*Tetiana Mostenska, Iryna Fedulova*
National University of Food Technologies, Ukraine

# Strategic priorities for food industry of Ukraine in the context of food security

## Introduction

Since the mid twentieth century the problem of food became of world importance. Evolution of this problem has caused the introduction into circulation of the UN concept of "food security" in 1974. This concept was considered in the context of world food security and little means of maintaining stability in the markets of food availability in the basic food for all countries [1].

Rome Declaration on World Food Security 1996 determines the state of achieving food security as a condition when all people at all times have physical and economic access to safe and proper food in the quantity, quality and range of necessary and sufficient to meet their physiological needs and benefits that are necessary for a healthy life, physical, social and personal development, human health and population expanded reproduction [2].

Based on the definition of food safety guidance should note:

- *physical access* to sufficient quantities of safe food;
- *economic access* to food in adequate quantities and quality of all social groups of population;
- *autonomy and economic independence* of national food system (food independence);
- *reliability* – the ability of national food system to minimize the impact of seasonal, weather and other fluctuations in food supplies of the population of all regions of the country;
- *durability* – rational food system develops in the extended play mode [3].

Food security as defined by FAO – a system that clearly works to ensure that all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Recently strengthened the role of national food security system of global food security. Food security can be seen as providing a certain level of domestic production, which is based on full self-sufficiency of country, or in a support of critical minimum food [4].

**The concept and masurement of food security**

The concept of food safety and food independence advocate interrelated. If food security – is to ensure the state population quality food at reasonable minimum standards of scientific nutrition, the food independence – a certain level of self-reliance of the country's food, to people in food through domestic production. Food independence is the necessary condition for food security.

An important aspect of research-level food security in the country is the development of indicators to assess its condition. In modern literature there is a large variety of indicators proposed for this purpose. S.S. Bekenov notes that food security is assessed by a wide range of indicators. First, such indicators were: average personal income, transient remnants of food grains, initially at 20%, and later – 16% of annual consumption. We have expanded the list of criteria and measurement become more difficult [5].

The modern criteria include population share of food in total expenditure of certain population groups, territorial accessibility products (compare the level of retail prices for identical products in different regions), convenience food (share in the consumption of modern products that reduce time losses and save it for performing other types of work), the degree of naturalness and quality of goods, the impact on quality of health and life expectancy and so on.

In summary assessment of food security is determined by population:

- *physical accessibility of food* – food availability throughout the country in every time and in the required range;
- *economic accessibility of food,* which is that the level of income, regardless of social status and place of residence of a consumer, allowing him to buy food, at least a minimum level of consumption;
- *food safety for consumers* – the possibility of preventing the production, sale and consumption of substandard food products that can harm human health.

N.S. Ohluzdin determines the achievement of food security with parameters:

- percentage of the population clean food of domestic production;
- availability of food prices for the bulk of the population;
- availability of strategic stocks of food for their population in case of emergencies;
- production capacity;
- state of scientific and technical base of the country and its compliance with the highest international standards.

In Japan from the late 1950s score using food self-sufficiency. This indicator is calculated as the percentage ratio between the value created and consumed in the country for food. Also used in calculations of food energy, making comparison of calories consumed and required by the standards.

Often used in determining the food security of food dependence coefficient (K):

$K = I / P$,

where I - the volume of imports a certain kind of product;

P-volume needs of the country for this type of product. To differentiate between three levels of food depends on:

$0,1 \leq K \leq 0,2$ - level food security is safe;

$0,25 \leq K \leq 0,3$ - level food security threshold;

$K \geq 0,5$ - level food security is endangered.

The food security is often defined as a system of economic relations in society which arise in connection with providing all its members food according to recommended standards of quality and quantity. Besides the necessary guarantees value and harmlessness of food products for consumer health. In connection with active use in the production of food additives and genetically modified products, chemicals and stimulants, artificial colors, flavours, emulsifiers and other components of unnatural origin question compliance by enterprises established limits their use and enforcement of standards and technological conditions.

Food security is regarded as the state are provided, when adequate resources for people, capacity and guarantees the state's ability to meet the needs of the population food (regardless of the external and internal threats) in the volume, quality and range that meet accepted standards and norms [7]. In the draft Law of Ukraine "On food security of Ukraine" [7] and the Integrated Programme to support the development of the Ukrainian village for the period until 2015 [8] food security is treated as the protection of vital interests of human and civil society and state, which is guaranteed by physical and economic accessibility and quality of vital food for all citizens in accordance with scientifically based food sets, maintained the stability of food supply and population ensured food independence of the state.

M.M. Basynska, speaking about the parameters that determine the level of food security, use the following parameters:

- dynamics of production of basic foodstuffs per capita (country, region), kg per year;

- dynamics of consumption of basic foodstuffs per capita (country, region), kg per year;
- self-sufficient entities (country, region, household) staples included in the consumer basket, %;
- level of physical and economic access to food for different categories of consumers (the structure of the diet, how much budget cover the costs of food;
- consumption of staple foods (kg per year) groups of consumers with different income levels;
- average daily calorie ration region's population of some consumer groups, kcal;
- relate to diet to scientific standards, the relative energy value and the actual composition of food;
- elasticity of demand for food for the price, income, etc.;
- proportion of the population with incomes below the subsistence minimum;
- inflation, price indices for food products;
- size of carry-over of basic foodstuffs in the country [3, 9].

