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METHODOLOGICAL APPROACHES OF QUANTITATIVE MEASUREMENT AND VALUE OF ETHICAL CONSUMPTION OF BIORESOURCES

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Preserving the ecosystem in which we live is closely linked to our consumption. The article explores ways to solve a worthy image of a person not at the highest level, but at a level that meets the requirements of medicine. According to the authors, the reasonable use of bioresources makes it possible to develop “green” production resources and the naturalness of natural resources, as well as its close connection with a given person, preserving human health, which makes this article relevant. To achieve this goal, the authors pay special attention to the awareness of individual consumers, in particular individuals and a particular family. An approximate set of products for adult consumption per year is proposed. In the article, the authors listed the main criteria that influence the volume of food consumption, in particular, such criteria do not depend on the individual desire for consumption, such as:

- gender and age groups of the population;
- the influence of climatic conditions on nutritional needs (calories);
- rational biochemical composition of nutrition and others.

The authors used several research methods such as statistical and economic methods and computational and constructive research methods. The proposed food sets are calculated in calories and this is one of the main works of the authors.
In the conclusion of article, it is told about necessity of moral component of the process of satisfaction of need of mankind. At realization of the state programs on introduction of the newest technologies in food industry, it is necessary always to accompany the programs including moral components as a guarantee of successful realization of programs on introduction of the newest innovative technologies of food industry.

Keywords*: balanced consumption, rational norm, food security, food set, need.*

INTRODUCTION

Satisfying the needs of mankind with limited earth resources has been relevant since the emergence of man on Earth and to this day. In economic textbooks there are many references to "maximum" satisfaction of needs at the expense of "minimum" economic resources. In our opinion, taking into account the demographic growth of population on the Earth, the first place to come out, the question of how you can satisfy all the humanity of the planet limited Earth resource. Limited amount of Earth's goods, unlimited needs of people make scientific and engineering-technical personnel to make cardinal decisions. Due to the fact, technological progress is developing at a high speed. The relevance of this article is that in the above mentioned problems, each individual or family should know or at least have a provision about the rationed balanced satisfaction of their needs. The article defines methodological approaches of human needs satisfaction. The quantitative value of biological resources consumed is calculated. A great importance is given to ethical consumption of the resources themselves, as ethical or rationed consumption has a positive effect both from an economic and a medical point of view.

The purpose of this article is to determine the optimal balanced consumption of food and bioresources in general. By achieving the objective discussed in this article, the allocation of consumption resources is more efficient. As a result, the quality of people's final consumption is improved both from an economic and a medical point of view. Hippocrates' famous word "let food be your medicine" is mentioned here and this is where it is discussed (Quotes from famous people, 2022). Since with balanced food consumption the health of the individual himself is improved.

RESEARCH METHODS

The article uses both statistical-economic methods and computational-constructive methods of research to achieve the goal. On the basis of numerous statistical data an approximate set of products per capita is recommended as

a rational norm of food consumption for a year, which corresponds to ethical consumption. According to calculation and constructive methods, several variants of the set of products are calculated as a minimum balanced variant to meet the daily requirement of a person with foodstuffs, which corresponds to medical requirements (Moskaleva and Kuzmenkova 2016).

RESEARCH RESULTS AND DISCUSSION

Norms of food consumption are the basis for family budget planning in the part that considers nutrition. However, any norm is just a recommendation. To follow these recommendations is the desire of each individual. In other words, it is up to each individual to decide whether or not to follow medical recommendations when dealing with nutritional issues. In this regard, norms gradually become social requirements as well, if as many people as possible accept it as a rule, it gradually becomes a social requirement.

However, the rationing approach to food security has its own specifics. They are based on the individual nature of food consumption, in other words, only the consumer himself is able to determine what he needs.

In turn, the justification of this or that norm in the field of nutrition is not a matter of individual desire of any person, but is based on strict principles, for example, on medical research. In the case of foodstuffs, the norm should be derived from the solution of the following problems:

- determination of the energy expenditure of the human body and the total caloric content of the required nutrition for different sex and age groups of the population (children, adult men and women, the disabled) and occupational groups (mental workers; workers engaged in non-specialised physical labour; workers in heavy physical labour);
- the influence of climatic conditions on total nutritional requirements (in calories);
- rational biochemical composition of nutrition (ratio and quantity of proteins, fats, carbohydrates, amino acids, vitamins);
- determination of a rational natural set of products that meets the requirements of caloric and biochemical composition, and others.

