afterwards, a part of these groups was merged thus forming 12 categories of food products and based on the tool methodology dietary diversity unit was calculated (with range of 0-12 scores). Analysis of the unit for the entire population and narrower groups helped to develop a picture of food accessibility for the population. For instance, 4 scores for any group means that only 4 out of 12 food categories is accessible for households of that group. *For the Armenia population the dietary diversity rate comprised 8.66.* Moreover, further studies allow identifying in detail which category food products are more or less consumed/accessible.

Table 18

| Groups of food products | Number of consumers | % of consumers |
|---|---|---|
| Grains and cereals | 1597 | 99.81% |
| Spices and drinks | 1536 | 96.00% |
| Other vegetables | 1514 | 94.63% |
| Milk and dairy products | 1469 | 91.81% |
| Oils and fats | 1453 | 90.81% |
| Other fruits and berries | 1430 | 89.38% |
| Sweets | 1373 | 85.81% |

| | | |
|---|---|---|
| White roots and tubers | 1215 | 75.94% |
| Dark green leafy vegetables | 1127 | 70.44% |
| Egg | 893 | 55.81% |
| Meat and meat products | 808 | 50.50% |
| Vitamin A rich vegetables and tubers | 678 | 42.38% |
| Vitamin A rich fruits | 627 | 39.19% |
| Nuts and seeds | 369 | 23.06% |
| Fish and seafood | 98 | 6.13% |
| Meat of animal internal organs and meat products | 54 | 3.38% |

*As shown above, more than 90% of households have access to (consume) grains, spices and drinks, other vegetables[17], dairy products, oils and fats. Fish and seafood and meat products made of animal organs are in last place. Dairy as a Vitamin A rich product was consumed by 91.81% of households, dark green leafy vegetables by 77.44%, eggs by 55.81%, Vitamin A rich vegetables and tubers by 42.38%, Vitamin A rich fruits by 39.19%, and meat products made of animal organs by 3.38%.*

*From iron rich food products, only meat and meat products are accessible for about 50% of the population. Only less than 10% of respondents mentioned fish and meat from animal organs.*

## *Economic factors affecting households*

To make the picture of food accessibility within households complete, issues describing the economic state of the family and spending on food were identified.

**How much did you spend on food for your household last month?**

**Table 19**

| | |
|---|---|
| 400,001 AMD and more | .2% |
| 300,001 - 400,000 AMD | .3% |
| 200,001 - 300,000 AMD | 2.3% |
| 150,001 - 200,000 AMD | 7.4% |
| 100,001 - 150,000 AMD | 17.4% |
| 54,001 - 100,000 AMD | 27.3% |
| 20,001 - 54,000 AMD | 28.7% |
| Up to 20,000 AMD | 9.8% |

**How much is the monthly income of your household?**

**Table 20**

| | |
|---|---|
| 1,000,001 AMD and more | .3% |
| 800,001 - 1,000,000 AMD | .2% |
| 600,001 - 800,000 AMD | .3% |
| 500,001 - 600,000 AMD | .5% |
| 400,001 - 500,000 AMD | 1.5% |

[17] This group may have lower position during other seasons.

| | |
|---|---|
| 300,001 - 400,000 AMD | 4.7% |
| 200,001 - 300,000 AMD | 13.1% |
| 100,001 - 200,000 AMD | 29.6% |
| 54,001 - 100,000 AMD | 27.0% |
| Up to 54,000 AMD | 13.8% |

*Even a rough calculation is enough to detect an alarming tendency; more than 25% of households spend 20,001 - 54,000 AMD on food while almost the same 25% has a monthly income of 54,001 - 100,000 AMD. Similarly, more than 25% of other households spend 54,001-100,000 AMD on food in the case when the monthly income of more than 25% is 100,001-200,000 AMD. In conclusion, we see that a considerable part of the population spends at least half their income on food.*

*The situation becomes more critical when we compare the amount spent on food with changes in incomes. In 49% of households, the amount spent on food has increased and for 39.1% the monthly income of households has decreased.*

The average amount spent on food in your household in comparison to the previous year

Table 21

| | |
|---|---|
| Has decreased | 22.1% |
| Has increased | 49.0% |
| Has remained the same | 26.1% |

How has your household income changed n comparison to the previous year?

Table 22

| | |
|---|---|
| Has increased | 12.1% |
| Has remained the same | 45.5% |
| Has decreased | 39.1% |

The next two questions also prove the alarming state. 62.8% of respondents mentioned that there were cases when they had bought food on credit. Moreover 34.8% does it frequently or almost always.

Do you buy food on credit?

Table 23

| | |
|---|---|
| Almost always | 17.8% |
| Very frequently | 16.9% |
| Sometimes | 18.8% |
| Rarely | 9.2% |
| Never | 36.6% |

In addition, for 27.4% of households the amount is not enough even for food, and for 40.7% amount only covers food expenses.

**Which statement best describes the economic situation of your household?**

**Table 24**

| | |
|---|---|
| The money is not enough even for food | 27.4% |
| The money is enough only for food but not clothes | 40.7% |
| The money is enough for food and clothes but not for buying longer term use goods | 23.6% |
| We can also afford longer term use goods | 6.3% |
| We can afford not only home appliances but also furniture, etc | 1.4% |
| We can afford an expensive car, apartment etc | .3% |

## *Purchasing Food and Cooking*

To identify specifics/patterns of food purchases, respondents were asked what they pay attention to the most when purchasing food. For each food product each respondent provided only one option while response options were not read. Distribution of answers in % is presented in the Table 25 below.

**Table 25 Factors affecting food purchase**

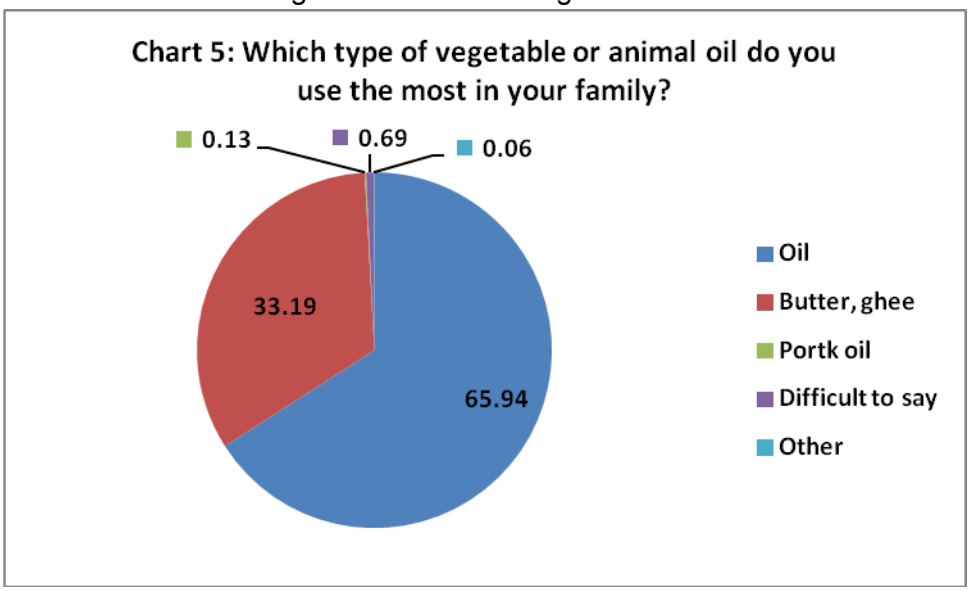
| Food products | 1. Price | 2. Production / expiry date | 3. Energetic value / calories | 4. Content | 5. Availability of micro-elements | 6. Availability of fat | 7. Producer / brand | 8. Design | 9. Smell | 10.Storage/sales conditions | 11.Not applicable / we don't buy | 12.Other | 13.Nothing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Grains/cereals, flour** | 17.3% | 19.7% | 0.3% | 1.3% | 0.1% | 0% | 9.5% | **45.3%** | 3.8% | 1.1% | 0.9% | 0.1% | 0.6% |
| **Bread** | 4.1% | 19.4% | 0% | 2.9% | 0% | 0% | 5.5% | **30.9%** | 10.3% | 2.1% | 24.1% | 0.5% | 0.2% |
| **Pasta** | 13.2% | 13.5% | 0.1% | 1.4% | 0.1% | 0% | **36.7%** | 25.5% | 6.1% | 0.7% | 2% | 0.1% | 0.6% |
| **Vegetables** | 6.4% | 7.9% | 0% | 0.1% | 0.1% | 0% | 1.3% | **76.7%** | 2.2% | 0.5% | 4.7% | 0.1% | 0% |
| **Fruits and berries** | 6.4% | 7.7% | 0% | 0.1% | 0.1% | 0% | 1.4% | **76.4%** | 3.2% | 0.6% | 4% | 0.1% | 0% |
| **Meat** | 6.1% | 23% | 0.3% | 0.3% | 0% | 0.3% | 7.9% | **44.4%** | 4.3% | 7.6% | 4.9% | 0.7% | 0.2% |
| **Sausages, smoked and other processed meat** | 8.6% | **29.4%** | 0.4% | 1.1% | 0% | 0.3% | 25.3% | 13% | 3.9% | 1.1% | 16.6% | 0.1% | 0.2% |
| **Eggs** | 5.3% | **50.5%** | 0.3% | 0.6% | 0% | 0.1% | 10.9% | 7.5% | 0.8% | 1.5% | 22.1% | 0.1% | 0.3% |
| **Fish and seafood** | 5.1% | 24% | 0% | 0% | 0% | 0% | 4.1% | **38.7%** | 3% | 7.9% | 11.2% | 5.8% | 0.2% |
| **Legumes** | 13.1% | 7.7% | 0.1% | 0.4% | 0.1% | 0.1% | 14.1% | **49.3%** | 3.6% | 0.8% | 10% | 0.2% | 0.5% |
| **Dairy** | 2.7% | **59.3%** | 0.4% | 1.1% | 0.1% | 0.1% | 14% | 3.1% | 1.8% | 1.6% | 15.8% | 0% | 0% |
| **Butter** | 7.8% | **36.4%** | 0.6% | 0.9% | 0.1% | 0.1% | 31.4% | 6.5% | 3.2% | 0.5% | 12.4% | 0.1% | 0% |
| **Oil, ghee, margarine, and other fats and oils** | 15.9% | 25.7% | 0.3% | 2% | 0.1% | 0.1% | **43.8%** | 5.6% | 3.6% | 0.2% | 1.8% | 0.1% | 0.8% |
| **Cakes** | 2.2% | **31.1%** | 0.1% | 0.6% | 0.1% | 0.1% | 9.8% | 11.9% | 6.5% | 1.9% | **35.7%** | 0% | 0% |
| **Candies, cookies** | 9.8% | 23.6% | 0.1% | 1.2% | 0.1% | 0% | **37.7%** | 12.5% | 11.1% | 0.6% | 2.7% | 0.1% | 0.5% |
| **Honey** | 4.9% | 3.9% | 0.7% | 8.6% | 0.1% | 0.1% | **33.9%** | 8% | 15.7% | 1.9% | 21.8% | 0.1% | 0.3% |
| **Sweet carbonated drinks** | 11.7% | 11.7% | 0.1% | 2.9% | 0.1% | 0% | **37.8%** | 5.4% | 7.6% | 0.4% | 20.8% | 0.3% | 1.2% |
| **Spices, tea, coffee** | 15.5% | 9% | 0.1% | 1.1% | 0% | 0.2% | 31.1% | 8.2% | **32.8%** | 0.3% | 0.8% | 0.1% | 0.8% |

| Food products | 1. Price | 2. Production / expiry date | 3. Energetic value / calories | 4. Content | 5. Availability of micro-elements | 6. Availability of fat | 7. Producer / brand | 8. Design | 9. Smell | 10.Storage/sales conditions | 11.Not applicable / we don't buy | 12.Other | 13.Nothing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alcohol | 16% | 2.9% | 0% | 1% | 0% | 0% | **44.4%** | 2.5% | 4.9% | 0.3% | 26.7% | 0.1% | 1.2% |
| Canned food | 3.9% | **19.6%** | 0.1% | 0.3% | 0% | 0% | 15.6% | 4.8% | 2.9% | 0.1% | **52.4%** | 0.3% | 0.1% |
| **Totally** | 176% | **426%** | 4% | 27.9% | 1.2% | 1.5% | 416.2% | 476.2% | 131.3% | 31.7% | **291.4%** | 9% | 7.6% |

*As the table shows, when buying food products respondents, in general, pay attention to the design (476.2%), production/storage conditions (426%) and producer/brand (416.2%). The price of food, with considerable difference, was also highlighted by respondents (176%).*
It's worth mentioning that in case of specific food products people also pay attention to other characteristics such as licenses proving safety exams when purchasing meat (0.6%). 5.4% of respondents prefer to buy fresh fish.

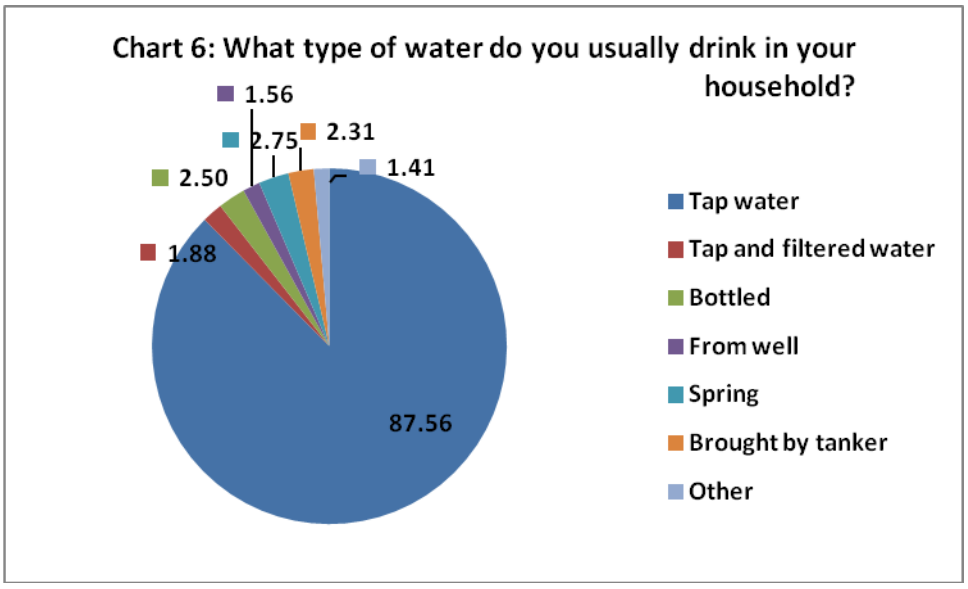
## Cooking

Distribution of oil of vegetable or animal origin within the household is:




## *Water accessibility*

When asked what type of water they use, respondents answered:




The question was also analyzed based on the administrative status of the place of residence.