This approach most fully identifies indicators of food security assessment. This approach to seize the survey. The main cause of food security is the national capacity of agricultural products and foodstuffs.

To ensure food security it is necessary to address the strategic objective – the creation in Ukraine of the powerful food industry to meet the needs of internal and external markets in food, food security, the development of the export potential, increase in foreign exchange and government revenue.

The importance of developing and implementing the strategy of Ukraine's food industry due to the need to create favorable conditions for domestic food production, introduction of high technologies in the industry, reducing dependence on food imports, the transformation of agriculture in the high, stable export-oriented sector to ensure food security.

**Characteristics of the agricultural complex of Ukraine**

The place of the agroindustrial complex (AIC) in Ukraine's economy can not be overstated. Agriculture as its main component, has a large share of gross domestic product (GDP) of Ukraine. Despite the fact that the share of agriculture in the gross product tends to decrease at the expense of other sectors of the economy, agriculture plays an important role in national economy of Ukraine (Table 1).

Table 1. Share of agriculture in GDP of some CIS countries

| The share in GDP,% | Years | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
| Ukraine | 9.6 | 9.1 | 8.9 | 8.6 | 8.7 | 8.6 | 8.0 | 7.8 | 7.6 |
| Russia | 7.1 | 6.9 | 6.7 | 6.8 | 6.1 | 5.5 | 5.1 | 4.8 | 4.5 |
| Kazakhstan | 8.1 | 8.7 | 8.0 | 7.9 | 7.1 | 6.4 | 5.5 | 5.8 | 5.6 |
| Belarus | 10.7 | 10.1 | 9.6 | 9.0 | 8.4 | 8.0 | 7.5 | 7.0 | 8.3 |

*Source: calculated by [10].*

In addition to agriculture in Ukraine is the foundation of food security, to mention a significant social impact area. In agriculture in 2009 was 3131 thousand persons employed, representing 15.5% of the employed population. Despite the global process of urbanization, which takes place in Ukraine, the share of rural population in the country is 31.4% of the total.

Ukraine has favorable climatic and natural conditions, creating a safe foundation for the potential development of the agricultural sector. However, despite the significant resources, production performance of this industry remains relatively low.

The transition to a market economy has caused many problems worsening of agriculture and significant drop in output of agricultural products, led to restructuring of production in agriculture, caused the decline in production, resulting in a country still not reached the level of agricultural production in 1990. Thus, according to statistics the gross agricultural output in 2009 amounted to only 70% of 1990 levels.

Agriculture in Ukraine ranked fourth in terms of gross value added among economic activities. Also, it is one of the activities, In which positive trends has been observed. Restructuring of the economy of Ukraine became the reason for the decline is almost twice the share of agriculture in gross value added in the last ten years (8.1 percent points). Also took place gradually reducing the ratio to gross value added food industry with 7,2% in 1995 to 5,3% - in 2009 (Table 3).

Table 2. Indices of gross agricultural output

| Years | Index of gross agricultural output, % | | |
|---|---|---|---|
| | 1990 | 1995 | 2000 |
| **1990** | **100.0** | - | - |
| 1991 | 86.8 | - | - |
| 1992 | 79.6 | - | - |
| 1993 | 80.8 | - | - |
| 1994 | 67.4 | - | - |
| **1995** | **65.0** | **100.0** | - |
| 1996 | 58.8 | 90.5 | - |
| 1997 | 57.8 | 89.0 | - |
| 1998 | 52.2 | 80.4 | - |
| 1999 | 48.7 | 74.9 | - |
| **2000** | **53.4** | **82.2** | **100.0** |
| 2001 | 58.8 | 90.5 | 110.2 |
| 2002 | 59.5 | 91.5 | 11.4 |
| 2003 | 53.0 | 81.5 | 99.2 |
| 2004 | 63.4 | 97.6 | 118.8 |
| **2005** | **63.5** | **97.7** | **188.9** |
| 2006 | 65.1 | 100.1 | 121.8 |
| 2007 | 60.9 | 93.6 | 114.0 |
| 2008 | 71.3 | 109.7 | 135.5 |
| 2009 | 70.3 | 107.7 | 131.1 |

*Source [11, p. 39].*

Table 3. Gross value added of industry and agriculture in total gross value added, %

| Gross value added in total gross value added,% | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| Agriculture | 16,3 | 14,6 | 12,1 | 11,9 | 10,4 | 8,6 | 7,5 | 7,9 | 8,2 |
| Industry | 30,6 | 30,8 | 30,3 | 28,5 | 30,9 | 31,7 | 31,2 | 30,1 | 26,6 |
| Food industry | 6,5 | 6,7 | 6,3 | 4,8 | 5,0 | 4,9 | 4,8 | 4,6 | 5,3 |

*Source: calculated according to [12].*

The integrated program to support the development of the Ukrainian village the parameters that characterize food security, namely:

- ***criterion of adequacy of food consumption;***
- ***criterion of availability of food consumption;***
- ***criterion of food independence.***

These criteria may join the group of indicators that allow them to describe.