It is not about equalizing consumption according to any standards. On the contrary, it means the rational satisfaction of growing needs not in general, but in strict accordance with individual demands and tastes. They are known to be mobile, because with the progress of society and intensification of production, people form new, more and more diverse tastes and needs. Consequently, it should be a question of establishing, with the help of scientific research, such norms that would more accurately reflect our general idea of rational consumption in terms of level and structure, based on the achievements of the economy and increasing the level of culture, as well as the trends of their development in the future (Raidin, 1995).

Market conditions of economic management present a mechanism with a natural material structure of nutrition, with emphasis on the value plane. In other words, the necessary material-material structures should find an adequate expression in solvency. In turn, this complex interaction must be both in forecasting and strategic planning. In other words, the practical implementation of rational norms is realised to the extent that there is capacity to provide. Therefore, the use of rational nutritional norms as an indicator of goal achievement makes sense only when, on the one hand, the necessary assortment of food set will be provided and, on the other hand, solvency will be ensured.

With this in mind, governments of various countries periodically consider as recommendations various norms, which in their view, correspond to the desired level of consumption. In fact, this is not the case, as such norms are set taking into account the possibilities of the achieved level of the economy, for a given strategic period of time.

The basis for the establishment of medical norms is a given study of observing the ratio of health of different groups and ages of people for different climatic conditions, the nature of labour and other factors.

At the same time, for a balanced diet, the balance of energy value in the human body per day, measured in calories, must be maintained. To determine the required amount of calories, we use computational and constructive research methods. As a result, the formula for determining the required calorie content of the daily diet is given below. Required energy value of food on average per person, in calories per day by gender and age. There are different ways to determine the rate of calorie expenditure from the human body. The following is the best and correct way to determine the calorie expenditure rate by sex and by age. It requires a few simple steps. For example, weigh yourself in the morning on an empty stomach. Using the presented formulas according to your age, calculate the daily energy expenditure necessary to maintain the basic vital functions of your organism.

For women:

18-30 years: (0.06 x weight in kg +2.37) x 240
31-60 years: (0.03 x weight in kg + 3.54) x 240
over 60 years of age: (0.04 x weight in kg + 2.76) x 240

For men:

18-30 years: (0.06 x weight in kg + 2.90) x 240
31-60 years: (0.05 x weight in kg + 3.65) x 240
over 60 years: (0.05 x weight in kg + 2.46) x 240

Where the numbers in brackets (0.03; 0.04; 0.05; 0.06 and 2.37; 2.46; 2.76; 2.9; 3.54; 3.65) are coefficients to obtain values according to body weight.
Where 240 is a single coefficient to determine the calorie intake rate.

If a person leads a sedentary lifestyle, the obtained value should be multiplied by 1.1, with moderate physical activity - by 1.3, with heavy physical work or active sports - by 1.5 (Ministry of Health of the Krasnodar Territory, 2023).

On the other hand, the human body must contain appropriate proportions of nutrients (proteins, fats, carbohydrates).

The physiological statistical norm of nutrition, on average per capita, is defined as a weighted arithmetic mean, which comes from taking into account the prospective demographic structure of the population and the consumption norms of the corresponding professional and age groups for the inhabitants of a city or village (Vita Medical and Psychological centers, 2023). Since the caloric and biochemical composition of all foodstuffs is known, the norms of their consumption can be presented in the form of certain sets of products (Federal budgetary healthcare..., 2016). An approximate set developed as a rational per capita norm contains the following foods (kg per year) in Table 1.

Table 1. Approximate set of products per capita as a rational norm (kg., per year).