**Table 26**

| What kind of water do you use in your household? | Administrative status | | | |
|---|---|---|---|---|
| | Capital | Regional center | Other town | Village |
| Tap water | 94.9% | 83.7% | 85.9% | 82.5% |
| Tap and filtered water | 3.0% | 1.4% | 1.2% | 1.2% |
| Bottled | 1.2% | 6.3% | 4.4% | 1.6% |
| Water from well | 0% | 0% | 2.4% | 3.3% |
| Spring water | 0% | 1.9% | 2.0% | 6.1% |
| Water brought by tanker | 0% | 3.4% | 4.0% | 3.5% |
| Other | 0.9% | 3.4% | 0% | 1.9% |
| **Total** | **100.0%** | **100.0%** | **100.0%** | **100.0%** |

When doing town-village comparisons the picture is as follows:

**Table 27**

| What kind of water do you use in your household? | Administrative status | |
|---|---|---|
| | Town | Village |
| Tap water | 90.4% | 82.5% |
| Tap and filtered water | 2.2% | 1.2% |

| | | |
|---|---|---|
| Bottled | 3.0% | 1.6% |
| Water from well | 0.6% | 3.3% |
| Spring water | 0.9% | 6.1% |
| Water brought by tanker | 1.7% | 3.5% |
| Other | 1.2% | 1.9% |
| **Total** | **100.0%** | **100.0%** |

According to geographical location:

**Table 28**

| What kind of water do you use in your household? | Altitude above sea level | |
|---|---|---|
| | Lowlands | Mountainous/High mountainous |
| Tap water | 87.7% | 87.2% |
| Tap and filtered water | 2.1% | 1.2% |
| Bottled | 3.1% | 0.3% |
| Water from well | 0.2% | 6.7% |
| Spring water | 2.3% | 4.4% |
| Water brought by tanker | 2.9% | 0.3% |
| Other | 1.8% | 0% |
| **Total** | **100.0%** | **100.0%** |

Respondents rated water supply as follows:

**Table 29**

| | |
|---|---|
| Permanent | 69.6% |
| There are cut-offs, but we have water during most of the day | 14.3% |
| Twice per day for a few hours | 5.9% |
| Once per day for a few hours | 5.4% |
| Once per two days for a few hours | 2.1% |
| More rarely | 0.7% |
| We don’t have water at home | 2.0% |

Differences in responses between towns and villages are as follows:

**Table 30**

| How would you rate the water supply in your house? | Administrative status | |
|---|---|---|
| | Town | Village |
| Permanent | 77.2% | 56.1% |
| There are cut-offs, but we have water during the most of the day | 16.3% | 10.8% |
| Twice per day for a few hours | 3.5% | 10.2% |
| Once per day for a few hours | 2.2% | 11.1% |
| Once per two days for a few hours | 0.1% | 5.7% |
| More rarely | 0.5% | 1.0% |
| We don't have water at home | 0.3% | 5.0% |
| **Totally** | **100.0%** | **100.0%** |

Respondents who mentioned they 'don't have water at home' also answered the question - what was the distance to the closest source of water from their home. Answers varied from 2 to 500 meters. The average distance to the closest source of water was 187 meters. Respondents also answered whether the water was sufficient for household needs; 57% answered that water is fully enough, 27% - sometimes not sufficient and 15.3% - never sufficient. The "never sufficient" answer was voiced more in rural communities.

*Hygiene and health*

Members of the household who mainly deal with preparing food/cooking were asked how many times per day they wash their hands and how they use soap. Results are presented below:

**How many times per day do you wash your hands?**

**Table 31**

| | |
|---|---|
| Once per day | 1.9% |
| 2-3 times per day | .8% |
| 4-5 times per day | 3.3% |
| 6-7 times per day | 6.8% |
| 8 times per day and more | 86.4% |

**How frequently do you use soap when washing hands?**

**Table 32**

| | |
|---|---|
| Almost always | 72.2% |
| Sometimes | 22.5% |
| Rarely | 4.3% |

| | |
|---|---|
| Never | .6% |

After, they were asked how often each member of the household has had food poisoning. Respondents could hardly recall such information for each member of the family. However, the question was also asked also at the individual level where the picture was more precise.

When asked if they've ever had food poisoning, and if so how often, respondents answered:

Table 33

| | |
|---|---|
| Never | 89.2% |
| Once per several years | 6.6% |
| Once per year | 2.2% |
| Twice per year | 1.2% |
| More often | .8% |

Those who gave a positive answer (173 respondents) were asked whether they changed anything in their habits or livelihood after poisoning. The answers are:

Table 34

| | % | Comment |
|---|---|---|
| Nothing has changed | 46.6% | |
| Stopped eating specific food products | 43.2% | Respondents have avoided using non- fresh food and specific food products temporarily. In some cases respondents have permanently stopped using mainly watermelon, canned products, poultry, sausages and mushroom, ice cream, eggplant and animal organs. In some cases respondents stopped using fat rich food as well. |
| Stopped eating in specific places | 2.8% | Respondents have mainly avoided using food prepared outside. |
| Started reading food labels carefully | 2.8% | |
| Changed meal regime / don't eat at late hours | 1.7% | |
| Stopped drinking tap water | 1.1% | |
| Stopped using specific food products when preparing meal | 0.6% | Respondents have mainly excluded using cooking methods that have caused poisoning among family members. In this regard ghee was particularly outlined. |
| Stopped alcohol abuse | 0.6% | |
| Stopped mixing different food products | 0.6% | |

To get general information of the state of the population's health, respondents were presented with a list of nutrition related diseases and asked to point out who from their

household suffered one or several of those diseases. However, for this question as well, the picture was clearer at the individual level. As we can see cardio-vascular diseases, including high blood pressure were recorded mostly in towns and lowland area. The same holds true for eye diseases.

Table 35

| | Administrative status | | Altitude above sea level | |
|---|---|---|---|---|
| | Town | Village | Lowland | Mountainous/ high mountainous |
| Anemia | 2.0% | 2.3% | 1.8% | 2.9% |
| Cardio-vascular diseases (myocardial infarction, stenocardia) | 12.5% | 7.7% | 11.7% | 7.6% |
| High blood pressure | 22.9% | 16.2% | 21.4% | 17.2% |
| Cancer | 1.2% | 1.0% | 1.3% | .6% |
| Stroke | 2.2% | 1.9% | 2.3% | 1.2% |
| Asthma | .7% | .3% | .6% | .3% |
| Diabetes mellitus | 6.6% | 3.7% | 5.8% | 4.7% |
| Eye diseases | 10.9% | 6.1% | 9.7% | 7.0% |
| Gastroenteric diseases | 8.3% | 7.3% | 7.9% | 8.2% |
| Liver diseases | 4.1% | 4.0% | 3.5% | 6.1% |
| Goitre | 7.3% | 3.5% | 6.3% | 4.7% |
| Diseases of the nervous system | 10.2% | 7.5% | 9.2% | 9.3% |
| Food allergy | 3.5% | 2.6% | 3.1% | 3.5% |

## *Food consumption among adults*

### General description

After completing the household section of the interview, individuals were asked several questions designed to understand the nutritional state of the population, knowledge and patterns at the individual level.

### Usually, how many times per day do you eat?

The average rate is 2.48, while the rate in rural communities is a bit higher than in towns.

Table 36

| According to administrative status | |
|---|---|
| Town | 2.45 |
| Village | 2.55 |

How often do you eat fewer than the number of meals mentioned above?

Table 37

| | |
|---|---|
| 3-4 times per week | 7.6% |
| 1-2 times per week | 29.8% |
| More rarely | 32.8% |
| Never | 29.8% |

How often do you eat outside (the house)?

Table 38

| | Sex | | Total |
|---|---|---|---|
| | Male | Female | |
| 2-3 times per day | **3.3%** | .9% | 1.7% |
| Once per day | **15.6%** | 6.5% | 9.4% |
| 1-3 times per week | **18.3%** | 7.6% | 11.0% |
| More rarely | 29.3% | **27.5%** | 28.1% |
| Never | 33.5% | **57.5%** | 49.8% |

*Clearly, men eat outside more often than women.*

When eating, do you add salt to food?

Table 39

| | Sex | | Average |
|---|---|---|---|
| | Male | Female | |
| No, never | 25.4% | 35.5% | 32.3% |
| Sometimes after tasting the food | 43.3% | 45.6% | 44.9% |
| Yes always, without having tasted the food | 31.3% | 18.9% | 22.8% |

*Men also add more salt to food.*

Do you follow a specific diet?

Table 40

| | Town | Village | Average |
|---|---|---|---|
| Yes | 34.4% | 26.6% | 31.6% |

| | | | |
|---|---|---|---|
| No | 65.6% | 73.4% | 68.4% |

*In cities, people follow specific diets more than in villages.*

Table 41

| | Sex | |
|---|---|---|
| | Male | Female |
| Yes | 21.5% | 36.3% |
| No | 78.5% | 63.7% |

Women follow diets more than men (Table 41).

Table 42

| | Age group | | | |
|---|---|---|---|---|
| | 18-30 | 31-45 | 46-62 | 63+ |
| Yes | 22.3% | 29.2% | 35.3% | 38.8% |
| No | 77.7% | 70.8% | 64.7% | 61.2% |

*The level of diet use increases parallel with age (Table 42).*

### Goal of the diet

Table 43

| | |
|---|---|
| Curing current disease | 38.6% |
| Weight management | 20.2% |
| Healthy lifestyle | 36.0% |
| Conviction/belief | 3.8% |
| Breastfeeding | .6% |
| Other | .8% |

*Furthermore, analysis from sex and age perspectives shows that weight management more frequently becomes a reason for women than men and vice versa in case of curing diseases. In addition, reference to treatment increases parallel with age and vice versa in case of weight management.*

### Dietary diversity

To measure dietary diversity, the individual format of the tool described in the household section was applied. In fact, it was developed to measure the dietary diversity of women aged between 15 and 49. Therefore, scores calculated for other groups will be presented for comparison with this group and can't be used for conclusions on nutrition for other groups. 9 categories were formed from the food groups developed with this method for women and the diversity score ranges from 1 to 9. At the individual level this rate speaks about the nutritional state of individuals but not economic accessibility. The higher the score, the more likely that individual consumes the necessary quantity of micro-elements.

*The average dietary diversity score among women in the 15-49 age group is 5.11. This means that on average women of this group consume 5 category food products. To note, the rate for the general population is 5.03.*

The dietary diversity rate is lower in mountainous/high mountainous communities and single women. In addition, the rate increases parallel with education.

Table 44

| Altitude over sea level | Diet diversity |
|---|---|
| Lowland | 5.18 |
| Mountainous/high mountainous | 4.86 |

Table 45

| Are you married? | Diet diversity |
|---|---|
| Yes | 5.21 |
| No | 4.83 |

Table 46

| Education | Diet diversity |
|---|---|
| Incomplete secondary | 4.36 |
| Secondary | 4.96 |
| High technical | 5.25 |
| High university | 5.28 |

According to frequency of use, the classification of food groups is the same as in the case of households, with the difference being that the ranking of egg products has been moved down and Vitamin A rich fruits moved up.

Table 47

| Food groups | Number of consumers | % of consumers |
|---|---|---|
| Grains and cereals | 602 | 98.05% |
| Other vegetables | 563 | 91.69% |
| Milk and dairy products | 532 | 86.64% |
| Other fruits and berries | 529 | 86.16% |
| White root and tubers | 440 | 71.66% |
| Dark green leafy vegetables | 331 | 53.91% |
| Meat and meat products | 291 | 47.39% |
| Vitamin A rich fruits | 256 | 41.69% |
| Eggs | 249 | 40.55% |
| Vitamin A rich vegetables and tubers | 210 | 34.20% |
| Nuts and seeds | 138 | 22.48% |
| Fish and seafood | 38 | 6.19% |

| | | |
|---|---|---|
| Meat of animal organs and meat products | 17 | 2.77% |

*Out of the Vitamin A rich food product group, dairy and dark green leafy vegetables were used by the majority of respondents. The situation, however, is the opposite for iron rich food.*

## *Child nutrition*

Child nutrition is very important issue for study purposes because it not only affects the state of health and development of the young maturing generation, but also because it reflects existing knowledge and practices regarding nutrition. Contrary to other cases, there is a high probability that adult may not use or use incorrect portions for their own dietary needs even while being aware of it. Regarding the matter of child nutrition, in majority of cases adults try to follow healthy and appropriate feeding criteria to the extent of their knowledge.

Within the scope of the research, data was collected on the nutrition of children up to 5 years old.

First of all, the research clarified whether a child drinks water.

**Table 48**

| | |
|---|---|
| Doesn't drink water | 6.3% |
| Tap | 62.1% |
| Tap and boiled water | 12.6% |
| Tap and filtered water | 2.5% |
| Bottled | 11.7% |
| Frozen and defrosted | .6% |
| Water from well | 1.9% |
| Other | 2.3% |

*Most of the children that do not drink water are under 6 months old. In this group, the portion of children that don't drink water is 38.1%.*

In total, 4.38% of interviewed households had children under 6 months old. For children up to 6 months old respondents were asked which part of meal consists of breast milk (BM), milk formula (MF) and other food products. The portion of purely breast-fed children was 61.43% of children of that age. The percentage of children that don't use BM was 14.29%.

**Table 49**

| Which part of child's meal is… | BM | MF | Other food |
|---|---|---|---|
| Make up 0% of child meal | 14.29% | 71.43% | 75.71% |
| Make up 1-49% of child meal | 2.86% | 17.14% | 14.29% |
| Make up 50-99% of child meal | 21.43% | 8.57% | 7.14% |
| Make up 100% of child meal | 61.43% | 2.86% | 2.86% |
| Total | 100% | 100% | 100% |

Those noting other food mostly mentioned tea, fruit and vegetable purees.

Average rates are:

Table 50

| | |
|---|---|
| Which portion of a child's meal consists of breast milk? | 86.97% |
| Which portion of a child's meal consists of milk formula? | 8.19% |
| Which portion of a child's meal consist of other food products? | 4.84% |

As other 'food products' we mean dairy, tea, juices, fruit and vegetable purees, and soups.

For the nutrition of children between 6 and 59 months old the previously described dietary diversity measurement tool was adjusted especially for this group of children. Again, the list of food products was presented and the person dealing with the child nutrition in the family outlined which type of food the child had used during last 24 hours. The logic of calculation is the same as in case of households and adults, but with some difference in food groups. This time, food products comprising 8 categories were formed with the diversity score ranging from 0 to 8. *The average score for all children was 4.44. Analysis based on several indicators showed that the diversity score increases parallel with the age of child until the 24-29 month group with no further tendency. The rate also depends on the administrative status of the community and to some extent, on the mother's education.*

Table 51

| Age group | Diet diversity |
|---|---|
| 6-11 | **3.57** |
| 12-17 | **3.73** |
| 18-23 | **4.91** |
| 24-29 | **4.93** |
| 30-35 | 4.77 |
| 36-41 | 4.46 |
| 42-47 | 4.37 |
| 48-53 | 4.66 |
| 54-59 | 4.72 |

Table 52

| Administrative status | Diet diversity |
|---|---|
| Town | 4.29 |
| Village | **4.67** |

Table 53

| Mother's education | Diet diversity |
|---|---|
| Incomplete secondary | 3.70 |

| | |
|---|---|
| Secondary | 4.39 |
| High technical | 4.51 |
| High university | 4.49 |

According to the frequency of use, the sequence of food groups is:

Table 54

| Food groups | Number of users | % of users | Difference with the same categories consumed by adults |
|---|---|---|---|
| Grains and cereals | 390 | 81.42% | 17.71% |
| White roots and tubers | 335 | 69.94% | 2.31% |
| Milk and dairy products | 305 | 63.67% | 23.39% |
| Other fruits and berries | 265 | 55.32% | 30.11% |
| Other vegetables | 211 | 44.05% | 47.01% |
| Meat and meat products | 194 | 40.50% | 8.81% |
| Vitamin A rich fruits | 189 | 39.46% | -3.27% |
| Eggs | 179 | 37.37% | 2.01% |
| Vitamin A rich vegetables and tubers | 140 | 29.23% | 2.27% |
| Oils and fats | 85 | 17.75% | |
| Nuts and seed | 70 | 14.61% | 4.89% |
| Dark green leafy vegetables | 68 | 14.20% | 37.87% |
| Fish and seafood | 28 | 5.85% | 0.72% |
| Meat of animal organs and meat products | 12 | 2.51% | 0.93% |

In comparison to the table developed for the adult population, the use of white roots and tubers has considerably increased as well as a small increase for Vitamin A rich fruits, vegetables and tubers. The rankings of other vegetables and dark green leafy vegetables have moved down essentially. Here, however, what's important is not only the sequence but also the percentage of children who have consumed this or that food product. *When compared with the table developed for the adult population, a lower percentage of children have consumed food products from almost all groups.* The only exception is Vitamin A rich fruits (consumed by 36.19% of adults and 39.46% of children). *Compared to adults, a low consumption level for children has been recorded particularly for milk and milk products, other fruits and berries, other vegetables, and dark green leafy vegetables.*

Respondents responsible for the nutrition of children from 6 to 59 months old were asked questions regarding the child's appetite, as well as how many times the child is normally fed or eats hot soup.