The ***criterion of adequacy of food consumption*** can be determined by the following groups of indicators:

- dynamics of consumption of basic foodstuffs per capita (country, region), kg per year;
- consumption of staple foods (kg per year) groups of consumers with different income levels;
- average daily calorie ration region's population of some consumer groups, kcal;
- relate to diet to scientific standards, the relative energy value and the actual composition of food.

The ***criterion of accessibility of food consumption*** can be estimated by the following group of indicators:

- level of physical and economic access to food for different categories of consumers (the structure of the diet, how much budget cover the costs of food);
- elasticity of demand for food for the price, income, etc.;
- proportion of the population with incomes below the subsistence minimum;
- inflation, price indices for food products;

The ***criterion of food independence:***

- dynamics of production of basic foodstuffs per capita (country, region), kg per year;
- self-sufficient entities (country, region, household) staples included in the consumer basket, %;
- size of carry-over of basic foodstuffs in the country.

Criterion of food consumption adequacy – a measure that is determined by the ratio of actual consumption to the scientifically based standards for major groups of food products.

**Consumption and supply of food**

The problem of population food supply according to scientifically based norms of consumption exists for a long time. In 1982 the Soviet Union was developed and adopted by the USSR Food Programme, which included proof of the level and structure of food consumption to physiological norms. But this programme was done. Nevertheless, during the existence of independent Ukraine, consumption of Basic food products per capita not only reached the recommended standards, but in some important product groups are lower-level of 1990-1991 years. Table 4 shows the food consumption per person per year by 2000-2010.

Table 4. Consumption of food per person per year, kg

| Food | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Meat and meat products (in terms of meat, including fat and offal in kind) | 33 | 31 | 33 | 35 | 39 | 39 | 42 | 46 | 51 | 50 | 51 |
| Milk and milk products (in terms of milk) | 199 | 205 | 225 | 226 | 226 | 226 | 235 | 225 | 214 | 212 | 206 |
| Eggs, pcs. | 166 | 180 | 209 | 214 | 220 | 238 | 251 | 252 | 260 | 272 | 272 |
| Fish and fish products | 8.4 | 11 | 11.9 | 12 | 12.3 | 14.4 | 14.1 | 15.3 | 17.5 | 15 | 14 |
| Sugar | 37 | 40 | 36 | 36 | 38 | 38 | 40 | 40 | 41 | 38 | 37 |
| Oil | 9.4 | 10 | 10.7 | 11.3 | 13 | 13.5 | 13.6 | 14.3 | 15 | 15 | 15 |
| Potatoes | 135 | 140 | 133 | 138 | 141 | 136 | 134 | 130 | 132 | 133 | 126 |
| Vegetables and melons food crops | 102 | 105 | 108 | 114 | 115 | 120 | 127 | 118 | 129 | 137 | 140 |
| Fruits, berries and grapes (excluding wine) | 29 | 26 | 29 | 33 | 34 | 37 | 35 | 42 | 44 | 46 | 45 |
| Grain products (bread, pasta in terms of flour, flour, cereals, legumes) | 125 | 130 | 131 | 125 | 126 | 124 | 120 | 116 | 117 | 112 | 112 |

*Source: calculated according to [12, 13].*

The dynamics of consumption of basic food products per person per year for rational norms for the years 2000-2010 can study according to Table. 5.

Table 5.Consumption of main foodstuffs to rational norms of consumption,% (consumption rate 100%)

| Food | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Meat and meat products (in terms of meat, including fat and offal in kind) | 41.3 | 38.8 | 41.3 | 43.8 | 48.8 | 48.8 | 52.5 | 57.5 | 63.8 | 62.5 | 63.8 |
| Milk and milk products (in terms of milk) | 52.4 | 53.9 | 59.2 | 59.5 | 59.5 | 59.5 | 61.8 | 59.2 | 56.3 | 55.8 | 54.1 |
| Eggs, pcs. | 57.2 | 62.1 | 72.1 | 73.8 | 75.9 | 82.1 | 86.6 | 86.9 | 89.7 | 93.8 | 93.8 |
| Fish and fish products | 42.0 | 55.0 | 59.5 | 60.0 | 61.5 | 72.0 | 70.5 | 76.5 | 87.5 | 75.5 | 71.3 |
| Sugar | 97.4 | 105.3 | 94.7 | 94.7 | 100.0 | 100.0 | 105.3 | 105.3 | 107.9 | 100.0 | 96.9 |
| Oil | 72.3 | 76.9 | 82.3 | 86.9 | 100.0 | 103.8 | 104.6 | 110.0 | 115.4 | 118.5 | 112.2 |
| Potatoes | 108.9 | 112.9 | 107.3 | 111.3 | 113.7 | 109.7 | 108.1 | 104.8 | 106.5 | 107.3 | 101.9 |
| Vegetables and melons food crops | 63.4 | 65.2 | 67.1 | 70.8 | 71.4 | 74.5 | 78.9 | 73.3 | 80.1 | 85.1 | 86.8 |
| Fruits, berries and grapes (excluding wine) | 32.2 | 28.9 | 32.2 | 36.7 | 37.8 | 41.1 | 38.9 | 46.7 | 48.9 | 51.1 | 49.7 |
| Grain products (bread, pasta in terms of flour, flour, cereals, legumes) | 123.8 | 128.7 | 129.7 | 123.8 | 124.8 | 122.8 | 118.8 | 114.9 | 115.8 | 110.5 | 110.5 |

