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# Х А Б А Р Ш Ы С Ы

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## ВЕСТНИК

НАЦИОНАЛЬНОЙ АКАДЕМИИ НАУК  
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## **STAGES OF REGIONAL FOOD SECURITY PROVISION**

**Abstract.** The problem of national economic security, which includes guaranteed food provision in the regions, occupies one of the pivotal places in the politics of economically developed countries of the world. Issues of food security and agricultural development should be a priority; without them, all conversations about national security are meaningless. Over the past 20 years, a lot of funds and efforts have been invested in the development of agriculture in Russia, the results of these efforts say it all. Russia has become the largest exporter of food raw, completely covers the needs of the population in chicken eggs, poultry, and pork. Despite significant advances in food security, many problems need to be solved immediately.

The problem of food security provision at the federal and regional levels should be approached comprehensively. First of all, it is necessary to comprehend and realize that economic life develops according to its very specific laws, the complex interaction of which, ultimately, determines the state of the economy. The current situation with the position of food security can be assessed as not quite satisfactory.

The article outlines the problems of food security in the Chelyabinsk region and the relationship of its tasks, the growth of life expectancy, and the working capacity of the population. Four stages of their duration and features of tasks at each stage are substantiated. The term for the full achievement of food security is designed for 12 years, improving the nutritional structure and increasing its usefulness will increase life expectancy by 8-12 years, which is consistent with state policy in the economic and social spheres.

**Key words:** stages of food security, improving the patterns of consumption, the tasks of agro-industrial complex and agriculture, improving the food quality.

**Introduction.** Russia has become the largest exporter of food raw; it completely covers the population's needs for chicken eggs, poultry meat, and pork [1-5]. However, the food quality has not changed for the better. This is especially true of dairy and meat products (cottage cheese, cheeses, sour-milk products, and sausage goods) [6,7]. In pursuit of profit, manufacturers began to use various growth stimulants. In some cases, when baking bakery products, a wheat grain of class 3 is used, which is essentially fodder [8-10].

The problem of providing food security at the federal and regional levels should be approached comprehensively. First of all, it is necessary to conceptualize and realize that economic life develops according to its laws, the complex interaction of which, ultimately, determines the state of the economy [11-13].

The daunting challenge of stabilizing the food market cannot be reduced to achieving medically sound per capita consumption standards previously accepted as food safety landmarks. The named standards give the basis only for comparison with the actually achieved level. The lameness of this approach is that it has little to do with the dynamics of the consumption of products by different layers of the population. The standards are formed under the influence of biological needs and are determined by the financial capabilities of buyers. The effective demand of the population consists of professional employment, gender and age composition, geographical area of resettlement, the presence, and

composition of the household, organization of production, storage, and processing of agricultural products. It all depends on household income and the price ratio of various food products. [14,15].

The transition to prognostic estimates of consumption, taking into account the level of present and future income, initially implies a certain stage-by-stage, differentiation of the solution of the food issue for individual layers and social groups. Today, and in the foreseeable future, people are different, and will vary in the size of their income, habits, food addictions. The revival and growth of economic processes of reproduction, which are already outlined, will result in a boost in per capita income. This increase in different layers and groups will not be the same.

The current situation with the food security position can be assessed as not quite satisfactory. The actual level of food consumption in the Chelyabinsk region does not fully cover the energy needs of various social groups. In the daily diet, the protein content per capita is 85 g, including animal origin 35 g. Such food patterns, taking into account the harsh climate of the Urals, the indicated level of consumption does not always compensate for energy costs, and a deficiency of animal proteins and fats reduces the immunoprotective functions of the organism.

The dynamics of the food patterns have shifted towards cheaper and less valuable products. Until now, a significant part of meat and dairy products (up to 25-35%) are imported annually to the region from neighboring regions of Russia. A decrease in the level of consumption of animal and vegetable products is fraught with the fact that the undernourishment of people can aggravate the situation, lead to social problems, and decrease working capacity, which inhibits the growth of life expectancy. All this contradicts the immediate prospects of the country's development.