How would you describe the child's appetite?

Table 55

| | |
|---|---|
| Good | 40.6% |
| Fair | 44.5% |
| Bad | 14.9% |

Table 56

| | |
|---|---|
| Daily, how many times is the child normally fed? | 3.48 |
| Daily, how many times does the child eat a hot meal? | 2.23 |

Analysis of this data based on demographic, geographical or other parameter hasn't revealed any overall trends.

### *Knowledge*

The research also clarified the following main and secondary information sources regarding healthy nutrition:

**Table 57**

| Information sources on healthy nutrition | I most important source (%) | II most important source (%) |
|---|---|---|
| TV | 45.90% | 15.40% |
| Internet | 13.30% | 12.10% |
| Other media agencies | 3.60% | 6.80% |
| Relatives and friends | 5.10% | 19.80% |
| Family | 21.20% | 11.10% |
| Doctors | 2.90% | 2.00% |
| Literature, books and journals | 1.10% | 1.70% |
| Empirical experience | 5.40% | 1.30% |
| School, training | 0.30% | 0.10% |
| Difficult to say | 0.80% | 29.90% |

**Table 58**

| In your opinion, which diseases can result from incorrect nutrition? | |
|---|---|
| Gastroenteric diseases | 32.60% |
| Overweight and obesity | 13.40% |
| Cardio-vascular diseases | 12.60% |
| Diabetes mellitus | 7.00% |
| Cancer | 2.90% |
| Liver diseases | 2.70% |
| Allergic symptoms | 1.80% |
| Poisoning | 1.80% |
| Diseases of nervous system, psychological problems, sclerosis | 1.20% |
| Fall of immune system, vitamin deficiency, problems with eyes, teeth and hairs | 1.10% |
| Problems with kidneys | 0.80% |
| Rheumatic or bone problems, accumulation of salt | 0.60% |
| Anemia | 0.50% |
| Atherosclerosis | 0.40% |
| High level of cholesterol | 0.40% |
| Metabolic disorder | 0.40% |
| Hormonal misbalance / infertility | 0.20% |
| Stunting | 0.10% |
| **Don't know / difficult to say** | **19.20%** |

It's interesting to look at the answer (difficult to say) from a gender perspective. 35.2% of men and 22.9% of women couldn't answer the question.

Table 59

| In your opinion, what can cause high blood pressure? Can you mention food products as well as eating methods and habits? | |
|---|---|
| Sweets | 34.6% |
| Red meat and meat products with high fat concentrations | 14.1% |
| Alcohol abuse | 7.7% |
| Salt abuse | 4.8% |
| Use/abuse of caffeine | 4.1% |
| Pickled/marinated food | 3.3% |
| Abuse of glucose rich food (grapes, beet) | 3.1% |
| Irregular meals (more or less than necessary) | 2.1% |
| Use of protein rich food (eggs, bean, spinach) | 1.9% |
| Sausages, smoked and canned meat products | 1.6% |
| Spicy food, onions and garlic | 1.1% |
| Insufficient quantity of fruits and/or vegetables | 0.6% |
| Milk, bread | 0.5% |
| Abuse of liquids or wrong combination with food | 0.5% |
| Use of fried food | 0.2% |
| **Don't know / difficult to say** | **19.6%** |

34.5% of men and 21.9% of women couldn't answer the question.

Table 60

| In your opinion, what can cause cancer? Can you mention food products as well as eating methods and habits? | |
|---|---|
| Genetically modified food products | 6.9% |
| Chips, pop-corn | 6.3% |
| High concentration of pesticides in vegetables and fruits | 5.8% |
| Red meat and meat products with high fat concentrations | 5.0% |
| Carbonated drinks | 4.5% |
| Abuse of alcohol | 3.9% |
| Sausages, smoked or canned meat products | 2.8% |
| Irregular meal (more or less than requested) | 1.8% |
| Food containing carcinogens (oil used for several times), fast food | 1.5% |
| Sweets | 1.4% |
| Salt abuse | 1.3% |
| Use of fired food | 1.2% |
| Food additives, food containing conservatives | 1.0% |
| Pickled/marinated food | 0.9% |
| Not fresh food | 0.6% |
| Food rich with folic acid, flour | 0.5% |
| Use of hot dough | 0.3% |
| Abuse of caffeine | 0.3% |
| Wrong combination of liquids and food | 0.1% |
| Less use of meat | 0.1% |
| Use of margarine | 0.1% |

| | |
|---|---|
| Less use of food containing calcium | 0.1% |
| Use of cauliflower | 0.1% |
| Spinach | 0.1% |
| **Don't know / difficult to say** | **53.7%** |

66.5% of men and 61.7% of women couldn't answer the question.

Table 61

| In your opinion, what can cause diabetes? Can you mention food products as well as eating methods and habits? | |
|---|---|
| Sweets | 39.4% |
| Red meat and meat products with high fat concentrations | 5.0% |
| Alcohol abuse | 3.4% |
| Irregular meal | 2.7% |
| Eating big portions and/or high-caloric food | 2.7% |
| Food products rich with carbohydrates such as pasta | 2.6% |
| Abuse of glucose rich food such as grapes, beet, apricot, watermelon | 2.4% |
| Carbonated drinks | 1.5% |
| Sausages, smoked and canned meat | 1.1% |
| Insufficient quantity of fruits and/or vegetables | 1.1% |
| Salt abuse | 0.7% |
| Pickled/marinated food | 0.6% |
| Eating same type of food | 0.2% |
| Abuse of caffeine | 0.1% |
| **Don't know / difficult to say** | **36.1%** |

48.7% of men and 39.4% of women couldn't answer the question.

Table 62

| In your opinion, what can cause high blood cholesterol levels? Can you mention food products as well as eating methods and habits? | |
|---|---|
| Red meat and meat products with high fat concentrations | 56.2% |
| Milk with high fat concentration | 9.5% |
| Sausages, smoked and canned meat | 6.4% |
| High concentration of pesticides in fruits and vegetables | 1.8% |
| Abuse of sweets | 1.5% |
| Genetically modified food | 1.5% |
| Margarine, spreads, butter, oil and food made from them | 1.4% |
| Insufficient quantity of food with concentration of fiber and complex of carbohydrates | 1.2% |
| Irregular meal | 0.8% |
| Alcohol abuse | 0.3% |
| **Don't know / difficult to say** | **19.4%** |

30.3% of men and 19.9% of women couldn't answer the question.

Table 63

| In your opinion, high cholesterol levels can lead to which diseases? | |
|---|---|
| Cardio-vascular diseases, clot | 35.0% |
| Diabetes mellitus | 7.9% |
| Stroke | 6.5% |
| Atherosclerosis | 3.6% |
| Obesity | 2.7% |

| | |
|---|---|
| Cancer | 2.4% |
| Liver disease | 2.1% |
| Gastroenteric diseases | 1.6% |
| Nervous disorders | 0.5% |
| Kidney disorder | 0.4% |
| Rheumatic or bone problems, accumulation of salt | 0.4% |
| Visual impairment | 0.2% |
| Goitre | 0.2% |
| Metabolic disorder | 0.1% |
| **Don't know / difficult to say** | **36.6%** |

53.3% of men and 39.9% of women couldn't answer the question.

Table 64

| In your opinion, what can cause high glucose blood levels? Can you mention food products as well as eating methods and habits? | |
|---|---|
| Sweets | 36.2% |
| Fruits with high concentration of sugar such as apricot, grapes, persimmon, melon, watermelon, etc | 34.1% |
| Alcohol abuse | 3.8% |
| Carbonated cold drinks | 1.3% |
| Food rich with carbohydrates | 0.8% |
| Irregular meals | 0.5% |
| Fat meal | 0.4% |
| **Don't know /difficult to say** | **22.8%** |

34.3% of men and 24.5% of women couldn't answer the question.

Table 65

| In your opinion, high glucose levels can lead to which diseases? | |
|---|---|
| Diabetes mellitus | 36.2% |
| High blood pressure | 13.2% |
| Myocardial infarction | 3.8% |
| Ischemic heart disease | 3.2% |
| Stroke | 2.5% |
| Overweight/obesity | 2.7% |
| Cancer | 1.3% |
| Visual impairment | 1.3% |
| Atherosclerosis | 0.4% |
| Immune system problems | 0.4% |
| Kidney problems | 0.4% |
| Liver problems | 0.3% |
| Metabolic disorders | 0.3% |
| Gastroenteric diseases | 0.1% |
| Tooth decay | 0.1% |
| **Don't know / difficult to say** | **34.0%** |

51.6% of men and 35.5% of women couldn't answer the question.

*Judging from the above data, the knowledge gap is greater for men than women.*
*There is a clear correlation between a difficulty to answer and the level of education.*
*"Difficult to say" answers decrease parallel with an increase in the education level.*

From the perspective of the geographical position and administrative status of communities affecting the “difficult to say” answer, specific patterns were identified during village-town disaggregation. In villages, the number of such answers was higher than in towns.

## CONCLUSION

The main findings of the quantitative research are:

- FOOD ACCESSIBILITY - food accessibility is different for high-season and off-season food products. During the high-season, accessibility is equal almost everywhere, including urban and rural, border and non-border, mountainous/high mountainous and lowland communities, while during the low-accessibility season (winter or spring depending on specific food products), the rates in rural, border and mountainous/high mountainous communities differ considerably from urban, non-border and lowland communities.
    - Of Vitamin A rich vegetables, only carrots and greens used as food ingredients are accessible for the majority of the population the entire year. During the off-season, inaccessibility of both vegetables and fruits in rural, border and mountainous/high mountainous communities is higher.
    - Of Vitamin A rich fruit products, accessibility of only dried apricot and peach is not conditioned with the season.
- Accessibility in rural, border and mountainous/high mountainous communities is lower.
- AVAILABILITY OF INFRASTRUCTURE - 5.6% of surveyed communities didn't have supermarkets and/or stores. It's more of an issue for mountainous and border communities.
- ROAD CONDITIONS - roads coming into the community are in better condition than inner-community roads. Respondents provided lower rankings for roads in border communities. Road problems were more frequent during winter months.
- TRANSPORT CONDITIONS - only 28.8% of the rural population mentioned that their village has inner community transport, and 87.5% stated that they have inter-community transport. The picture is similar in mountainous/high mountainous and border areas.
- FOOD USE - The diet diversity score of the population of Armenia was 8.66.
    - More than 90% of households have access (use/consume) grains, spices and drinks, other vegetables, dairy products, oils and fats. Fish, seafood and meat products of animal organs came in last place. Out of Vitamin A rich products, dairy products were used by 91.81% of households; dark green leafy vegetables - 77.4%; eggs - 55.81%; Vitamin A rich vegetables and tubers - 42.38%; Vitamin A rich fruits - 39.19%; and meat of animal organs - 3.38%.
    - Of iron rich food products, only meat and meat products are accessible for about 50% of the population. Fish and meat of animal organs were mentioned by less than 10% of respondents.
- INCOME/EXPENDITURES - More than 25% of households spent 20,001 - 54,000 AMD on food while almost 25% of households had a monthly income of 54,001-100,000 AMD. Similarly, more than 25% of households spent 54,001-100,000 AMD on food while the monthly income of more than 25% of the population was 100,001 - 200,000 AMD. A considerable part of the population spent at least half of their monthly income on food. In 49% of households, the monthly amount spent on food has increased, while in 39.1% of cases, the monthly household income has decreased.

- FACTORS HIGHLIGHTED DURING FOOD PURCHASE – While purchasing food, respondents pay attention to the design, production/storing conditions, brand/manufacturer. Food prices were also highlighted by respondents.
- FOOD INSUFFICIENCY DURING THE YEAR - Food becomes scarcer mainly during winter and spring months: 11.1% in January, 14.4% in February, 17% in March, 14.3% in April, and 10.5% in May.
- STEREOTYPES - Respondents do not follow a regular routine regarding the use of some food products. Such products include pumpkins (as a Vitamin A rich vegetable), meat of animal products (as an important source of iron), etc. Regarding fruits and vegetables, the prevailing stereotype is that a particular fruit/vegetable should be used during its season.
- GENDER SPECIFICATIONS - Men eat outside the house more frequently than women. Men use salt in food more often than women. When following a specific diet, weight management was noted by women more frequently than me, but in cases of medical treatment, the picture is the opposite. Men require knowledge on healthy lifestyle choices more than women.
- DIET - People in urban areas follow different diets more than people in villages. The custom of following diets increases parallel with age, while the number of those noting weight management decreases.
- DIETARY DIVERSITY - The dietary diversity score among women of 15-49 age group was 5.11. This means that women of this group consume on average 5 types (categories) of food products. At the same time, the rate for the population in general was 5.03. Of Vitamin A rich food products, dairy products and dark green leafy vegetable were consumed by a majority of respondents. No one has consumed iron rich food products.
- CHILD NUTRITION –
    - The majority of children not drinking water are under 6 months old. 28.1% of children under 6 months old don't drink water. The percentage of children solely fed breast milk was 61.43% of children of that age group while the number of children not fed with breast milk at all was 14.29%. On average 86.97% of their food consists of breast milk; 8.19% - milk formula; and 4.84% - other food.
    - The average dietary diversity score of children aged 6-59 months old was 4.44%. The diversity score increases parallel to the age of the child until reaching 24-29 months. The rate/score depends on the administrative status of the community and to some extent the education level of mothers.
- KNOWLEDGE ON HEALTHY LIFESTYLE – Women are more aware than men. The level of awareness increases parallel to the rise in the education level.

To summarize the existing strategies, concepts, legislation on food security and nutrition of the RA population, as well as statistical data and information collected through interviews with key informants/experts, the following issues should be stressed:

- Improper implementation of child feeding in pre-school facilities and kindergarten, and a lack of control mechanisms,
- Lack of an operation system for periodical data collection and assessment, particularly regarding teenagers and school-age children,

- Lack of materials/reports/broadcasts by mass media on healthy lifestyle issues and promotion of healthy nutrition.
- Lack of a campaign on unhealthy nutrition habits for teenagers and school-age children,
- Low level of engagement of the public and educational facilities in the formation of healthy nutritional behavior,
- Lack of assessments on the Healthy Lifestyle education program in public schools,
- Sale of unhealthy food with high fat, trans-fat, free sugar and salt content at schools and child entertainment facilities,
- Insufficient level of consultancy on child and healthy nutrition issues,
- Lack of appropriate human resources, particularly infant nutrition specialists,
- Lack of implementation of national legislation in terms of violations of the International Code on Marketing of Artificial Milk Formulas,
- Lack of punishment/accountability mechanisms in cases of Law on Advertising violations,
- Lack of ban on advertisement of food and alcohol harmful to public and children health as defined by the Law on Advertising,
- Incomplete control over fulfillment of requirements on sanitary norms and rules by physical and legal entities involved in the food safety sector.