№	**Product names**	**kg/year/person**
1.	Bread products (bread and pasta products in terms of flour, flour, cereals, pulses), including:	96
	flour for baking bread and confectionery products from it:	
	rye	64
	wheat flour, including:	20
	vitaminised wheat flour	44
	cereals, pasta and legumes, including:	24
	rice	32
	other cereals, including:	7
	buckwheat	14
	semolina	4
	oatmeal	2
	millet	2
	other	2
	pasta products	4
	legumes (peas, beans, lentils, etc.)	8
		3
2.	Potatoes	90
3.	Vegetables and melons, including:	140
	white cabbage, red cabbage, cauliflower, etc.	40
	tomatoes	10
	cucumbers	10
	carrots	17
	beetroot	18
	onion	10
	Other vegetables (sweet peppers, herbs, courgettes, aubergines, etc.)	20
	gourds (watermelons, pumpkins, melons)	15
№	**Product names**	**kg/year/person**
4.	Fresh fruit, including:	100
	grapes	6
	citrus fruits	6
	stone fruits	8
	berries	7
	apples	50
	pears	8
	other fruits	5
	dried fruit in terms of fresh fruit	10
5.	Sugar	18
6.	Meat products, including:	44
	beef	20
	mutton (or ham)	3
	Poultry (chickens, hens, turkey, ducks, geese, etc.)	21
7.	Fish and seafood	15
8.	Milk and milk products total in terms of milk,	189
	including:	
	milk, kefir, yoghurt with a fat content of 1.5 - 3.2%	50
	milk, kefir, yoghurt with a fat content of 0.5 - 1.5 per cent	58
	including vitaminised	50
	sour cream, cream with a fat content of 10 - 15%	3
	animal butter	2
	cottage cheese with a fat content of 9 - 18%	9
	cottage cheese with fat content 0 - 9%	10
	cheese	7
9.	Eggs (pieces)	260
10.	Vegetable oil	7

Using the example of table 1. we can calculate them in calories. Bread products with an average of 2650 kcal per kg equal 254.4 thousand kcal, potatoes 760 kcal per kg equal 68.4 thousand kcal, vegetables and melons on average 300 kcal per kg 42.0 thousand kcal, fresh fruits and berries in on average 560 kcal per kg equals 56.0 thousand kcal, sugar 3870 kcal per kg equals 69.7 thousand meat and meat products on average 1500 kcal per kg equals 66.0 thousand kcal, fish and seafood on average 1300 kcal per kg equal to 19.5 thousand kcal, dairy products converted into milk on average 420 kcal per kg are equal to 79.4 thousand kcal, eggs on average 60 kcal per piece. equal to 15.6 thousand kcal, vegetable oil on average 8840 kcal per kg equals 61.9 thousand kcal (Federal budgetary healthcare..., 2016). On average, the above amounts of calories are needed for an adult to burn within one year (Facts about food..., 2012).

The given set of products, of course, does not exclude the variety of assortment sets of other combinations of products. It is important that the necessary caloric content of food and the required ratio of proteins, fats, carbohydrates, vitamins and other nutrients are provided. Table 2 shows such food sets, where all the necessary requirements are met. The sets are determined by calculation method.

Table 2. Food consumption per capita per capita per day (gr.)

Name of products	first set	second set	third set
1	2	3	4
Bread, bakery products and cereals			
Rye bread	102,1	102,1	71,7
Wheat bread	108,6	108,6	239,0
Wheat and muffins	157,7	157,7	102,4
Pasta	5,2	5,2	
Rice	–	–	7,2
Legumes	24,9	24,9	14,3
Other cereals	32,8	32,8	14,3
Potatoes and vegetables			
Potatoes	230,8	230,8	230,8
Fresh vegetables	223,9	223,9	223,9
Gourds	44,8	44,8	44,8
Canned vegetables	22,4	22,4	22,4
Fruit			
Apples and pears	97	97	97
Citrus fruits	32,3	32,3	32,3
Dried fruit	9,7	9,7	9,7
Other vegetable products origins			
Sugar	90,0	90,0	91,4
Vegetable oil	25,1	25,1	-
Margarine	-	-	23,7
Flour confectionery	-	-	11,7
Meat and meat products			
Animal fats	8,2	8,2	-
Lard	-	-	5,6
Beef and veal	98,3	98,3	99,7
Rabbits	9,8	9,8	10,0
Sausages	19,6	19,6	20,0
Poultry	19,6	19,6	20,0
Meat by-products	9,8	9,8	10,0
Fish and fish products			
Fresh fish	52,7	40,0	52,4
Salted, boiled fish	10,5	13,3	18,5
Smoked fish	-	8,0	11,1
Tinned fish	5,3	4,0	5,5
Milk and dairy products			
Fresh milk	259,6	259,6	145,8
Cottage cheese and cottage cheese products	86,4	86,5	72,9
Sour cream and cream	-	-	29,2
Sour-milk products	129,8	129,8	48,6
Cheese and bryndza	64,9	64,9	72,9
Eggs, pcs.	1,0	-	-