The cheapest sources of vegetable protein and carbohydrates are bread, potatoes, vegetables, and sugar [16-19]. It is these products plus vegetable oil that have become the main foodstuffs for a quarter of the population [20-23]. The most scarce in the diet of South Urals residents are dairy products, in which the optimal ratio of protein, fat, vitamins, and trace elements is observed.

**Methods of research.** The object of the research is the organizational and economic processes characterizing the environmental, economic, and social assessments of animal breeding technology. In the course of the research, methods of comparative analysis and expert evaluation and other methods were used. The experts were agricultural specialists, traders, and buyers. The complex analysis method was used to evaluate existing production technologies. The expert method has been applied when considering the prospects for the development of various forms of land management. The survey method has found application in assessing the quality of foodstuffs.

**Research results.** We propose a stage-by-stage food security solution.

At the first stage, which cannot be extended, the task is to protect the disadvantaged segments of the population. To do this, it is necessary to increase the production of the cheapest and easily reproducible products: bakery and cereal products, vegetables, vegetable oil. In general, in the Chelyabinsk region, this problem is solved by increasing local food resources. The exceptions are sugar. The economic essence of the first stage is that the listed groups of foodstuffs should be available both in quantity and at prices to citizens with the lowest incomes.

In the development of the agriculture-based economy, there are many issues associated with the fact that in the early stages of the reform, many subsectors were destroyed. First of all, this applies to dairy and beef cattle breeding, sheep breeding, and productive horse breeding. During the implementation of the first stage, an increase in per capita consumption level will be achieved up to 2600-2700 c/cal against 2200 c/cal per day. From a quantitative point of view, it is advisable to bring the per capita food consumption per year within the following limits: bakery products - 140 kg, potatoes - 135-140 kg, vegetables - 80-90 kg, fruits and berries - 30 kg, eggs - 260-270 pcs., dairy products - up to 200-230 kg, meat products up to 50-60 kg. This product minimum can be achieved not only by increasing the production of food raw, but also by ensuring its best preservation and processing.

The implementation of the first stage involves real growth in the personal sector. This can only be achieved by overcoming the stagnation in the economy. Unfortunately, income growth is slow. At this stage, much depends on supporting the introduction of private subsidiary plots in villages and cities. In fact, this direction was lost. The successful implementation of the first stage allowed to stabilize social relations.

In the second stage, it is necessary to solve the problem of radical improvement in the overall food patterns by increasing the production of more expensive and protein-rich, vitamin-rich products: meat and fish products of a wide range, dairy products, early vegetables, and potatoes. The implementation of this stage will require significant investments in the agricultural sector and therefore can be carried out in the conditions of economic growth of the country and regions.

In our opinion, in the region, there is a real opportunity in the coming years to solve the problems of the second stage of providing food security by advancement and regional production location, and effective use of the entire resource potential. For example, in the Chelyabinsk region in recent years, 2.0 million tons of grain have been grown or more than 4.5-5 tons per capita. This covers the region's needs for food and feed grain. The bioclimatic potential of the region allows growing potatoes and vegetables in sufficient quantities and assortment. In most regions of the country, the second stage is barely forming. In economically prosperous regions, the second phase of food security has been successfully resolved. Such regions include the Krasnodar Territory and the entire North Caucasus, Moscow and the Moscow Region, St. Petersburg and the Leningrad Region, areas associated with the extraction of energy resources.

The implementation of the second stage of providing food security is linked to the search and use of the domestic reserves of the agricultural sector in the regions. So, in the region, there are exceptionally great differences in the indicators of milk and meat production efficiency for individual farms.

At this time, it is critical to begin the structural transformation of livestock industries. In many farms in the steppe underpopulated areas of the Southern Urals, in the conditions of the market, it becomes preferable to engage in specialized beef cattle breeding, productive horse breeding, and sheep breeding. The sale of dairy products is difficult due to the lack of capacious markets, the distance of transportation of milk is 50-70 km or more. Not all former, even main farm estates have access to asphalt roads. On the other hand, the productivity of the dairy herd is often less than 4500-5000 kg. It is from this level of productivity that dairy farming becomes profitable. Long-term replenishment of local livestock with dairy breeds did not give the desired result. This is a costly and resource-intensive path. Therefore, substantial attention should be paid to breeding, the organization of proper feeding throughout the entire period.