## Recommendations

- Develop an action plan to ensure physical accessibility of Vitamin A rich food, particularly focusing on rural, border, and mountainous/high mountainous communities,
- Support the development of rural (particularly border and mountainous) markets and other trade infrastructure (loans for entrepreneurship, loan benefits etc) also ensuring the involvement of local women entrepreneurs,
- Support/promote solutions of road and transportation issues in rural (particularly mountainous and border) communities,
- Promote the use of several types of food products, particularly pumpkins (as a Vitamin A rich vegetables), as well as meat of animal organs (as a source of iron) etc,
- Develop an action plan promoting awareness-raising on healthy nutrition and nutrition related issues, such as awareness-raising through mass media, meetings with/trainings for community residents:
    - Increase awareness of the population on healthy nutrition by explaining benefits and harm of different types of food focusing particularly on Vitamin A as well as iron rich food (seafood, meat, meat of animal organs etc).
    - Increase awareness of the population on what to pay attention to when buying food. For instance, when buying vegetables, respondents mentioned that external appearance is important for them, but very few know what is good or bad in terms of appearance. Special focus should be paid to expiration dates and/or storing guidelines, as well as the importance of taking into account the level of cholesterol in food, the nutritional value of food, etc,
    - Engage men as well in the awareness raising campaign, explaining the risks related to abusing salt, eating outside and/or using unhealthy food, smoking and drinking alcohol,
    - Increase awareness among women regarding child nutrition; particularly on the nuances involved in the appropriate nutrition of children under 6 months old (breast feeding, use/disuse of water, etc).
- Ensure a **systematic approach** to measures related to nutrition of teenagers and school-age children.
    - Ensure oversight/monitoring over the organization of nutrition for pre-school and school children,
    - Development of a system of periodical data collection and assessment on nutrition of teenagers and school-age children.
    - Initiate awareness campaigns to promote healthy lifestyles and healthy nutrition, as well as to raise the issue regarding the unhealthy nutrition habits among teenagers and school-age children,
    - Undertake actions aimed at forming healthy nutrition habits in educational facilities, promote/support the establishment of favorable conditions for healthy nutrition,
    - Monitoring and assessment of “Healthy Lifestyle” curricula in educational facilities,
    - Banning the sale of unhealthy food rich with fats, trans-fats, free sugars and salt in child education and entertainment facilities,
    - Professional training for neonatologists and dietitians,
    - Undertake steps to avert violations of the International Code on Marketing of Artificial Milk Formula, as well as improving national legislation on this issue,
    - Establishment and application of punitive mechanisms for violating the RA Law on Advertising,

    - Banning advertisements of food and alcohol harmful to the public and children according to the RA Law on Advertising.
- Comprehensive oversight for fulfilling sanitary norms and requirements by physical and legal entities,
- Ensuring the interaction, cooperation, accountability and responsibility among all stakeholders (also involving civil society organizations) in national nutrition policy development and implementation.

# ANNEXES

## Annex 1. List of studied documents

1. The Strategic Program on Healthy Lifestyle and Action Plan ensuring the implementation of the program
2. Mother and Child Healthcare Strategy for 2003-2015,
3. Specialized guides on feeding of children of early age and public information materials for pregnant women and nursing mothers,
4. Guide on adult diet
5. Methodological guide of the anti-epidemiological research on food poisoning,
6. Report on feeding children of early age,
7. Benchmark on provision of outpatient obstetric support and services within the framework of free of charge medical aid and service guaranteed by the state,
8. Law on Advertising,
9. National Program on Fight Against and Prevention of Iodine Deficiency Among the Population of RA and the Action Plan for 2004-2007,
10. RA Water Code,
11. RA Law on Sanitary-Epidemiological Security of the Population of RA
12. RA Government decision on the National Action Program on the Hygiene of the Environment of RA
13. Strategic Program on Protection of Children's Rights in RA for 2013-2016,
14. National Food Security Concept of RA
15. Action plan derived from the National Food Security Strategy of RA,
16. RA Law on Minimum Consumer Basket and Minimum Consumer Budget,
17. Food security and poverty, publications by the National Statistical Service of RA
18. National Strategy on Child and Teenager Health and Development and the Action Plan for 2010-2015
19. Strategic Development Program of RA for 2014-2020
20. Technical support project for the development of the food safety system,
21. "Healthy lifestyle" school curricula in public schools
22. Guidelines for measuring household and individual dietary diversity, 2013, Food and Agriculture Organization of the United Nations
23. Nutritional Aspects of Food Security in Armenia, 2014, COMPETITIVE SOCIETY NGO
24. Armenia: Demographic and Health Survey, 2010, National Statistical Service of Armenia
25. Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide, VERSION 2, 2006, USAID Food and Nutrition Technical Assistance III Project (FANTA)
26. Meeting to Reach Consensus on a Global Dietary Diversity Indicator for Women, 2014, SUMMARY REPORT Prepared by FAO
27. WHO. "Food Security".
28. FAO Agricultural and Development Economics Division (June 2006). *"Food Security"*

## Annex 2: % of mountainous/high mountainous, lowland and border communities in comparison to all provincial/marz communities

| Marz | Number of urban communities in each marz | % | | | Number of rural communities in each marz | % | | |
|---|---|---|---|---|---|---|---|---|
| | | Mountainous/high mountainous | Lowland | Border | | Mountainous/high mountainous | Lowland | Border |
| Aragatzotn | 3 | 33.3 | 66.7 | 0.0 | 111 | 57.7 | 42.3 | 1.8 |
| Ararat | 4 | 0.0 | 100.0 | 0.0 | 93 | 6.5 | 93.5 | 9.7 |
| Armavir | 3 | 0.0 | 100.0 | 0.0 | 94 | 0.0 | 100.0 | 8.5 |
| Gegharkunik | 5 | 80.0 | 20.0 | 40.0 | 87 | 100.0 | 0.0 | 24.1 |
| Lori | 8 | 0.0 | 100.0 | 0.0 | 105 | 31.4 | 68.6 | 4.8 |
| Kotayk | 7 | 28.6 | 71.4 | 0.0 | 60 | 40.0 | 60.0 | 0.0 |
| Shirak | 3 | 66.7 | 33.3 | 0.0 | 116 | 72.4 | 27.6 | 12.9 |
| Syunik | 7 | 28.6 | 71.4 | 71.4 | 102 | 41.2 | 58.8 | 59.8 |
| Vayots Dzor | 3 | 33.3 | 66.7 | 0.0 | 41 | 61.0 | 39.0 | 29.3 |
| Tavush | 5 | 0.0 | 100.0 | 40.0 | 57 | 1.8 | 98.2 | 77.2 |

## Annex 3. Food Groups

| | |
|---|---|
| 1. Grains/cereals | 1.1.grains and cereals, 1.2.flour, 1.3.bread/*lavash*, 1.4.pasta |
| 2. White roots and tubers | 2.1.potatoes |
| 3. Vitamin A rich vegetables and tubers | 3.1.pumpkins, 3.2.carrot, 3.3.red pepper |
| 4. Dark green leafy vegetables | 4.1) greens used as spices (coriander, parsley, scallion, dill, etc), 4.2) greens used as main ingredients (beet greens, spinach, rumex, nettle, astrodaucus, polygonatum, mallow, purslane, lettuce, grape leaves), 4.3) broccoli |
| 5. Other vegetables | 5.1) onions, 5.2) garlic, 5.3) green beans, 5.4) eggplant, 5.5) squash, 5.6) green pepper, 5.7) beetroot, 5.8) radish, 5.9) corn, 5.10) cucumber, 5.11) tomatoes, 5.12) cabbage, 5.13) cauliflower, 5.14) mushrooms |
| 6. Vitamin A rich fruits | 6.1) fresh apricot, 6.2) fresh peach 6.3) dried apricot/peach, 6.4) melon, 6.5) persimmon |
| 7. Other fruits and berries | 7.1) apples, 7.2) grapes, 7.3) peaches, 7.4) pears, 7.5) watermelon, 7.6) cherries, 7.7) prunes, 7.8) pomegranate, 7.9) mulberries, 7.10) bananas, 7.11) tangerine, 7.12) Lemon, 7.13) oranges, 7.14) strawberries, 7.15) other berries |
| 8. Meat of animal organs and meat products | 8.1) liver, heart,, lung etc |
| 9. Meat and meat products | 9.1) beef, 9.2) pork, 9.3) lamb, 9.4) poultry, 9.5) sausages, smoked meat and other processed meat products |
| 10. Egg | 10.1) eggs |
| 11. Fish and seafood | 11.1) fish, 11.2) other seafood |
| 12. Nuts and seeds | 12.1) legumes (dried beans, peas and lentils), 12.2) nuts (walnut, hazelnut etc), 12.3) seeds and kernels (sunflower, pumpkin seeds, apricot stones etc) |
| 13. Milk and dairy products | 13.1) milk, 13.2) cheese, 13.3) yogurt, 13.4) curds |
| 14. Oils and fats | 14.1) butter, 14.2) ghee, 14.3) animal fat, 14.4) margarine, 14.5) sour cream, 14.6) mayonnaise, 14.7) vegetable oil |
| 15. Sweets | 15.1) sugar, 15.2) cake, 15.3) biscuits, 15.4) candies/chocolate, 15.5) honey, 15.6) jam, 15.7) sweet soft drinks |
| 16. Spices and drinks | 16.1) black/red pepper, 16.2) salt, 16.3) sauces, ketchup, mustard, 16.4) magi, 16.5) coffee, 16.6) tea, 16.7) alcohol |