*Source: calculated by [12, 13].*

In 2010, only oil, potatoes and bread products exceeded the rational consumption norms. Eggs and sugar almost satisfy physiological needs, and for

other basic foodstuffs are significant discrepancies rational norms and actual consumption of the average Ukrainian.

Meat and meat products consumption needs to physiological requirement of Ukraine were satisfy only in 63,8%, and milk and dairy products – only 54,4. Thus, level of consumption can not be explained by low supply of these products in the country, because request for them is much higher

On a serious problem with the quality of food shows the dynamics of population food consumption by one person a year compared with 1990. Thus, over the period examined, consumption growth took place only in the following product groups: eggs, oil, vegetables and melons. Foods that have a relatively high price, have the lowest level of consumption by the population of Ukraine. Consumption of meat and milk production in 2010 was only 75% and 55% of 1990 levels, respectively. The level of supply of these commodity groups do not provide the present level of purchasing capacity of population (Table 6).

Thus the analysis shows that the first criterion level of food security is achieved. The indicators that define it are at their worst than 1990.

Dynamics of food consumption in Ukraine in general, reflects changes in the amount of real incomes. The cost of basic foods by statistical data - a significant portion of the budget Ukrainian families. On the one hand it is a welcome development for the industry - increasing purchasing capacity will be accompanied by increase in food consumption. But on the other hand, the modern consumer-oriented foods relatively low quality at moderate prices for them.

Another indicator that determines the level of food security is the criterion of availability of food consumption. This score is determined by the ratio of annual value of food set that corresponds to scientific standards on one person, the annual income per person. Therefore, this indicator allows to determine what percentage of income the average consumer must spend on food for nutrition physiological norms.

Table 6. Consumption of main foodstuffs per capita relative to 1990, %

| Food | 1990 | 1995 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Meat and meat products (in terms of meat, including fat and offal in kind) | 100 | 57.4 | 48.5 | 45.6 | 48.5 | 51.5 | 57.4 | 57.4 | 61.8 | 67.6 | 75.0 | 73.5 | 75.0 |
| Milk and milk products (in terms of milk) | 100 | 65.4 | 53.4 | 55.0 | 60.3 | 60.6 | 60.6 | 60.6 | 63.0 | 60.3 | 57.4 | 56.8 | 55.1 |
| Eggs, pcs. | 100 | 62.9 | 61.0 | 66.2 | 76.8 | 78.7 | 80.9 | 87.5 | 92.3 | 92.6 | 95.6 | 100.0 | 100.0 |
| Fish and fish products | 100 | 20.6 | 48.0 | 62.9 | 68.0 | 68.6 | 70.3 | 82.3 | 80.6 | 87.4 | 100.0 | 86.3 | 81.5 |
| Sugar | 100 | 64.0 | 74.0 | 80.0 | 72.0 | 72.0 | 76.0 | 76.0 | 80.0 | 80.0 | 82.0 | 76.0 | 73.6 |
| Oil | 100 | 70.7 | 81.0 | 86.2 | 92.2 | 97.4 | 112.1 | 116.4 | 117.2 | 123.3 | 129.3 | 132.8 | 125.8 |
| Potatoes | 100 | 94.7 | 103.1 | 106.9 | 101.5 | 105.3 | 107.6 | 103.8 | 102.3 | 99.2 | 100.8 | 101.5 | 96.5 |
| Vegetables and melons food crops | 100 | 95.1 | 100.0 | 102.9 | 105.9 | 111.8 | 112.7 | 117.6 | 124.5 | 115.7 | 126.5 | 134.3 | 137.0 |
| Fruits, berries and grapes (excluding wine) | 100 | 70.2 | 61.7 | 55.3 | 61.7 | 70.2 | 72.3 | 78.7 | 74.5 | 89.4 | 93.6 | 97.9 | 95.2 |
| Grain products (bread, pasta in terms of flour, flour, cereals, legumes) | 100 | 90.8 | 88.7 | 92.2 | 92.9 | 88.7 | 89.4 | 87.9 | 85.1 | 82.3 | 83.0 | 79.1 | 79.1 |

*Source: calculated by [12, 13].*

Consumption pattern that has developed in Ukraine does not allow people eat adequately. Over the period studied, significantly reduced calorie diet (table 7).