The given sets contain the same amount of nutrients: 63 g of animal protein, 42 g of vegetable protein, 71 g of animal fats, 31 g of vegetable fats, 426 g of carbohydrates. The total caloric value of the sets is 3126 kcal. In addition, the sets from the medical point of view, provide the necessary amount of vitamins from animal products: A1, B1, B2, PP; vitamins from vegetable products: B1, B2, PP, C; minerals from animal products: K, Ca, M, P, R, Ge. The necessary amount of carotene and fibre is also provided. The total weight of the food is 2500 g. Certainly, the given sets of products, are rather of demonstration character, than a tool and initial base for definition of practical forecasts of volumes of

consumption of other purpose (Federal budgetary healthcare..., 2016). Therefore, firstly, it is possible to offer on the basis of the apparatus of linear programming a set of food sets satisfying any tastes and traditions, and secondly, it is possible to differentiate such sets, both on a sex-age structure of the population, and on natural-climatic zones, national features and others (Kupuev and Obdunov, 2009).

Thus, there is a certain close relationship between food provision and health care, as both are aimed at ensuring people's livelihoods. Another thing is how to develop and apply in practice other medical norms? Today, in principle, we can talk about such preventive medical care, which directly affects people's health and, therefore, balanced nutrition. On the other hand, the level of economic development is such that it is hardly possible to schedule all medical and health-improving procedures and strictly fulfil them. It is necessary to build preventive health-improving centres, sports centres and other facilities everywhere. It is necessary to educate people to voluntarily do all the prescribed procedures, and it should become a habit. However, without nationwide comprehensive programmes, it is unlikely to be possible to do this on a mass scale in Kyrgyzstan in the near and medium term.

At the same time, inaction in this direction is not the best way out of the current situation. It is necessary, at least for advisory purposes, to develop in an accessible form all medical, health, fitness and other activities that people should perform during their life cycle. Since all these activities are costly and time-consuming, the procedures should include everything that is most suitable for people based on their ability.

In our view, it is very difficult to get people to make wellness a habit. This will take time and a whole propaganda system including all mass media, internet channels, marketing techniques should work on it. Gradually, physical fitness and health-improving and other medical training procedures will become like norms, their fulfilment will become a habit of people. This is at the same time a measure to improve food security, as medical care takes an active part in ensuring it. At the same time, medical, health and fitness activities are quantifiable, which means that it becomes possible to build strategic goals.

Moral provision of food security is somewhat more complicated. In the economic literature, the issues of moral component of food security are almost not covered, it is considered that morality is a concept from the category of philosophy, religion, politics and others, but not economics. But every government of any country, be it developed, developing or so-called "third world countries", before spending public funds on the use of innovative food technologies, it is necessary to finance the creation of comprehensive programmes related to the dissemination of information among the population about the ethical consumption of food and other consumer products. Each person should know or think about the biological and technological resources used when throwing away a product they have bought in excess. For the state creation of such programmes as, complex programmes connected on distribution among the population of the information on rational consumption of food and other products of consumption, is not necessary for economy and transfer of surplus production on other starving country. It is necessary to improve the health of the nation as a whole for the state itself.

CONCLUSIONS

Thus, as a result of the study of the most optimal balanced level of bioresources consumption, we get not only the result of economic development in the food industry, but also an improvement in the health of the entire population of the country. On this basis, the consumption of any resources is a subjective decision of a person, the article recommends a targeted comprehensive intervention of the state. For concretisation it is possible to enumerate how to influence human consumption, they can be carried out through mass media, social state institutions with the help of specialists and the use of outdoor information banners, etc. The link between morality and economic resources is a subjective decision of a person. Meanwhile, the connection between morality and economic processes is obvious, especially in food consumption. Let us recall, at least statistically reliable fact, that when 1.5 billion people around the world go hungry, a much smaller number of wealthy and rich people throw away quite usable food in the form of waste. In the periodical press, for example, it has been estimated that as much as a quarter of the people of Africa could be fed with edible food waste in the UK.

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