## Annex 4. Tables of the quantitative survey

*Table 1: Food accessibility in the community*

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 1.1.Summer | 0.0% | 0.0% | 0.0% | 2.6% | .4% | 3.0% | .1% | 7.4% | .9% |
| 1.1.Autumn | 0.0% | 1.4% | 0.0% | 2.6% | .6% | 3.0% | .4% | 7.4% | 1.1% |
| 1.1.Spring | 0.0% | 1.9% | 0.0% | 2.5% | .7% | 2.7% | .4% | 6.9% | 1.1% |
| 1.1.Winter | 0.0% | 1.9% | 0.0% | 2.6% | .7% | 3.0% | .5% | 6.9% | 1.2% |
| 1.2.Summer | 0.0% | 0.0% | 0.0% | 3.4% | .6% | 3.3% | .4% | 8.0% | 1.2% |
| 1.2.Autumn | 0.0% | 0.0% | 0.0% | 3.4% | .6% | 3.3% | .4% | 8.0% | 1.2% |
| 1.2.Spring | 0.0% | .5% | 0.0% | 3.4% | .7% | 3.3% | .4% | 8.0% | 1.3% |
| 1.2. Winter | 0.0% | .5% | 0.0% | 3.4% | .7% | 3.3% | .4% | 8.0% | 1.3% |
| 1.3.Summer | 0.0% | 0.0% | 0.0% | 2.1% | .4% | 2.1% | 0.0% | 6.9% | .8% |
| 1.3.Autumn | 0.0% | 0.0% | 0.0% | 2.1% | .4% | 2.1% | 0.0% | 6.9% | .8% |
| 1.3.Spring | 0.0% | 0.0% | 0.0% | 2.1% | .4% | 2.1% | 0.0% | 6.9% | .8% |
| 1.3.Winter | 0.0% | .5% | 0.0% | 2.1% | .5% | 2.1% | .1% | 6.9% | .8% |
| 1.4.Summer | 0.0% | 0.0% | 0.0% | 1.6% | .2% | 2.1% | 0.0% | 5.1% | .6% |
| 1.4.Autumn | 0.0% | 0.0% | 0.0% | 1.4% | .1% | 2.1% | 0.0% | 4.6% | .5% |
| 1.4.Spring | 0.0% | 0.0% | 0.0% | 1.6% | .2% | 2.1% | 0.0% | 5.1% | .6% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 1.4.Winter | 0.0% | 0.0% | 0.0% | 1.6% | .2% | 2.1% | 0.0% | 5.1% | .6% |
| 2.1.Summer | 0.0% | .5% | 0.0% | 3.0% | 1.1% | 1.2% | .8% | 3.4% | 1.1% |
| 2.1.Autumn | 0.0% | 1.9% | 0.0% | 2.6% | 1.3% | .9% | 1.1% | 2.3% | 1.2% |
| 2.1.Spring | 0.0% | 1.9% | 0.0% | 1.9% | 1.1% | .3% | .8% | 2.3% | .9% |
| 2.1.Winter | 0.0% | 2.9% | 0.0% | 4.2% | 1.9% | 1.8% | 1.6% | 4.0% | 1.9% |
| 3.1.Summer | 3.9% | 28.4% | 29.0% | 39.2% | 18.6% | 42.0% | 22.3% | 33.7% | 23.6% |
| 3.1.Autumn | 3.3% | 26.9% | 26.2% | 27.2% | 15.5% | 29.5% | 17.6% | 25.7% | 18.5% |
| 3.1.Spring | 1.4% | 4.3% | 1.2% | 8.5% | 4.4% | 3.9% | 4.1% | 5.7% | 4.3% |
| 3.1.Winter | 2.3% | 22.6% | 13.3% | 36.0% | 15.4% | 31.0% | 17.4% | 29.1% | 18.7% |
| 3.2.Summer | 0.0% | 3.4% | .4% | 14.1% | 3.4% | 13.4% | 4.9% | 10.3% | 5.5% |
| 3.2.Autumn | 0.0% | .5% | .8% | 10.4% | 3.1% | 6.8% | 3.6% | 6.3% | 3.9% |
| 3.2.Spring | 0.0% | 0.0% | 0.0% | 5.6% | 2.2% | 1.5% | 2.0% | 2.3% | 2.0% |
| 3.2.Winter | 0.0% | 1.0% | .4% | 13.2% | 3.5% | 10.1% | 4.3% | 9.7% | 4.9% |
| 3.3.Summer | 4.9% | 26.9% | 27.8% | 46.7% | 19.0% | 53.6% | 24.4% | 41.7% | 26.3% |
| 3.3.Autumn | 2.1% | 4.8% | 3.6% | 8.1% | 4.3% | 6.8% | 4.7% | 6.3% | 4.8% |
| 3.3.Spring | .5% | 2.4% | 1.2% | 5.5% | 2.5% | 3.3% | 2.6% | 2.9% | 2.6% |
| 3.3.Winter | 3.2% | 33.7% | 33.5% | 64.6% | 24.2% | 69.3% | 31.1% | 54.9% | 33.8% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 4.1.Summer | .7% | .5% | 0.0% | 5.3% | 1.8% | 3.9% | 2.2% | 2.3% | 2.2% |
| 4.1. Autumn | .7% | .5% | .4% | 2.8% | 1.2% | 2.1% | 1.4% | 1.1% | 1.4% |
| 4.1.Spring | .5% | .5% | .4% | 3.2% | 1.3% | 2.1% | 1.6% | .6% | 1.4% |
| 4.1.Winter | .5% | 3.4% | .8% | 16.9% | 5.2% | 12.8% | 6.6% | 8.6% | 6.8% |
| 4.2.Summer | 5.3% | 7.7% | 2.8% | 17.6% | 7.1% | 19.0% | 8.6% | 17.7% | 9.6% |
| 4.2.Autumn | 2.1% | 1.9% | 3.2% | 7.8% | 4.2% | 4.5% | 4.2% | 4.6% | 4.3% |
| 4.2.Spring | 1.9% | 8.7% | 3.6% | 12.3% | 6.6% | 7.4% | 6.4% | 9.7% | 6.8% |
| 4.2.Winter | 7.2% | 34.6% | 25.4% | 49.4% | 23.6% | 47.6% | 27.1% | 41.1% | 28.7% |
| 4.3.Summer | 4.8% | 6.3% | 14.9% | 33.2% | 14.9% | 23.2% | 15.0% | 30.3% | 16.7% |
| 4.3.Autumn | 3.7% | 6.7% | 10.5% | 29.8% | 12.4% | 22.0% | 12.6% | 29.1% | 14.5% |
| 4.3.Spring | 3.0% | 6.7% | 9.7% | 30.9% | 12.0% | 23.5% | 12.6% | 29.7% | 14.5% |
| 4.3.Winter | 4.2% | 14.4% | 18.5% | 44.3% | 19.0% | 33.3% | 20.3% | 36.0% | 22.1% |
| 5.1.Summer | 0.0% | 1.0% | 0.0% | 5.5% | 1.8% | 3.0% | 2.0% | 2.3% | 2.1% |
| 5.1.Autumn | 0.0% | 0.0% | 0.0% | 4.1% | 1.3% | 2.1% | 1.5% | 1.1% | 1.4% |
| 5.1.Spring | 0.0% | 0.0% | 0.0% | 2.3% | .9% | .6% | .8% | 1.1% | .8% |
| 5.1.Winter | 0.0% | 1.0% | 0.0% | 7.4% | 2.2% | 5.1% | 2.5% | 4.6% | 2.8% |
| 5.10.Summer | .2% | 4.8% | 0.0% | 6.7% | 1.7% | 8.3% | 3.3% | 1.1% | 3.1% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 5.10.Autumn | .2% | 3.4% | 0.0% | 6.3% | 1.1% | 8.9% | 3.0% | .6% | 2.8% |
| 5.10.Spring | .2% | 0.0% | .4% | 2.1% | .9% | .9% | .9% | .6% | .9% |
| 5.10.Winter | .2% | 0.0% | .4% | 4.9% | 1.4% | 3.6% | 1.9% | 1.7% | 1.9% |
| 5.11.Summer | 6.2% | 19.7% | 16.9% | 39.0% | 15.6% | 42.6% | 19.0% | 40.0% | 21.3% |
| 5.11.Autumn | .5% | .5% | .4% | 4.1% | 1.8% | 1.8% | 1.8% | 1.1% | 1.8% |
| 5.11.Spring | .4% | 1.0% | 3.2% | 6.3% | 1.8% | 7.7% | 3.0% | 3.4% | 3.0% |
| 5.11.Winter | 4.2% | 43.3% | 41.5% | 73.4% | 30.5% | 74.4% | 36.0% | 70.3% | 39.8% |
| 5.12.Summer | 6.0% | 26.9% | 27.0% | 42.2% | 19.1% | 46.4% | 23.0% | 40.0% | 24.9% |
| 5.12.Autumn | .5% | .5% | .8% | 3.0% | 1.4% | 1.8% | 1.5% | 1.1% | 1.4% |
| 5.12.Spring | .5% | .5% | .8% | 5.1% | 1.6% | 4.5% | 2.2% | 2.3% | 2.2% |
| 5.12.Winter | 3.3% | 41.8% | 44.4% | 70.5% | 30.3% | 70.2% | 35.0% | 68.6% | 38.7% |
| 5.13.Summer | 4.0% | 17.3% | 14.9% | 30.2% | 13.1% | 30.4% | 14.5% | 34.9% | 16.8% |
| 5.13.Autumn | .2% | .5% | 1.2% | 4.2% | 1.9% | 1.5% | 1.6% | 3.4% | 1.8% |
| 5.13.Spring | .5% | .5% | 1.6% | 10.6% | 2.7% | 10.1% | 3.5% | 10.9% | 4.3% |
| 5.13.Winter | 1.9% | 39.4% | 35.1% | 66.8% | 28.4% | 60.4% | 31.1% | 67.4% | 35.1% |
| 5.14.Summer | 2.8% | 13.0% | 6.0% | 29.6% | 8.7% | 34.8% | 12.5% | 28.0% | 14.2% |
| 5.14.Autumn | .4% | .5% | .4% | 2.3% | 1.1% | .9% | 1.1% | 1.1% | 1.1% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 5.14.Spring | 0.0% | 0.0% | 0.0% | 3.9% | 1.3% | 1.8% | 1.1% | 3.4% | 1.4% |
| 5.14.Winter | .4% | 17.3% | 15.3% | 56.6% | 17.1% | 54.2% | 22.1% | 48.0% | 25.0% |
| 5.2.Summer | 0.0% | 2.4% | .8% | 11.6% | 3.3% | 9.2% | 4.1% | 8.6% | 4.6% |
| 5.2.Autumn | 0.0% | .5% | 0.0% | 9.2% | 2.4% | 6.8% | 2.8% | 7.4% | 3.3% |
| 5.2.Spring | 0.0% | 0.0% | 0.0% | 4.4% | 1.4% | 2.1% | 1.5% | 2.3% | 1.6% |
| 5.2.Winter | .2% | 4.3% | 1.6% | 12.9% | 4.5% | 8.9% | 5.2% | 7.4% | 5.5% |
| 5.3.Summer | 1.2% | 6.7% | 7.3% | 27.9% | 7.1% | 32.1% | 10.4% | 28.6% | 12.4% |
| 5.3.Autumn | .9% | 3.8% | 8.1% | 22.4% | 7.5% | 19.6% | 9.8% | 12.0% | 10.1% |
| 5.3.Spring | .5% | .5% | 0.0% | 8.1% | 3.0% | 3.6% | 3.2% | 2.3% | 3.1% |
| 5.3.Winter | .7% | 4.8% | .8% | 18.5% | 6.6% | 11.3% | 6.4% | 17.1% | 7.6% |
| 5.4.Summer | 4.8% | 22.1% | 17.3% | 47.8% | 17.7% | 49.1% | 21.2% | 49.7% | 24.3% |
| 5.4.Autumn | 1.1% | 2.4% | 3.6% | 17.5% | 4.1% | 20.2% | 6.0% | 19.4% | 7.5% |
| 5.4.Spring | 1.1% | 1.4% | .4% | 9.3% | 3.3% | 6.5% | 3.6% | 6.9% | 4.0% |
| 5.4.Winter | 3.5% | 31.3% | 27.4% | 50.8% | 23.5% | 43.5% | 24.8% | 51.4% | 27.7% |
| 5.5.Summer | .5% | 1.0% | 3.6% | 18.0% | 3.4% | 21.7% | 5.1% | 25.1% | 7.3% |
| 5.5.Autumn | 0.0% | 0.0% | .4% | 2.1% | .7% | 1.2% | .7% | 1.7% | .8% |
| 5.5.Spring | 0.0% | 0.0% | 0.0% | 2.6% | .8% | 1.5% | .9% | 1.1% | .9% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 5.5.Winter | 0.0% | 1.0% | 4.4% | 36.3% | 8.3% | 34.2% | 11.2% | 34.9% | 13.8% |
| 5.6.Summer | .5% | 3.8% | 3.6% | 19.6% | 3.8% | 24.7% | 6.7% | 20.6% | 8.2% |
| 5.6.Autumn | 0.0% | 0.0% | 0.0% | 3.2% | 1.0% | 1.5% | 1.0% | 2.3% | 1.1% |
| 5.6.Spring | 0.0% | 0.0% | 0.0% | 3.4% | 1.0% | 1.8% | 1.1% | 2.3% | 1.2% |
| 5.6.Winter | 0.0% | 3.8% | 4.8% | 37.0% | 8.7% | 36.0% | 12.4% | 31.4% | 14.5% |
| 5.7.Summer | .2% | .5% | .4% | 9.0% | 1.8% | 9.2% | 2.6% | 9.7% | 3.4% |
| 5.7.Autumn | .2% | 0.0% | 0.0% | 3.7% | 1.4% | 1.5% | 1.2% | 2.9% | 1.4% |
| 5.7.Spring | .2% | 0.0% | 0.0% | 2.6% | 1.0% | .9% | 1.0% | 1.1% | 1.0% |
| 5.7.Winter | .2% | 0.0% | .4% | 10.2% | 2.5% | 8.3% | 3.3% | 7.4% | 3.8% |
| 5.8.Summer | 3.0% | 27.4% | 24.6% | 54.9% | 19.8% | 58.6% | 25.6% | 47.4% | 28.0% |
| 5.8.Autumn | 1.6% | 12.0% | 6.9% | 22.9% | 9.5% | 18.5% | 10.2% | 20.6% | 11.4% |
| 5.8.Spring | .4% | 1.9% | .4% | 6.3% | 2.6% | 3.0% | 2.7% | 2.9% | 2.7% |
| 5.8.Winter | 1.2% | 33.2% | 23.8% | 62.4% | 22.1% | 63.1% | 27.3% | 58.9% | 30.7% |
| 5.9.Summer | 1.2% | 2.4% | 2.4% | 20.1% | 7.8% | 10.1% | 7.3% | 16.0% | 8.3% |
| 5.9.Autumn | .9% | 2.9% | 2.0% | 29.1% | 8.3% | 22.9% | 9.7% | 25.1% | 11.4% |
| 5.9.Spring | .9% | 2.4% | .8% | 24.3% | 8.1% | 14.3% | 7.8% | 22.9% | 9.4% |
| 5.9.Winter | .9% | 12.5% | 4.0% | 47.8% | 13.7% | 41.7% | 16.7% | 42.9% | 19.6% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 6.1.Summer | 26.1% | 37.5% | 30.6% | 46.6% | 37.1% | 29.8% | 35.7% | 34.9% | 35.6% |
| 6.1.Autumn | 4.9% | 0.0% | 7.7% | 6.9% | 3.7% | 11.6% | 5.0% | 8.6% | 5.4% |
| 6.1.Spring | 4.9% | 34.1% | 37.9% | 51.1% | 22.6% | 59.2% | 26.2% | 64.0% | 30.4% |
| 6.1.Winter | 19.5% | 81.7% | 89.5% | 94.9% | 58.2% | 92.3% | 61.8% | 94.9% | 65.4% |
| 6.2.Summer | 22.0% | 39.4% | 52.4% | 65.8% | 40.4% | 60.4% | 41.9% | 66.3% | 44.6% |
| 6.2.Autumn | 4.8% | 0.0% | 3.2% | 6.0% | 4.1% | 5.1% | 4.6% | 2.3% | 4.3% |
| 6.2.Spring | .4% | 5.3% | 6.0% | 8.1% | 1.9% | 14.9% | 4.7% | 4.0% | 4.7% |
| 6.2.Winter | 15.3% | 64.4% | 77.8% | 89.2% | 50.1% | 86.6% | 53.3% | 94.3% | 57.8% |
| 6.3.Summer | 1.6% | 5.3% | 2.0% | 18.0% | 5.0% | 19.0% | 7.3% | 13.7% | 8.0% |
| 6.3.Autumn | .9% | 5.3% | 0.0% | 24.3% | 4.4% | 29.5% | 8.0% | 23.4% | 9.7% |
| 6.3.Spring | .5% | 2.4% | 0.0% | 10.1% | 2.3% | 10.7% | 3.3% | 10.3% | 4.1% |
| 6.3.Winter | .4% | 3.4% | 4.0% | 12.2% | 3.3% | 13.7% | 4.5% | 13.7% | 5.5% |
| 6.4.Summer | 15.1% | 42.8% | 55.6% | 66.5% | 37.1% | 66.7% | 41.7% | 56.6% | 43.4% |
| 6.4.Autumn | 3.7% | .5% | 2.8% | 3.7% | 3.2% | 3.0% | 3.3% | 1.7% | 3.1% |
| 6.4.Spring | 1.1% | 1.9% | 1.2% | 11.3% | 4.5% | 6.3% | 4.2% | 9.7% | 4.8% |
| 6.4.Winter | 9.3% | 67.8% | 74.6% | 82.4% | 45.8% | 80.7% | 48.9% | 87.4% | 53.2% |
| 6.5.Summer | 15.8% | 30.8% | 39.9% | 52.6% | 32.8% | 41.4% | 32.7% | 50.3% | 34.6% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 6.5.Autumn | 13.6% | 51.9% | 68.1% | 72.8% | 42.1% | 71.1% | 44.0% | 82.3% | 48.2% |
| 6.5.Spring | .7% | 4.8% | 9.3% | 13.2% | 4.9% | 15.2% | 6.4% | 12.0% | 7.0% |
| 6.5.Winter | .7% | 7.2% | 6.5% | 14.6% | 6.0% | 12.8% | 7.3% | 8.6% | 7.4% |
| 7.1.Summer | 0.0% | 2.4% | .4% | 4.9% | 1.9% | 3.0% | 2.0% | 3.4% | 2.1% |
| 7.1.Autumn | 0.0% | 3.4% | .8% | 4.4% | 1.4% | 5.1% | 2.0% | 2.9% | 2.1% |
| 7.1.Spring | 0.0% | .5% | 0.0% | 1.2% | .6% | 0.0% | .4% | 1.1% | .5% |
| 7.1.Winter | .2% | 1.0% | 0.0% | 3.4% | 1.2% | 2.1% | 1.3% | 1.7% | 1.4% |
| 7.10.Summer | 1.1% | 7.2% | 12.1% | 31.4% | 8.6% | 36.0% | 13.9% | 18.3% | 14.4% |
| 7.10.Autumn | .5% | 1.4% | 6.9% | 9.5% | 2.2% | 14.6% | 3.9% | 12.6% | 4.8% |
| 7.10.Spring | .2% | .5% | .4% | 2.6% | .9% | 2.1% | 1.1% | 1.1% | 1.1% |
| 7.10.Winter | .4% | 2.9% | 1.2% | 15.3% | 5.6% | 8.3% | 5.9% | 8.0% | 6.2% |
| 7.11.Summer | .5% | 7.2% | 6.0% | 29.5% | 4.9% | 41.1% | 10.7% | 28.0% | 12.6% |
| 7.11.Autumn | .4% | 1.0% | 3.6% | 9.5% | 2.4% | 11.0% | 3.8% | 7.4% | 4.2% |
| 7.11.Spring | .2% | 0.0% | 0.0% | 2.8% | 1.0% | 1.2% | 1.0% | 1.7% | 1.1% |
| 7.11.Winter | .4% | 6.7% | .4% | 19.6% | 2.8% | 27.7% | 6.4% | 21.7% | 8.0% |
| 7.12.Summer | 12.9% | 26.9% | 38.3% | 60.5% | 29.5% | 58.6% | 34.0% | 48.6% | 35.6% |
| 7.12.Autumn | 2.8% | .5% | .8% | 3.0% | 2.3% | 2.1% | 2.5% | .6% | 2.3% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 7.12.Spring | .9% | .5% | .8% | 9.5% | 3.0% | 7.1% | 3.7% | 5.7% | 3.9% |
| 7.12.Winter | 7.7% | 47.6% | 59.3% | 84.1% | 39.7% | 80.1% | 44.5% | 78.3% | 48.2% |
| 7.13.Summer | 13.0% | 33.2% | 27.0% | 45.9% | 24.1% | 49.7% | 27.5% | 45.7% | 29.5% |
| 7.13.Autumn | 5.6% | 1.9% | 2.8% | 4.9% | 5.2% | 1.8% | 4.7% | 2.9% | 4.5% |
| 7.13.Spring | 7.4% | 30.8% | 30.2% | 38.4% | 24.1% | 28.9% | 22.3% | 47.4% | 25.1% |
| 7.13.Winter | 9.5% | 65.4% | 76.2% | 84.1% | 46.4% | 81.5% | 50.4% | 81.1% | 53.8% |
| 7.14.Summer | 13.6% | 26.0% | 21.0% | 40.4% | 20.1% | 47.6% | 24.2% | 40.0% | 25.9% |
| 7.14.Autumn | 5.6% | .5% | 2.8% | 4.8% | 4.9% | 1.8% | 4.4% | 2.3% | 4.2% |
| 7.14.Spring | 6.5% | 34.1% | 31.0% | 36.9% | 24.3% | 26.5% | 21.9% | 48.0% | 24.8% |
| 7.14.Winter | 11.3% | 59.1% | 74.6% | 81.1% | 45.2% | 78.9% | 48.6% | 82.3% | 52.3% |
| 7.15.Summer | 10.4% | 30.3% | 29.4% | 52.7% | 25.5% | 51.8% | 27.5% | 60.0% | 31.0% |
| 7.15.Autumn | 4.4% | 1.4% | 2.4% | 6.3% | 4.1% | 5.4% | 4.0% | 7.4% | 4.4% |
| 7.15.Spring | 1.2% | 2.9% | 1.6% | 10.4% | 4.1% | 7.1% | 4.1% | 10.3% | 4.8% |
| 7.15.Winter | 5.6% | 40.4% | 47.2% | 72.8% | 33.3% | 67.9% | 36.3% | 75.4% | 40.6% |
| 7.2.Summer | 6.2% | 20.2% | 26.2% | 46.7% | 20.4% | 44.9% | 23.7% | 40.6% | 25.6% |
| 7.2.Autumn | 4.2% | 26.4% | 39.9% | 62.3% | 25.9% | 61.3% | 29.4% | 65.7% | 33.4% |
| 7.2.Spring | .9% | 1.9% | 2.4% | 11.8% | 3.2% | 12.5% | 5.2% | 5.1% | 5.2% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 7.2.Winter | 1.2% | 5.8% | 2.0% | 15.3% | 4.9% | 14.6% | 7.3% | 4.6% | 7.0% |
| 7.3.Summer | 20.1% | 28.8% | 25.4% | 39.3% | 29.9% | 25.3% | 27.2% | 42.9% | 28.9% |
| 7.3.Autumn | 10.4% | 3.8% | 13.7% | 16.6% | 9.4% | 22.9% | 12.3% | 12.0% | 12.3% |
| 7.3.Spring | 11.6% | 45.7% | 62.9% | 70.4% | 37.5% | 72.9% | 41.5% | 73.1% | 45.0% |
| 7.3.Winter | 22.0% | 76.9% | 82.3% | 86.2% | 55.5% | 83.6% | 57.8% | 91.4% | 61.5% |