Table 7. Caloric food per person per day

| Calorie of food | 1990 | 1995 | 2000 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Kcal / day | 3597 | 2696 | 2661 | 2800 | 2798 | 2910 | 2916 | 2935 | 2940 | 2998 | 2946 |
| In % to 1990 | 100 | 75.0 | 74.0 | 77.8 | 77.8 | 80.9 | 72.8 | 81.6 | 81.7 | 83.3 | 81.9 |

*Source: calculated by [12, 13].*

It is impossible to find using data on the structure of total household expenditures on average per month per household (table 8).

Changes in the structure of total household expenditures can be considered positive, as since 2000 the share of household expenditures on food has decreased, but it is still significant and in 2009 was 55.0% (against 67.9% in 2000). This was due to the growth of spending on non-food items, which in 2009 amounted to 32,8% against 25,4% in 2000. A positive growth of total non-consumer spending can be considered, whose share in the structure of total household expenditures from 2000 to 2009 almost doubled and in 2009 was 12,1%. These costs grew fastest - growth rate of more than 9 times.

**Development of prices and expenditures on food**

Another factor that determines the availability of food consumption, the trend in prices in the country. Structure of household expenditures depends on changes in prices of commodities like food and non food (Table 9). You can explore the following trends: the proportion of expenditure on food in total household expenditures in 2000 decreased by 18,3% and is held in growth of total household expenditures over this period, almost 5 times with soaring prices for some types of food at about the same pace. Thus, over a period meat prices have increased 6 times, sausages - 4.1 times, butter - 3,4 times, milk - 4.5 times, bread and bakery products - 3,6 times.

The share of household spending on food is known to have an inverse relationship of income level households. For example, in the United Kingdom and the United States this share is less than 20%, Russia - 40%, Nigeria, Bangladesh - more than 60%. Value for Ukraine - 55.0%. Increasing food prices typically increase their share of the cost of acquisition [14].

Table 8. Structure of total household expenditures on average per month per household and their dynamics, %

| Total expenditure of households | 2000 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|
| total USD per month | 541.3 | 903.5 | 1229.4 | 1442.8 | 1722 | 2590.4 | 2754.1 |
| in % to 2000 | 100 | 166.9 | 227.1 | 266.5 | 318.1 | 478.6 | 508.8 |
| including consumer personal spending | | | | | | | |
| share. % | 93.3 | 92.6 | 91.1 | 90.5 | 90 | 86.2 | 87.8 |
| USD per month | 505.03 | 836.64 | 1120 | 1305.7 | 1549.8 | 2232.92 | 2418.10 |
| in % to 2000 | 100 | 165.7 | 221.8 | 258.5 | 306.9 | 442.1 | 478.8 |
| including: | | | | | | | |
| food. share. % | 67.9 | 61.7 | 61 | 57.5 | 55.8 | 53.0 | 55.0 |
| USD per month | 367.54 | 557.46 | 749.93 | 829.61 | 960.88 | 1372.91 | 1514.76 |
| in % to 2000 | 100 | 151.7 | 204.0 | 225.7 | 261.4 | 373.5 | 412.1 |
| non-food goods and services share. % | 25.4 | 30.9 | 30.1 | 33.0 | 34.2 | 33.2 | 32.8 |
| USD per month | 128.28 | 258.52 | 337.12 | 430.89 | 530.03 | 741.33 | 793.14 |
| in % to 2000 | 100 | 201.5 | 262.8 | 335.9 | 413.2 | 577.9 | 127.6 |
| including: pay for housing. utility products and services share. % | 6.9 | 7.7 | 6.4 | 7.1 | 8.5 | 6.6 | 7.7 |
| USD per month | 37.35 | 69.57 | 78.68 | 102.44 | 146.37 | 170.97 | 212.07 |
| in % to 2000 | 100 | 186.27 | 92.8 | 102.9 | 123.2 | 95.7 | 110.1 |
| Total non-consumer expenditures. share. % | 6.7 | 7.4 | 8.9 | 9.5 | 10 | 13.8 | 12.2 |
| USD per month | 36.27 | 66.86 | 109.42 | 137.1 | 172.2 | 357.48 | 335.99 |
| in % to 2000 | 100 | 184.4 | 301.7 | 378.0 | 474.8 | 985.6 | 926.4 |

*Source: calculated by [12, 13].*

In addition to changes in food prices on the availability of food consumption of the population affected by change in real incomes (tabl.10). For the analysis chose two product groups: milk and dairy products, meat and meat products in the food as they set the average Ukrainian have the lowest value relative to rational norms of consumption.

As a result the data show very low correlation between changes in consumption of milk and dairy products and meat and meat products and changes in real income. It reflects the low elasticity of food groups by income. This is because the satisfaction of physiological standards of consumption of these products has not yet reached the physiologically determined consumption

rates, and rates of change of real income for this period are considerably higher than the rate of change of prices for these products. However, a high cross elasticity is typical for foodstuffs . In conditions of low purchasing capacity of people almost all of which form the diet, are the goods-substitute. The level of accessibility of food consumption is characterized by a part of the population which has incomes below the subsistence level and availability of food for different groups.

Table 9. Rise in prices of some food products in Ukraine for years, times the previous year

| Year | Type of Product | | | | |
|---|---|---|---|---|---|
| | Meat | Sausages | Butter | Milk and milk products | Bread and bakery products |
| 2000 | 1.69 | 1.38 | 0.97 | 1.19 | 1.58 |
| 2001 | 1.30 | 1.19 | 0.96 | 1.07 | 0.93 |
| 2002 | 0.90 | 0.97 | 1.10 | 1.03 | 0.96 |
| 2003 | 1.08 | 1.04 | 1.09 | 1.14 | 1.36 |
| 2004 | 1.49 | 1.28 | 1.09 | 1.22 | 0.98 |
| 2005 | 1.18 | 1.17 | 1.11 | 1.19 | 1.00 |
| 2006 | 0.98 | 0.98 | 1.09 | 1.07 | 1.17 |
| 2007 | 1.14 | 1.15 | 1.45 | 1.49 | 1.18 |
| 2008 | 1.34 | 1.35 | 1.12 | 1.08 | 1.25 |
| 2009 | 1.06 | 1.09 | 1.41 | 1.21 | 1.10 |
| 2009 in % to 2000 year | 6.0 | 4.1 | 3.4 | 4.5 | 3.6 |

*Source: calculated by [13].*

Proportion of population with average per capita cash income in the month, below the subsistence minimum in 2009 was 30,4%, that is one third of the population lives in poverty. It should be noted that this figure compared to 2008 declined year (25,6%), although in 2007 this population was 39.8%.

Table 10. Dynamics of real personal income and changes in consumption of certain foodstuffs

| Years | The pace of real income,% year on year | Rate of change of consumption of certain foodstuffs in % over previous year | |
|---|---|---|---|
| | | milk and milk products (in terms of milk) | meat and meat products (in terms of meat, including fat and offal in kind) |
| 2001 | 110 | 103.02 | 93.94 |
| 2002 | 118 | 109.76 | 106.45 |
| 2003 | 109.1 | 100.44 | 106.06 |
| 2004 | 119.6 | 100.00 | 111.43 |
| 2005 | 123.9 | 100.00 | 100.00 |
| 2006 | 111.8 | 103.98 | 107.69 |
| 2007 | 114.8 | 95.74 | 109.52 |
| 2008 | 107.6 | 95.11 | 110.87 |
| 2009 | 91.5 | 99.07 | 98.04 |
| The correlation coefficient between the ratio of real income and population coefficients of individual food consumption | | 0.243323 | 0.318312 |

*Source: calculated by [12].*

Unequal access to food have different population groups in Ukraine. Thus, rural people with incomes below the subsistence level, population 46.1%, while in urban - 22,8% according to 2009.

Table 11. Proportion of population with average per capita cash income in the month, below the subsistence minimum, % of total

| 2007 | | | 2008 | | | 2009 | | |
|---|---|---|---|---|---|---|---|---|
| all house-holds | including those who live all households | | all house-holds | including those who live all households | | all house-holds | including those who live all households | |
| | in towns | in rural areas | | in towns | in rural areas | | in towns | in rural areas |
| 39.8 | 31.3 | 57.4 | 25.6 | 17.3 | 42.7 | 30.4 | 22.8 | 46.1 |

*Source: calculated by [13, p. 404].*

Different level of income form different opportunities for various forms of consumption of individual products (Table 12). The difference in consumption of specific products for different quintile groups is up to 2 times.

Table 12. Food consumption in households by quintile (20%) groups in terms of average total income, (Average per month per capita, kg)

| Food | Consumption for all households | including by quintile groups | | | | | of average total income per month, lower cost of living |
|---|---|---|---|---|---|---|---|
| | | first | second | third | fourth | fifth | |
| Meat and meat products | 4.8 | 3.3 | 4.1 | 4.8 | 5.6 | 6.9 | 3.1 |
| Milk and milk products | 19.8 | 14.7 | 17.7 | 20.1 | 22.6 | 26.2 | 14.1 |
| Eggs, pieces | 20 | 17 | 19 | 20 | 21 | 22 | 17 |
| Fish and fish products | 1.8 | 1.3 | 1.7 | 1.9 | 2.1 | 2.5 | 1.3 |
| Sugar | 3.2 | 2.7 | 3.1 | 3.4 | 3.5 | 3.7 | 2.6 |
| Oil and other vegetable fats | 1.9 | 1.6 | 1.8 | 1.9 | 2.0 | 2.1 | 1.6 |
| Potato | 8.0 | 7.6 | 8.1 | 8.2 | 8.3 | 8.1 | 7.6 |
| Vegetables and melons | 10.1 | 7.7 | 9.2 | 10.5 | 11.4 | 13. 0 | 7.5 |
| Fruits, berries, nuts, grapes | 3.6 | 2.2 | 2.8 | 3.5 | 4.3 | 5.7 | 2.0 |
| Bread and cereal products | 9.3 | 8.6 | 9.2 | 9.6 | 9.6 | 9.6 | 8.4 |

*Source: calculated by [13, p. 424].*

In households with per capita income of 300 USD per month on food accounted for 70,2% of total costs, and in households with average per month in total income to USD 1020 - 59,7%, but while average spending on food of households in Ukraine in 2009 – 55,0%.