| 7.4.Summer | .2% | 0.0% | 0.0% | 10.1% | 2.0% | 9.8% | 3.0% | 9.1% | 3.6% |
| 7.4.Autumn | .2% | 0.0% | 0.0% | 10.2% | 2.1% | 9.8% | 3.0% | 9.1% | 3.7% |
| 7.4.Spring | .2% | 0.0% | 0.0% | 8.8% | 1.8% | 8.6% | 2.5% | 8.6% | 3.2% |
| 7.4.Winter | 0.0% | 0.0% | 0.0% | 7.6% | 1.5% | 7.1% | 2.1% | 7.4% | 2.7% |
| 7.5.Summer | 9.5% | 16.8% | 19.4% | 41.1% | 21.5% | 29.8% | 21.9% | 34.3% | 23.3% |
| 7.5.Autumn | 4.9% | 49.0% | 57.3% | 73.4% | 37.3% | 65.5% | 39.6% | 72.6% | 43.2% |
| 7.5.Spring | .7% | 1.9% | 5.2% | 16.8% | 5.7% | 13.1% | 6.9% | 10.9% | 7.3% |
| 7.5.Winter | .4% | 1.4% | 2.4% | 9.0% | 3.4% | 5.7% | 3.7% | 5.1% | 3.9% |
| 7.6.Summer | 0.0% | 0.0% | .4% | 10.1% | 1.8% | 10.7% | 3.0% | 8.6% | 3.6% |
| 7.6.Autumn | 0.0% | 0.0% | .8% | 10.4% | 1.8% | 11.6% | 3.1% | 9.7% | 3.8% |
| 7.6.Spring | 0.0% | 0.0% | 0.0% | 8.3% | 1.7% | 7.7% | 2.3% | 8.6% | 3.0% |
| 7.6.Winter | 0.0% | 0.0% | 0.0% | 6.3% | 1.4% | 5.4% | 1.7% | 6.9% | 2.3% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 7.7.Summer | 1.6% | 2.4% | 1.6% | 21.7% | 6.9% | 16.4% | 7.7% | 18.3% | 8.9% |
| 7.7.Autumn | 1.1% | 6.7% | 6.0% | 36.7% | 8.8% | 39.6% | 12.4% | 38.9% | 15.3% |
| 7.7.Spring | .2% | 0.0% | 1.2% | 11.3% | 2.5% | 10.7% | 4.3% | 4.0% | 4.3% |
| 7.7.Winter | .4% | 0.0% | .4% | 7.8% | 2.2% | 5.7% | 2.9% | 3.4% | 3.0% |
| 7.8.Summer | 7.2% | 7.7% | 9.3% | 30.7% | 12.9% | 27.4% | 15.6% | 18.9% | 16.0% |
| 7.8.Autumn | .7% | 1.4% | 2.4% | 8.5% | 3.0% | 6.8% | 3.2% | 9.1% | 3.8% |
| 7.8.Spring | 1.1% | 13.0% | 17.7% | 29.6% | 10.5% | 33.6% | 13.1% | 34.3% | 15.4% |
| 7.8.Winter | 4.4% | 48.6% | 55.6% | 82.5% | 37.5% | 77.7% | 41.7% | 80.6% | 46.0% |
| 7.9.Summer | 4.4% | 13.0% | 8.1% | 24.2% | 12.4% | 16.1% | 11.5% | 26.3% | 13.1% |
| 7.9.Autumn | .4% | 1.4% | .4% | 3.9% | 1.7% | 2.1% | 1.6% | 3.4% | 1.8% |
| 7.9.Spring | 1.4% | 12.0% | 4.8% | 10.6% | 6.5% | 7.1% | 6.1% | 10.9% | 6.6% |
| 7.9.Winter | 1.9% | 45.7% | 41.5% | 44.1% | 28.0% | 31.8% | 25.6% | 55.4% | 28.8% |
| 8.1.Summer | 1.1% | 1.0% | 1.6% | 11.8% | 3.8% | 9.2% | 4.7% | 6.9% | 5.0% |
| 8.1.Autumn | .9% | 1.0% | 1.6% | 11.5% | 3.7% | 8.6% | 4.6% | 6.3% | 4.8% |
| 8.1.Spring | .9% | 1.0% | 1.6% | 11.1% | 3.8% | 7.7% | 4.4% | 6.3% | 4.7% |
| 8.1.Winter | 1.1% | 1.0% | 1.2% | 11.1% | 3.7% | 8.0% | 4.4% | 6.3% | 4.7% |
| 9.1.Summer | 1.1% | 1.4% | .8% | 8.6% | 3.6% | 4.5% | 3.7% | 4.6% | 3.8% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 9.1.Autumn | 1.1% | 1.4% | .8% | 8.6% | 3.5% | 4.8% | 3.7% | 4.0% | 3.8% |
| 9.1.Spring | 1.1% | 1.4% | 1.2% | 8.1% | 3.6% | 3.9% | 3.6% | 4.0% | 3.6% |
| 9.1.Winter | 1.1% | 1.4% | .8% | 8.1% | 3.5% | 3.9% | 3.5% | 4.0% | 3.6% |
| 9.2.Summer | .9% | 1.4% | .8% | 7.8% | 3.1% | 4.5% | 3.2% | 4.6% | 3.4% |
| 9.2.Autumn | .9% | 1.4% | .8% | 7.9% | 3.1% | 4.8% | 3.3% | 4.6% | 3.5% |
| 9.2.Spring | .9% | 1.4% | .8% | 7.2% | 3.0% | 3.9% | 3.1% | 4.0% | 3.2% |
| 9.2.Winter | .9% | 1.4% | .4% | 6.9% | 2.9% | 3.3% | 2.9% | 4.0% | 3.0% |
| 9.3.Summer | 1.2% | 1.0% | .8% | 8.1% | 3.3% | 4.8% | 3.3% | 5.7% | 3.6% |
| 9.3.Autumn | 1.2% | 1.0% | .8% | 7.9% | 3.2% | 4.8% | 3.3% | 5.1% | 3.5% |
| 9.3.Spring | 1.2% | 1.0% | .8% | 7.8% | 3.3% | 4.2% | 3.2% | 5.1% | 3.5% |
| 9.3.Winter | 1.2% | 1.0% | .8% | 7.8% | 3.3% | 4.2% | 3.2% | 5.1% | 3.5% |
| 9.4.Summer | .2% | 0.0% | 0.0% | 3.5% | .8% | 3.3% | 1.0% | 4.0% | 1.3% |
| 9.4.Autumn | .2% | 0.0% | 0.0% | 3.5% | .8% | 3.3% | 1.0% | 4.0% | 1.3% |
| 9.4.Spring | .2% | 0.0% | 0.0% | 3.5% | .8% | 3.3% | 1.0% | 4.0% | 1.3% |
| 9.4.Winter | .2% | 0.0% | 0.0% | 3.4% | .7% | 3.3% | .9% | 4.0% | 1.3% |
| 9.5.Summer | .4% | .5% | 0.0% | 3.4% | .5% | 4.8% | .9% | 5.1% | 1.4% |
| 9.5.Autumn | .4% | .5% | 0.0% | 3.4% | .5% | 4.8% | .9% | 5.1% | 1.4% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 9.5.Spring | .2% | .5% | 0.0% | 3.4% | .4% | 4.8% | .8% | 5.1% | 1.3% |
| 9.5.Winter | .4% | 1.0% | 0.0% | 3.4% | .6% | 4.8% | 1.0% | 5.1% | 1.4% |
| 10.1.Summer | .2% | 0.0% | 0.0% | .4% | .1% | .6% | .2% | 0.0% | .2% |
| 10.1.Autumn | .2% | 0.0% | 0.0% | .4% | .1% | .6% | .2% | 0.0% | .2% |
| 10.1.Spring | .2% | 0.0% | 0.0% | .4% | .1% | .6% | .2% | 0.0% | .2% |
| 10.1.Winter | .2% | 0.0% | 0.0% | .4% | .1% | .6% | .2% | 0.0% | .2% |
| 11.1.Summer | 0.0% | 1.4% | .4% | 15.2% | 3.8% | 12.5% | 5.2% | 9.7% | 5.7% |
| 11.1.Autumn | 0.0% | 1.0% | .4% | 15.9% | 4.0% | 12.8% | 5.3% | 10.3% | 5.8% |
| 11.1.Spring | 0.0% | 1.0% | 0.0% | 15.7% | 4.0% | 12.2% | 5.2% | 10.3% | 5.7% |
| 11.1.Winter | .2% | 1.0% | 0.0% | 13.9% | 3.6% | 11.0% | 4.4% | 10.9% | 5.2% |
| 11.2.Summer | 2.6% | 1.9% | 1.6% | 25.0% | 7.8% | 19.9% | 9.3% | 19.4% | 10.4% |
| 11.2.Autumn | 2.6% | 1.4% | 1.6% | 25.0% | 7.8% | 19.6% | 9.3% | 18.9% | 10.3% |
| 11.2.Spring | 2.6% | 1.4% | 1.6% | 24.9% | 7.8% | 19.3% | 9.1% | 19.4% | 10.2% |
| 11.2.Winter | 2.6% | 2.4% | 1.6% | 25.0% | 8.0% | 19.3% | 9.3% | 20.0% | 10.4% |
| 12.1.Summer | .2% | 0.0% | 0.0% | 2.6% | .7% | 2.1% | .3% | 6.9% | 1.0% |
| 12.1.Autumn | 0.0% | 0.0% | 0.0% | 2.6% | .6% | 2.1% | .2% | 6.9% | .9% |
| 12.1.Spring | 0.0% | 0.0% | 0.0% | .9% | .4% | 0.0% | .1% | 1.7% | .3% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 12.1.Winter | 0.0% | 0.0% | 0.0% | 1.1% | .5% | 0.0% | .1% | 2.3% | .4% |
| 12.2.Summer | .2% | 1.4% | .4% | 7.4% | 1.9% | 6.8% | 2.5% | 6.9% | 3.0% |
| 12.2.Autumn | .2% | 3.4% | .4% | 8.3% | 2.3% | 8.0% | 3.1% | 6.9% | 3.5% |
| 12.2.Spring | .2% | 1.0% | 0.0% | 4.4% | 1.1% | 4.2% | 1.1% | 6.9% | 1.8% |
| 12.2.Winter | 0.0% | 1.0% | 0.0% | 4.2% | 1.0% | 3.9% | .9% | 7.4% | 1.6% |
| 12.3.Summer | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | .1% | 5.1% | .6% |
| 12.3.Autumn | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | .1% | 5.1% | .7% |
| 12.3.Spring | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | .1% | 5.1% | .6% |
| 12.3.Winter | 0.0% | 0.0% | 0.0% | 2.1% | .3% | 2.4% | .2% | 5.1% | .8% |
| 13.1.Summer | 0.0% | 0.0% | .4% | .5% | .1% | .9% | .2% | .6% | .3% |
| 13.1.Autumn | 0.0% | 0.0% | 0.0% | .5% | .1% | .6% | .1% | .6% | .2% |
| 13.1.Spring | 0.0% | 0.0% | 0.0% | .5% | .1% | .6% | .1% | .6% | .2% |
| 13.1.Winter | 0.0% | 0.0% | 0.0% | .5% | .1% | .6% | .1% | .6% | .2% |
| 13.2.Summer | 0.0% | 0.0% | 0.0% | .4% | .1% | .3% | .1% | .6% | .1% |
| 13.2.Autumn | 0.0% | .5% | 0.0% | .4% | .1% | .6% | .1% | .6% | .2% |
| 13.2.Spring | 0.0% | 0.0% | 0.0% | .4% | .1% | .3% | .1% | .6% | .1% |
| 13.2.Winter | 0.0% | 0.0% | 0.0% | .4% | .1% | .3% | .1% | .6% | .1% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 13.3.Summer | 0.0% | 0.0% | .4% | .2% | .1% | .3% | .1% | .6% | .1% |
| 13.3.Autumn | 0.0% | 0.0% | 0.0% | .2% | .1% | 0.0% | 0.0% | .6% | .1% |
| 13.3.Spring | 0.0% | 0.0% | 0.0% | .2% | .1% | 0.0% | 0.0% | .6% | .1% |
| 13.3.Winter | 0.0% | 0.0% | 0.0% | .2% | .1% | 0.0% | 0.0% | .6% | .1% |
| 13.4.Summer | 0.0% | 0.0% | 0.0% | .4% | .2% | 0.0% | 0.0% | 1.1% | .1% |
| 13.4.Autumn | 0.0% | 0.0% | 0.0% | .4% | .2% | 0.0% | 0.0% | 1.1% | .1% |
| 13.4.Spring | 0.0% | 0.0% | 0.0% | .4% | .2% | 0.0% | 0.0% | 1.1% | .1% |
| 13.4.Winter | 0.0% | 0.0% | 0.0% | .4% | .2% | 0.0% | 0.0% | 1.1% | .1% |
| 14.1.Summer | 0.0% | 0.0% | 0.0% | .4% | .2% | 0.0% | 0.0% | 1.1% | .1% |
| 14.1.Autumn | 0.0% | 0.0% | 0.0% | .5% | .2% | 0.0% | .1% | 1.1% | .2% |
| 14.1.Spring | 0.0% | 0.0% | 0.0% | .5% | .2% | 0.0% | .1% | 1.1% | .2% |
| 14.1.Winter | 0.0% | 0.0% | .4% | .5% | .2% | .3% | .1% | 1.1% | .3% |
| 14.2.Summer | 0.0% | 0.0% | 0.0% | .4% | .2% | 0.0% | 0.0% | 1.1% | .1% |
| 14.2.Autumn | 0.0% | 0.0% | 0.0% | .4% | .2% | 0.0% | 0.0% | 1.1% | .1% |
| 14.2.Spring | 0.0% | 0.0% | 0.0% | .4% | .2% | 0.0% | 0.0% | 1.1% | .1% |
| 14.2.Winter | 0.0% | 0.0% | 0.0% | .4% | .2% | 0.0% | 0.0% | 1.1% | .1% |
| 14.3.Summer | 0.0% | .5% | .4% | 1.4% | .5% | 1.2% | .4% | 2.3% | .6% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 14.3.Autumn | 0.0% | .5% | .4% | 1.2% | .5% | .9% | .4% | 1.7% | .6% |
| 14.3.Spring | 0.0% | .5% | .4% | 1.2% | .5% | .9% | .4% | 1.7% | .6% |
| 14.3.Winter | 0.0% | .5% | .4% | 1.2% | .5% | .9% | .4% | 1.7% | .6% |
| 14.4.Summer | 0.0% | 0.0% | 0.0% | 2.5% | .3% | 3.0% | .1% | 6.9% | .9% |
| 14.4.Autumn | 0.0% | 0.0% | 0.0% | 2.5% | .3% | 3.0% | .1% | 6.9% | .9% |
| 14.4.Spring | 0.0% | 0.0% | 0.0% | 2.5% | .3% | 3.0% | .1% | 6.9% | .9% |
| 14.4.Winter | 0.0% | 0.0% | 0.0% | 2.5% | .3% | 3.0% | .1% | 6.9% | .9% |
| 14.5.Summer | 0.0% | 0.0% | 0.0% | 2.1% | .9% | .3% | .5% | 2.9% | .8% |
| 14.5.Autumn | 0.0% | 0.0% | 0.0% | 2.1% | .9% | .3% | .5% | 2.9% | .8% |
| 14.5.Spring | 0.0% | 0.0% | 0.0% | 2.1% | .9% | .3% | .5% | 2.9% | .8% |
| 14.5.Winter | 0.0% | 0.0% | 0.0% | 2.1% | .9% | .3% | .5% | 2.9% | .8% |
| 14.6.Summer | 0.0% | 0.0% | 0.0% | 3.5% | 1.0% | 2.4% | .6% | 6.3% | 1.3% |
| 14.6.Autumn | 0.0% | 0.0% | 0.0% | 3.5% | 1.0% | 2.4% | .6% | 6.3% | 1.3% |
| 14.6.Spring | 0.0% | 0.0% | 0.0% | 3.5% | 1.0% | 2.4% | .6% | 6.3% | 1.3% |
| 14.6.Winter | 0.0% | 0.0% | 0.0% | 3.7% | 1.0% | 2.4% | .6% | 6.9% | 1.3% |
| 14.7.Summer | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | 0.0% | 5.7% | .6% |
| 14.7.Autumn | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | 0.0% | 5.7% | .6% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 14.7.Spring | 0.0% | .5% | 0.0% | 1.8% | .2% | 2.4% | .1% | 5.7% | .7% |
| 14.7.Winter | 0.0% | .5% | 0.0% | 2.1% | .3% | 2.7% | .1% | 6.3% | .8% |
| 15.1.Summer | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.1.Autumn | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.1.Spring | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.1.Winter | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.2.Summer | .2% | 0.0% | 0.0% | 3.2% | .9% | 2.4% | .2% | 9.1% | 1.2% |
| 15.2.Autumn | .2% | 0.0% | 0.0% | 3.2% | .9% | 2.4% | .2% | 9.1% | 1.2% |
| 15.2.Spring | .2% | 0.0% | 0.0% | 3.2% | .9% | 2.4% | .2% | 9.1% | 1.2% |
| 15.2.Winter | .2% | 0.0% | 0.0% | 3.2% | .9% | 2.4% | .2% | 9.1% | 1.2% |
| 15.3.Summer | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.3.Autumn | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.3.Spring | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.3.Winter | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.4.Summer | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.4.Autumn | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.4.Spring | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 15.4.Winter | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.5.Summer | 0.0% | 3.8% | .4% | 3.5% | .4% | 7.1% | 1.3% | 6.3% | 1.8% |
| 15.5.Autumn | 0.0% | 0.0% | 0.0% | 2.3% | .3% | 2.7% | .1% | 6.3% | .8% |
| 15.5.Spring | 0.0% | 0.0% | .4% | 1.9% | .4% | 2.1% | .1% | 6.3% | .8% |
| 15.5.Winter | 0.0% | 1.0% | .4% | 2.1% | .4% | 3.0% | .3% | 6.3% | .9% |
| 15.6.Summer | 0.0% | 0.0% | 0.0% | 3.2% | .5% | 3.6% | .4% | 7.4% | 1.1% |
| 15.6.Autumn | 0.0% | .5% | 0.0% | 3.5% | .5% | 4.5% | .6% | 7.4% | 1.3% |
| 15.6.Spring | 0.0% | .5% | 0.0% | 3.2% | .6% | 3.6% | .4% | 7.4% | 1.2% |
| 15.6.Winter | 0.0% | .5% | 0.0% | 3.2% | .6% | 3.6% | .4% | 7.4% | 1.2% |
| 15.7.Summer | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.7.Autumn | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.7.Spring | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 15.7.Winter | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 16.1.Summer | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | 0.0% | 5.7% | .6% |
| 16.1.Autumn | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | 0.0% | 5.7% | .6% |
| 16.1.Spring | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | 0.0% | 5.7% | .6% |
| 16.1.Winter | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | 0.0% | 5.7% | .6% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 16.2.Summer | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | 0.0% | 5.7% | .6% |
| 16.2.Autumn | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | 0.0% | 5.7% | .6% |
| 16.2.Spring | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | 0.0% | 5.7% | .6% |
| 16.2.Winter | 0.0% | 0.0% | 0.0% | 1.8% | .2% | 2.4% | 0.0% | 5.7% | .6% |
| 16.3.Summer | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.7% | .1% | 5.7% | .7% |
| 16.3.Autumn | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.7% | .1% | 5.7% | .7% |
| 16.3.Spring | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.7% | .1% | 5.7% | .7% |
| 16.3.Winter | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.7% | .1% | 5.7% | .7% |
| 16.4.Summer | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.7% | .1% | 5.1% | .7% |
| 16.4.Autumn | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.7% | .1% | 5.1% | .7% |
| 16.4.Spring | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.7% | .1% | 5.1% | .7% |
| 16.4.Winter | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.7% | .1% | 5.1% | .7% |
| 16.5.Summer | 0.0% | 0.0% | 0.0% | 1.6% | .1% | 2.4% | 0.0% | 5.1% | .6% |
| 16.5.Autumn | 0.0% | 0.0% | 0.0% | 1.6% | .1% | 2.4% | 0.0% | 5.1% | .6% |
| 16.5.Spring | 0.0% | 0.0% | 0.0% | 1.6% | .1% | 2.4% | 0.0% | 5.1% | .6% |
| 16.5.Winter | 0.0% | 0.0% | 0.0% | 1.6% | .1% | 2.4% | 0.0% | 5.1% | .6% |
| 16.6.Summer | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |

| | Administrative status | | | | Altitude above sea level | | Distance from border | | |
|---|---|---|---|---|---|---|---|---|---|
| | Capital | Provincial center | Other town | Village | Lowland | Mountainous/ high mountainous | Non-border | Border | Medium |
| 16.6.Autumn | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 16.6.Sprirng | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 16.6.Winter | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 16.7.Summer | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 16.7.Autumn | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 16.7.Spring | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |
| 16.7.Winter | 0.0% | 0.0% | 0.0% | 1.9% | .2% | 2.4% | 0.0% | 6.3% | .7% |

*Table 2: Food consumption*

| | | | % |
|---|---|---|---|
| Grains/cereals GEN consumption | As much as needed / we wish | 1521 | 95.1% |
| | Less / more rarely than we would wish | 78 | 4.9% |
| | We don't use | 1 | .1% |
| Flour GEN consumption | As much as needed / we wish | 1515 | 94.7% |
| | Less / more rarely than we would wish | 55 | 3.4% |
| | We don't use | 29 | 1.8% |
| Bread GEN consumption | As much as needed / we wish | 1582 | 98.9% |
| | Less / more rarely than we would wish | 14 | .9% |
| | We don't use | 4 | .3% |
| Pasts GEN consumption | As much as needed / we wish | 1543 | 96.5% |
| | Less / more rarely than we would wish | 37 | 2.3% |
| | We don't use | 19 | 1.2% |
| Potato GEN consumption | As much as needed / we wish | 1382 | 96.6% |
| | Less / more rarely than we would wish | 48 | 3.4% |
| | We don't use | 0 | 0.0% |
| Potato consumption (In Season) | As much as needed / we wish | 168 | 98.8% |
| | Less / more rarely than we would wish | 2 | 1.2% |
| | We don't use | 0 | 0.0% |
| Potato consumption (Off Season) | As much as needed / we wish | 154 | 90.6% |
| | Less / more rarely than we would wish | 14 | 8.2% |
| | We don't use | 2 | 1.2% |
| Carrot GEN consumption | As much as needed / we wish | 1325 | 95.4% |
| | Less / more rarely than we would wish | 57 | 4.1% |
| | We don't use | 7 | .5% |
| Carrot consumption (In Season) | As much as needed / we wish | 198 | 95.2% |
| | Less / more rarely than we would wish | 9 | 4.3% |
| | We don't use | 1 | .5% |
| Carrot consumption (Off Season) | As much as needed / we wish | 152 | 73.1% |
| | Less / more rarely than we would wish | 39 | 18.8% |

| | | | |
|---|---|---|---|
| | We don’t use | 17 | 8.2% |
| Red Pepper consumption (In Season) | As much as needed / we wish | 1420 | 89.0% |
| | Less / more rarely than we would wish | 108 | 6.8% |
| | We don’t use | 67 | 4.2% |
| Red pepper consumption (Off Season) | As much as needed / we wish | 451 | 28.4% |
| | Less / more rarely than we would wish | 144 | 9.1% |
| | We don’t use | 992 | 62.5% |
| Pumpkin consumption (In Season) | As much as needed / we wish | 1015 | 63.7% |
| | Less / more rarely than we would wish | 78 | 4.9% |
| | We don’t use | 499 | 31.3% |
| Pumpkin consumption (Off Season) | As much as needed / we wish | 328 | 21.1% |
| | Less / more rarely than we would wish | 73 | 4.7% |
| | We don’t use | 1155 | 74.2% |
| Herbs-spices GEN consumption | As much as needed / we wish | 1339 | 98.0% |
| | Less / more rarely than we would wish | 26 | 1.9% |
| | We don’t use | 2 | .1% |
| Herbs-spices consumption (In Season) | As much as needed / we wish | 233 | 96.3% |
| | Less / more rarely than we would wish | 7 | 2.9% |
| | We don’t use | 2 | .8% |
| Herbs-spices consumption (Off Season) | As much as needed / we wish | 175 | 73.5% |
| | Less / more rarely than we would wish | 50 | 21.0% |
| | We don’t use | 13 | 5.5% |
| Greens main consumption (In Season) | As much as needed / we wish | 1459 | 91.8% |
| | Less / more rarely than we would wish | 77 | 4.8% |
| | We don’t use | 52 | 3.3% |
| Greens main consumption (Off Season) | As much as needed / we wish | 847 | 53.7% |
| | Less / more rarely than we would wish | 119 | 7.5% |
| | We don’t use | 612 | 38.8% |
| Onion-garlic GEN consumption | As much as needed / we wish | 1399 | 97.9% |
| | Less / more rarely than we would wish | 30 | 2.1% |

| | | | |
|---|---|---|---|
| | We don't use | 0 | 0.0% |
| Onion-garlic consumption (In Season) | As much as needed / we wish | 168 | 98.2% |
| | Less / more rarely than we would wish | 2 | 1.2% |
| | We don't use | 1 | .6% |
| Onion-garlic consumption (Off Season) | As much as needed / we wish | 154 | 91.1% |
| | Less / more rarely than we would wish | 11 | 6.5% |
| | We don't use | 4 | 2.4% |
| Cabbage-beet GEN consumption | As much as needed / we wish | 1381 | 97.4% |
| | Less / more rarely than we would wish | 35 | 2.5% |
| | We don't use | 2 | .1% |
| Cabbage-beet consumption (In Season) | As much as needed / we wish | 176 | 96.2% |
| | Less / more rarely than we would wish | 7 | 3.8% |
| | We don't use | 0 | 0.0% |
| Cabbage-beet consumption (Off Season) | As much as needed / we wish | 160 | 88.4% |
| | Less / more rarely than we would wish | 17 | 9.4% |
| | We don't use | 4 | 2.2% |
| Vegetable-other consumption (In Season) | As much as needed / we wish | 1500 | 94.3% |
| | Less / more rarely than we would wish | 84 | 5.3% |
| | We don't use | 6 | .4% |
| Vegetables-other consumption (Off Season) | As much as needed / we wish | 675 | 42.6% |
| | Less / more rarely than we would wish | 273 | 17.2% |
| | We don't use | 638 | 40.2% |
| Mushroom GEN consumption | As much as needed / we wish | 640 | 55.4% |
| | Less / more rarely than we would wish | 145 | 12.6% |
| | We don't use | 370 | 32.0% |
| Mushroom consumption (In Season) | As much as needed / we wish | 368 | 81.6% |
| | Less / more rarely than we would wish | 51 | 11.3% |
| | We don't use | 32 | 7.1% |
| Mushroom consumption (Off Season) | As much as needed / we wish | 117 | 26.0% |
| | Less / more rarely than we would wish | 40 | 8.9% |
| | We don't use | 293 | 65.1% |

| | | | |
|---|---|---|---|
| Apricot consumption (In Season) | As much as needed / we wish | 1454 | 91.1% |
| | Less / more rarely than we would wish | 134 | 8.4% |
| | We don't use | 8 | .5% |
| Apricot consumption (Off Season) | As much as needed / we wish | 92 | 5.8% |
| | Less / more rarely than we would wish | 64 | 4.0% |
| | We don't use | 1427 | 90.1% |
| Peach consumption (In Season) | As much as needed / we wish | 1437 | 90.2% |
| | Less / more rarely than we would wish | 148 | 9.3% |
| | We don't use | 9 | .6% |
| Peach consumption (Off Season) | As much as needed / we wish | 112 | 7.1% |
| | Less / more rarely than we would wish | 71 | 4.5% |
| | We don't use | 1395 | 88.4% |
| Dried fruit GEN consumption | As much as needed / we wish | 1176 | 73.8% |
| | Less / more rarely than we would wish | 248 | 15.6% |
| | We don't use | 169 | 10.6% |
| Melon consumption (In Season) | As much as needed / we wish | 1393 | 87.3% |
| | Less / more rarely than we would wish | 149 | 9.3% |
| | We don't use | 54 | 3.4% |
| Melon consumption (Off Season) | As much as needed / we wish | 40 | 2.5% |
| | Less / more rarely than we would wish | 29 | 1.8% |
| | We don't use | 1513 | 95.6% |
| Persimmon consumption (In Season) | As much as needed / we wish | 1311 | 82.1% |
| | Less / more rarely than we would wish | 255 | 16.0% |
| | We don't use | 31 | 1.9% |
| Persimmon consumption (Off Season) | As much as needed / we wish | 121 | 7.6% |
| | Less / more rarely than we would wish | 61 | 3.8% |
| | We don't use | 1405 | 88.5% |
| Apple GEN consumption | As much as needed / we wish | 1285 | 94.5% |
| | Less / more rarely than we would wish | 73 | 5.4% |
| | We don't use | 2 | .1% |

| | | | |
|---|---|---|---|
| Apple consumption (In Season) | As much as needed / we wish | 228 | 93.8% |
| | Less / more rarely than we would wish | 12 | 4.9% |
| | We don't use | 3 | 1.2% |
| Apple consumption (Off Season) | As much as needed / we wish | 167 | 69.9% |
| | Less / more rarely than we would wish | 53 | 22.2% |
| | We don't use | 19 | 7.9% |
| Pear-grapes-plum consumption (In Season) | As much as needed / we wish | 1406 | 88.1% |
| | Less / more rarely than we would wish | 177 | 11.1% |
| | We don't use | 13 | .8% |
| Pear-grapes-plum consumption (Off Season) | As much as needed / we wish | 597 | 37.6% |
| | Less / more rarely than we would wish | 312 | 19.7% |
| | We don't use | 677 | 42.7% |
| Watermelon consumption (In Season) | As much as needed / we wish | 1470 | 92.2% |
| | Less / more rarely than we would wish | 118 | 7.4% |
| | We don't use | 6 | .4% |
| Watermelon consumption (Off Season) | As much as needed / we wish | 33 | 2.1% |
| | Less / more rarely than we would wish | 42 | 2.6% |
| | We don't use | 1510 | 95.3% |
| Cherry-mulberry consumption (In Season) | As much as needed / we wish | 1391 | 87.3% |
| | Less / more rarely than we would wish | 184 | 11.6% |
| | We don't use | 18 | 1.1% |
| Cherry-mulberry consumption (Off Season) | As much as needed / we wish | 79 | 5.0% |
| | Less / more rarely than we would wish | 70 | 4.4% |
| | We don't use | 1437 | 90.6% |
| Pomegranate-fig consumption (In Season) | As much as needed / we wish | 1219 | 76.6% |
| | Less / more rarely than we would wish | 332 | 20.9% |
| | We don't use | 40 | 2.5% |
| Pomegranate-fig consumption (Off Season) | As much as needed / we wish | 202 | 12.8% |
| | Less / more rarely than we would wish | 133 | 8.4% |
| | We don't use | 1246 | 78.8% |

| | | | |
|---|---|---|---|
| Orange-banana GEN consumption | As much as needed / we wish | 719 | 68.9% |
| | Less / more rarely than we would wish | 294 | 28.2% |
| | We don't use | 30 | 2.9% |
| Orange-banana consumption In Season) | As much as needed / we wish | 409 | 71.8% |
| | Less / more rarely than we would wish | 154 | 27.0% |
| | We don't use | 7 | 1.2% |
| Orange-banana consumption (Off Season) | As much as needed / we wish | 115 | 20.3% |
| | Less / more rarely than we would wish | 175 | 30.9% |
| | We don't use | 277 | 48.9% |
| Lemon GEN consumption | As much as needed / we wish | 1433 | 90.3% |
| | Less / more rarely than we would wish | 99 | 6.2% |
| | We don't use | 55 | 3.5% |
| Berries consumption (In Season) | As much as needed / we wish | 1246 | 78.7% |
| | Less / more rarely than we would wish | 292 | 18.4% |
| | We don't use | 45 | 2.8% |
| Berries consumption (Off Season) | As much as needed / we wish | 176 | 11.2% |
| | Less / more rarely than we would wish | 103 | 6.5% |
| | We don't use | 1298 | 82.3% |
| Animal organs GEN consumption | As much as needed / we wish | 1065 | 66.8% |
| | Less / more rarely than we would wish | 295 | 18.5% |
| | We don't use | 235 | 14.7% |
| Meat GEN consumption | As much as needed / we wish | 942 | 64.4% |
| | Less / more rarely than we would wish | 498 | 34.1% |
| | We don't use | 22 | 1.5% |
| Meat consumption (In Season) | As much as needed / we wish | 90 | 64.7% |
| | Less / more rarely than we would wish | 48 | 34.5% |
| | We don't use | 1 | .7% |
| Meat consumption (Off Season) | As much as needed / we wish | 81 | 57.9% |
| | Less / more rarely than we would wish | 55 | 39.3% |
| | We don't use | 4 | 2.9% |

| | | | |
|---|---|---|---|
| Poultry GEN consumption | As much as needed / we wish | 1071 | 72.3% |
| | Less / more rarely than we would wish | 385 | 26.0% |
| | We don't use | 26 | 1.8% |
| Poultry consumption (In Season) | As much as needed / we wish | 97 | 85.1% |
| | Less / more rarely than we would wish | 17 | 14.9% |
| | We don't use | 0 | 0.0% |
| Poultry consumption (Off Season) | As much as needed / we wish | 95 | 81.9% |
| | Less / more rarely than we would wish | 18 | 15.5% |
| | We don't use | 3 | 2.6% |
| Sausages-other GEN consumption | As much as needed / we wish | 972 | 61.1% |
| | Less / more rarely than we would wish | 372 | 23.4% |
| | We don't use | 246 | 15.5% |
| Egg GEN consumption | As much as needed / we wish | 1512 | 95.0% |
| | Less / more rarely than we would wish | 69 | 4.3% |
| | We don't use | 11 | .7% |
| Fish-other GEN consumption | As much as needed / we wish | 846 | 61.8% |
| | Less / more rarely than we would wish | 426 | 31.1% |
| | We don't use | 97 | 7.1% |
| Fish-other consumption (In Season) | As much as needed / we wish | 144 | 63.7% |
| | Less / more rarely than we would wish | 75 | 33.2% |
| | We don't use | 7 | 3.1% |
| Fish-other consumption (Off Season) | As much as needed / we wish | 81 | 36.2% |
| | Less / more rarely than we would wish | 60 | 26.8% |
| | We don't use | 83 | 37.1% |
| Beans GEN consumption | As much as needed / we wish | 1487 | 93.3% |
| | Less / more rarely than we would wish | 82 | 5.1% |
| | We don't use | 25 | 1.6% |
| Nuts-seeds GEN consumption | As much as needed / we wish | 646 | 68.1% |
| | Less / more rarely than we would wish | 258 | 27.2% |
| | We don't use | 45 | 4.7% |

| | | | |
|---|---|---|---|
| Nuts-seeds consumption (In Season) | As much as needed / we wish | 409 | 61.6% |
| | Less / more rarely than we would wish | 247 | 37.2% |
| | We don't use | 8 | 1.2% |
| Nuts-seeds consumption (Off Season) | As much as needed / we wish | 98 | 14.9% |
| | Less / more rarely than we would wish | 183 | 27.8% |
| | We don't use | 377 | 57.3% |
| Dairy GEN consumption | As much as needed / we wish | 1327 | 89.5% |
| | Less / more rarely than we would wish | 152 | 10.3% |
| | We don't use | 3 | .2% |
| Dairy consumption (In Season) | As much as needed / we wish | 118 | 96.7% |
| | Less / more rarely than we would wish | 4 | 3.3% |
| | We don't use | 0 | 0.0% |
| Dairy consumption (Off Season) | As much as needed / we wish | 108 | 90.0% |
| | Less / more rarely than we would wish | 7 | 5.8% |
| | We don't use | 5 | 4.2% |
| Butter GEN consumption | As much as needed / we wish | 1280 | 85.7% |
| | Less / more rarely than we would wish | 162 | 10.9% |
| | We don't use | 51 | 3.4% |
| Butter consumption (In Season) | As much as needed / we wish | 95 | 93.1% |
| | Less / more rarely than we would wish | 4 | 3.9% |
| | We don't use | 3 | 2.9% |
| Butter consumption (Off Season) | As much as needed / we wish | 95 | 93.1% |
| | Less / more rarely than we would wish | 4 | 3.9% |
| | We don't use | 3 | 2.9% |
| Ghee GEN consumption | As much as needed / we wish | 887 | 58.2% |
| | Less / more rarely than we would wish | 65 | 4.3% |
| | We don't use | 572 | 37.5% |
| Ghee consumption (In Season) | As much as needed / we wish | 49 | 71.0% |
| | Less / more rarely than we would wish | 3 | 4.3% |
| | We don't use | 17 | 24.6% |
| Ghee consumption | As much as needed / we wish | 46 | 66.7% |

| | | | |
|---|---|---|---|
| (Off Season) | Less / more rarely than we would wish | 3 | 4.3% |
| | We don't use | 20 | 29.0% |
| Oil-margarine GEN consumption | As much as needed / we wish | 1544 | 97.5% |
| | Less / more rarely than we would wish | 31 | 2.0% |
| | We don't use | 9 | .6% |
| Honey GEN consumption | As much as needed / we wish | 947 | 72.8% |
| | Less / more rarely than we would wish | 221 | 17.0% |
| | We don't use | 133 | 10.2% |
| Honey consumption (In Season) | As much as needed / we wish | 229 | 76.3% |
| | Less / more rarely than we would wish | 68 | 22.7% |
| | We don't use | 3 | 1.0% |
| Honey consumption (Off Season) | As much as needed / we wish | 131 | 44.4% |
| | Less / more rarely than we would wish | 48 | 16.3% |
| | We don't use | 116 | 39.3% |

*Table 3: Changes in food consumption compared to the previous year*

| | | | |
|---|---|---|---|
| 1.1.Change | Increased / started to use | 23 | 1.4% |
| | Decreased / stopped using | 40 | 2.5% |
| 1.2. Change | Increased / started to use | 4 | .3% |
| | Decreased / stopped using | 6 | .4% |
| 1.3. Change | Increased / started to use | 7 | .4% |
| | Decreased / stopped using | 17 | 1.1% |
| 1.4. Change | Increased / started to use | 9 | .6% |
| | Decreased / stopped using | 20 | 1.3% |
| 2.1. Change | Increased / started to use | 35 | 2.2% |
| | Decreased / stopped using | 48 | 3.0% |
| 3.1. Change | Increased / started to use | 7 | .4% |
| | Decreased / stopped using | 21 | 1.3% |

| | | | |
|---|---|---|---|
| 3.2. Change | Increased / started to use | 8 | .5% |
| | Decreased / stopped using | 14 | .9% |
| 3.3. Change | Increased / started to use | 8 | .5% |
| | Decreased / stopped using | 22 | 1.4% |
| 4.1. Change | Increased / started to use | 10 | .6% |
| | Decreased / stopped using | 12 | .8% |
| 4.2. Change | Increased / started to use | 12 | .8% |
| | Decreased / stopped using | 19 | 1.2% |
| 4.3. Change | Increased / started to use | 4 | .3% |
| | Decreased / stopped using | 5 | .3% |
| 5.1. Change | Increased / started to use | 4 | .3% |
| | Decreased / stopped using | 10 | .6% |
| 5.2. Change | Increased / started to use | 7 | .4% |
| | Decreased / stopped using | 10 | .6% |
| 5.3. Change | Increased / started to use | 27 | 1.7% |
| | Decreased / stopped using | 54 | 3.4% |
| 5.4. Change | Increased / started to use | 27 | 1.7% |
| | Decreased / stopped using | 40 | 2.5% |
| 5.5. Change | Increased / started to use | 21 | 1.3% |
| | Decreased / stopped using | 22 | 1.4% |
| 5.6. Change | Increased / started to use | 17 | 1.1% |
| | Decreased / stopped using | 11 | .7% |
| 5.7. Change | Increased / started to use | 6 | .4% |
| | Decreased / stopped using | 6 | .4% |
| 5.8. Change | Increased / started to use | 1 | .1% |
| | Decreased / stopped using | 7 | .4% |
| 5.9. Change | Increased / started to use | 6 | .4% |
| | Decreased / stopped using | 15 | .9% |
| 5.10. Change | Increased / started to use | 18 | 1.1% |
| | Decreased / stopped using | 23 | 1.4% |
| 5.11. Change | Increased / started to use | 19 | 1.2% |

| | | | |
|---|---|---|---|
| | Decreased / stopped using | 48 | 3.0% |
| 5.12. Change | Increased / started to use | 9 | .6% |
| | Decreased / stopped using | 14 | .9% |
| 5.13. Change | Increased / started to use | 2 | .1% |
| | Decreased / stopped using | 30 | 1.9% |
| 5.14. Change | Increased / started to use | 2 | .1% |
| | Decreased / stopped using | 25 | 1.6% |
| 6.1. Change | Increased / started to use | 239 | 14.9% |
| | Decreased / stopped using | 45 | 2.8% |
| 6.2. Change | Increased / started to use | 48 | 3.0% |
| | Decreased / stopped using | 91 | 5.7% |
| 6.3. Change | Increased / started to use | 5 | .3% |
| | Decreased / stopped using | 14 | .9% |
| 6.4. Change | Increased / started to use | 14 | .9% |
| | Decreased / stopped using | 15 | .9% |
| 6.5. Change | Increased / started to use | 2 | .1% |
| | Decreased / stopped using | 8 | .5% |
| 7.1. Change | Increased / started to use | 39 | 2.4% |
| | Decreased / stopped using | 24 | 1.5% |
| 7.2. Change | Increased / started to use | 33 | 2.1% |
| | Decreased / stopped using | 22 | 1.4% |
| 7.3. Change | Increased / started to use | 11 | .7% |
| | Decreased / stopped using | 15 | .9% |
| 7.4. Change | Increased / started to use | 36 | 2.3% |
| | Decreased / stopped using | 23 | 1.4% |
| 7.5. Change | Increased / started to use | 26 | 1.6% |
| | Decreased / stopped using | 24 | 1.5% |
| 7.6. Change | Increased / started to use | 28 | 1.8% |
| | Decreased / stopped using | 19 | 1.2% |
| 7.7. Change | Increased / started to use | 21 | 1.3% |
| | Decreased / stopped using | 15 | .9% |

| | | | |
|---|---|---|---|
| 7.8. Change | Increased / started to use | 2 | .1% |
| | Decreased / stopped using | 6 | .4% |
| 7.9. Change | Increased / started to use | 13 | .8% |
| | Decreased / stopped using | 15 | .9% |
| 7.10. Change | Increased / started to use | 17 | 1.1% |
| | Decreased / stopped using | 14 | .9% |
| 7.11. Change | Increased / started to use | 2 | .1% |
| | Decreased / stopped using | 6 | .4% |
| 7.12. Change | Increased / started to use | 2 | .1% |
| | Decreased / stopped using | 5 | .3% |
| 7.13. Change | Increased / started to use | 2 | .1% |
| | Decreased / stopped using | 8 | .5% |
| 7.14. Change | Increased / started to use | 15 | .9% |
| | Decreased / stopped using | 22 | 1.4% |
| 7.15. Change | Increased / started to use | 6 | .4% |
| | Decreased / stopped using | 6 | .4% |
| 8.1. Change | Increased / started to use | 4 | .3% |
| | Decreased / stopped using | 32 | 2.0% |
| 9.1. Change | Increased / started to use | 29 | 1.8% |
| | Decreased / stopped using | 138 | 8.6% |
| 9.2. Change | Increased / started to use | 13 | .8% |
| | Decreased / stopped using | 105 | 6.6% |
| 9.3. Change | Increased / started to use | 3 | .2% |
| | Decreased / stopped using | 58 | 3.6% |
| 9.4. Change | Increased / started to use | 22 | 1.4% |
| | Decreased / stopped using | 64 | 4.0% |
| 9.5. Change | Increased / started to use | 5 | .3% |
| | Decreased / stopped using | 54 | 3.4% |
| 10.1. Change | Increased / started to use | 15 | .9% |
| | Decreased / stopped using | 13 | .8% |
| 11.1. Change | Increased / started to use | 13 | .8% |

| | | | |
|---|---|---|---|
| | Decreased / stopped using | 61 | 3.8% |
| 11.2. Change | Increased / started to use | 1 | .1% |
| | Decreased / stopped using | 7 | .4% |
| 12.1. Change | Increased / started to use | 5 | .3% |
| | Decreased / stopped using | 15 | .9% |
| 12.2. Change | Increased / started to use | 6 | .4% |
| | Decreased / stopped using | 16 | 1.0% |
| 12.3. Change | Increased / started to use | 2 | .1% |
| | Decreased / stopped using | 3 | .2% |
| 13.1. Change | Increased / started to use | 20 | 1.3% |
| | Decreased / stopped using | 20 | 1.3% |
| 13.2. Change | Increased / started to use | 12 | .8% |
| | Decreased / stopped using | 25 | 1.6% |
| 13.3. Change | Increased / started to use | 13 | .8% |
| | Decreased / stopped using | 9 | .6% |
| 13.4. Change | Increased / started to use | 12 | .8% |
| | Decreased / stopped using | 11 | .7% |
| 14.1. Change | Increased / started to use | 10 | .6% |
| | Decreased / stopped using | 21 | 1.3% |
| 14.2. Change | Increased / started to use | 2 | .1% |
| | Decreased / stopped using | 20 | 1.3% |
| 14.3. Change | Increased / started to use | 0 | 0.0% |
| | Decreased / stopped using | 2 | .1% |
| 14.4. Change | Increased / started to use | 0 | 0.0% |
| | Decreased / stopped using | 1 | .1% |
| 14.5. Change | Increased / started to use | 7 | .4% |
| | Decreased / stopped using | 12 | .8% |
| 14.6. Change | Increased / started to use | 1 | .1% |
| | Decreased / stopped using | 5 | .3% |
| 14.7. Change | Increased / started to use | 2 | .1% |

| | | | |
|---|---|---|---|
| | Decreased / stopped using | 2 | .1% |
| 15.1. Change | Increased / started to use | 1 | .1% |
| | Decreased / stopped using | 9 | .6% |
| 15.2. Change | Increased / started to use | 12 | .8% |
| | Decreased / stopped using | 27 | 1.7% |
| 15.3. Change | Increased / started to use | 9 | .6% |
| | Decreased / stopped using | 15 | .9% |
| 15.4. Change | Increased / started to use | 11 | .7% |
| | Decreased / stopped using | 20 | 1.3% |
| 15.5. Change | Increased / started to use | 3 | .2% |
| | Decreased / stopped using | 21 | 1.3% |
| 15.6. Change | Increased / started to use | 1 | .1% |
| | Decreased / stopped using | 6 | .4% |
| 15.7. Change | Increased / started to use | 1 | .1% |
| | Decreased / stopped using | 12 | .8% |
| 16.3. Change | Increased / started to use | 0 | 0.0% |
| | Decreased / stopped using | 7 | .4% |
| 16.4. Change | Increased / started to use | 0 | 0.0% |
| | Decreased / stopped using | 1 | .1% |
| 16.5. Change | Increased / started to use | 13 | .8% |
| | Decreased / stopped using | 10 | .6% |
| 16.6. Change | Increased / started to use | 0 | 0.0% |
| | Decreased / stopped using | 3 | .2% |
| 16.7. Change | Increased / started to use | 0 | 0.0% |
| | Decreased / stopped using | 10 | .6% |