**Food industry and trade characteristics**

Regarding the second indicator, the basis of the obtained data, it also does not correspond to the calculated indicators of food security. The third factor - the criteria of food independence. It should be noted that in 2009 - 2010's nearly one in five USD sales industry has been earned in the industry.

Food industry is one of five leading industries of the State Budget, supports some of the highest rates of growth in production volumes, ranks second (after the steel and metal) in terms of production structure of industrial production in Ukraine. The main obstacles for development of the sector are:

inadequate agricultural markets, the monopoly of large trading companies, poor quality of raw materials and finished products, failure of public food safety regulation of the European and international practices, ineffective system of providing credit (including subsidies) and the absence of land markets in conjunction with the moratorium on selling agricultural land. Strategy development of food industry and agriculture should be based on an analysis of current state and problems of the industry, identifying internal and external factors affecting the development of the industry and strategic objectives, development of forecasts for the long term, identifying the tasks of restructuring the industry, with identification and consideration of risks and threats. That the development of agriculture and food industry determines the level of people's satisfaction of domestic food production, the nation's health and pose a significant potential for growth of gross value added of the country.

Food independence of Ukraine - the state of food security, in which physical and economic access to essential food for the population is guaranteed by domestic production and stocks of these products to state reserves at a level determined by the law [15].

As far as the core products are concerned in 2009, self-sufficient is:

- Meat and meat products - 83,3%;
- Milk and milk products - 106,4%;
- Eggs - 107,4%;
- Grain - 176,5%;
- Potatoes - 100,9%;
- Vegetables, melons - 107,8%;
- Fruit, berries, grapes - 74,8%.

The share of imported food in total food consumption also characterizes the food independence. Threshold is 30%. The actual rate in Ukraine is at the level of 13,7% [16, p.12].

Table 13 shows commodity structure of exports and imports of agricultural products and food industry for 2008-2009. The share of imports of finished food increased from 3,8% in 2008 to 5,3% in 2009, but its scope in terms of value for the defined period decreased by 17%. There was also increase in the share of exports of finished food products from 3,1% in 2008 to 4,5% in 2009, while exports in value terms decreased by 34% during this period. Ukraine has a positive foreign trade balance (53,7 million USD). The country exported processed food products worth 2088 million USD, while imports of these products is of 2034.3 million USD.

Table 13. The commodity structure of exports and imports of agricultural and food industry for 2008-2009

| Food | Share in total volume,% | | | | Foreign trade in separate groups of products in 2009, million USD | |
|---|---|---|---|---|---|---|
| | 2008 | | 2009 | | | |
| | Import | Export | Import | Export | Import | Export |
| Live animals, animal products | 1.2 | 2.0 | 1.5 | 2.8 | 596.0 | 1267.5 |
| Products of crops-growing | 8.3 | 1.7 | 2.7 | 2.8 | 5034.9 | 1259.9 |
| Fats and oils of animal or vegetable origin | 2.9 | 0.7 | 4.5 | 0.8 | 1796.0 | 374.3 |
| Finished food products | 3.8 | 3.1 | 5.3 | 4.5 | 2088.0 | 2034.3 |

*Source: calculated by [13, p. 260].*

Despite some recovery over the past few years, exports of food still not exceed 25% of total production. In 2005, Ukraine became a purely general importer of agricultural products from the European Union, and fix this situation could only recently. The main reasons for the low share of exports in output production is insufficient competitiveness of Ukrainian goods, failure to meet international standards of quality and food safety, as well as barriers to trade, which lie in the legal and practical level.

For some commodity groups dynamics of exports and imports presented below (table 14).

Export growth during this period showed butter, potatoes, corn, vegetables. Imports of meat and milk have increased., and on meat and meat products trade balance is negative. Meat import has exceeded export 11 times. All components (production, supply, demand and consumption)of external conditions act upon the Ukrainian food market . Increasing world prices for products produced and exported by Ukraine (especially if the production has a competitive advantage), have the overall positive impact on exports and increase farmers' incomes. But in terms of global interdependence and mutual influence of increasing global prices. They have an effect on the domestic market price.

Table 14. Dynamics of exports and imports of basic foodstuffs in Ukraine, thousand tons

| Main food products | 2000 | 2005 | 2006 | 2007 | 2008 | 2009 | 2009 to 2000 (time, %) |
|---|---|---|---|---|---|---|---|
| ***Meat*** | | | | | | | |
| Import | 38 | 325 | 278 | 245 | 550 | 439 | 11. 6 t |
| Export | 163 | 82 | 29 | 45 | 28 | 40 | 24.5% |
| ***Milk and milk products*** | | | | | | | |
| Import | 50 | 112 | 150 | 199 | 234 | 455 | 9.1 t |
| Export | 1100 | 1901 | 950 | 939 | 1140 | 919 | 83.5% |
| ***Eggs**** | | | | | | | |
| Import | 2 | 5 | 3 | 3 | 7 | 7 | 3.5 t |
| Export | 0 | 1 | 1 | 16 | 23 | 58 | x |
| ***Grain*** | | | | | | | |
| Import | 1010 | 226 | 235 | 343 | 222 | 136 | 13.5% |
| Export | 1330 | 12650 | 11168 | 4490 | 16668 | 26160 | 19.7 t |
| ***Potatoes*** | | | | | | | |
| Import | 11 | 5 | 21 | 7 | 10 | 5 | 45.5% |
| Export | 1 | 6 | 6 | 3 | 3 | 15 | 15.0 t |
| ***Vegetables*** | | | | | | | |
| Import | 29 | 100 | 168 | 158 | 356 | 232 | 8.0 t |
| Export | 30 | 150 | 201 | 298 | 251 | 347 | 11.6 t |
| ***Sugar**** | | | | | | | |
| Import | x | 177 | 120 | 25 | 91 | 92 | x |
| Export | x | 154 | 165 | 120 | 103 | 88 | x |
| ***Oil*** | | | | | | | |
| Import | x | 264 | 245 | 410 | 480 | 316 | x |
| Export | x | 900 | 1678 | 2140 | 1590 | 2483 | x |

* Average weight of eggs - 57,75 g;

** Excluding imported raw sugar used in sugar production.

*Source: calculated by [11, p. 149-153].*

Raising the same world prices for imported food and agricultural raw materials directly reduces living standards. In addition, there is also an indirect effect: if products purchased abroad, which is further handling and processing in Ukraine, such as cocoa beans and various spices, nuts, rice, fish and many other food products. One of the immediate conditions for further development of agribusiness in Ukraine is to implement policies to protect the domestic food market.

**Discussion**

State policy of Ukraine on ensuring food security addresses the needs of the population with vital food, mostly locally produced products. Cabinet of Ministers should specify the optimal level of provision. As for the types of food that are not produced in the country, the task of government regulation is to set low tariffs on their import or complete abolition of import tariffs. State regulation also applies to quality and safety of food products and raw materials. This provided for state regulation of quality and safety, state registration, certification, installation and compliance with the importation into Ukraine of food, state supervision and control [15].

Food security is affected by complex factors, which are divided into internal and external. The internal factors include: the effectiveness of the agricultural sector, the level and distribution of income consumers, climate, condition and quality of land resources; maturity agricultural market, agricultural policy of the state. Among the main external factors stand out: the conditions in world agricultural markets and food markets openness, predictability protectionist tools that implemented trade partners, countries, agricultural policy and regional integration associations.

With these factors are related the major threat (shock) of the state food security. The dominant origin of internal shocks, in our opinion, are: lack of logistical support for agriculture and its weak investment attractiveness, reducing the motivation to work among the rural population; ineffective market mechanisms for agricultural products, low quality of life in rural areas, especially in remote from major urban areas, much of the cost of food in the structure of consumer expenditures of households.

Threats of external nature are discriminatory impact on trade policies of partner countries smuggling and exportation of food; inconsistency imported food quality and safety standards, the impact of external economic conditions. However, agricultural production and food processing industries of Ukraine remain, which do not fully realize its investment potential. Foreign direct invest-

ment would be much greater, if improving the investment climate. The main obstacles for the development of food industry and agriculture are inadequate agricultural markets, because one of the immediate conditions of their further development is a deliberate policy of protecting the domestic food market. The development of international agribusiness does not guarantee domestic food security, does not reflect the country's agricultural export opportunities.

Recently in Ukraine, multinational agribusiness corporations have intensified their activities that lead to destruction of the productive capacity of domestic agribusiness. In addition, the deterrent of monopoly are the major trading companies, poor quality raw materials and finished products, failure of government regulation of food safety to European and international standards, ineffective system of providing credit (including state support), and lack of market land in conjunction with the moratorium on selling agricultural land.

Food security is based on the following basic principles:

1) availability of food: Food should be available as a result of local production, the use of reserves (reserves) and / or import;

2) stability - the food should be in the right amounts and proportions of the time, regardless of circumstances and changes;

3) efficiency - products should accordingly be stored, processed, be of good quality, safe and beneficial to consumers;

4) availability - food should be accessible to all segments of the population as in the physical sense and in purchasing power.

Food security should be guaranteed by the state. From this perspective, it identifies the following main aspects:

a) socio-economic, which means the state's ability to provide food for the population, organize and hold special food reserve funds;

b) political-economic, the ability to mobilize domestic resources and agricultural potential of the country to meet those needs [15].

Thus, a food security system of Ukraine requires a lot of time. This problem has become one of the strategic policy priorities. Adoption of Doctrine of food security can contribute to the development and implementation of a number of planned measures to achieve the level of food independence and food security of Ukraine.

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