The implementation of the third stage of the food security concerns fairly prosperous layers of the population; these are representatives of the middle class and the population with high per capita incomes. The per capita level of food consumption that is typical of these segments of the population will not be accessible to everyone. The third stage should be characterized by a gradual increase in the diet of delicatessen products: fish products, meat - dairy and confectionery industry, greenhouse vegetables, fresh berries, and fruits.

Such an implementation began quite successfully. For example, the commissioning of the Churilov Greenhouse facility made it possible to satisfy the needs for winter vegetables by 70-80% (tomatoes, cucumbers, peppers, green vegetables). The Chelyabinsk region has a large number of freshwater pools and lakes suitable for growing commercial pond marketable fish. In the reservoirs of the Troitskaya and Yuzhnouralskaya regional hydroelectric power plants, a lot of marketable fish were previously grown. Care should be taken to clean, repair these reservoirs, and stock up. It is advisable to lease freshwater reservoirs for a period of 5 to 15 years.

Achieving this level implies a significant strengthening of the material and technical base of the agro-industrial complex, a very noticeable increase in population incomes. Already there is an urgent need to transfer all sectors and enterprises of the agro-industrial complex to resource-saving technologies, oriented towards a more complete and deeper processing of agricultural raw materials into integral foodstuffs. In terms of the production of food products from each ton of raw materials, our industry is 12-15% inferior to the countries of Western Europe and the USA. The transfer to such technologies is associated with large investments, therefore, this stage will significantly stretch in time.

It makes no sense to talk about achieving the third stage of food security without ensuring the sustainable and progressive development of macroeconomic processes. Currently, many agricultural enterprises of the agro-industrial complex are marginally profitable. It is difficult for them to provide even simple reproduction. To realize the fulfillment of the third stage goals, it is necessary to reconstruct and modernize the existing production, gradually moving to unmanned technologies. Only in conditions of stable improvement of macroeconomic processes, it is possible to achieve the goals and objectives of the third stage.



The stated provisions do not conflict with the fact that some reserves and opportunities should be activated in advance. We mean the capacity of farmers and subsidiary farms of citizens. By creating the appropriate conditions, it is possible to significantly increase the growth of pork, beef, lamb, and horse meat. We believe that agricultural enterprises should join in the construction of refrigerators and storage facilities with controlled microclimate. Modern warehouses allow minimizing the loss of vegetables during storage, preserving a good marketable appearance and food, and taste advantages of vegetables and fruits.

Processing enterprises should be close to the places of agricultural production, this will reduce the cost of transportation of food raw, create new jobs, improve the quality of finished products. It is advisable, along with the construction of refrigerators, storage facilities, and processing enterprises, to take care of creating their own production lines, i.e. construction of stores for the sale of local products.

Economical and social efficiency of the stages of the food security provision in the region

No	Indicator	Main stages in food security provision			
		1	2	3	4
1	Stage duration, years	10-12 years	8-10 years	9-10 years	10 years
2	Conditions for moving to the next stage	Provision of products at the lowest price	Growth in population income	Growth in population income	High living standards
3	Priority in the AIC development: 3.1. Agriculture	Production of grain, vegetables, poultry products, pork	Dairy farming, grain production, greenhouse vegetables	Production of grain, vegetables of open and closed ground, fruits, commodity horse breeding, and beef cattle breeding	Grain production, vegetables, fruits, berries, meat, and wool sheep breeding
	3.2 Formation of market-oriented infrastructure	–	Construction of storage facilities and refrigeration containers for vegetables and fruits	Commissioning and operation of refrigerators and vegetable storages	Company trade organization
4	Economical efficiency	Break-even and medium	Medium and high	High	World leaders level
5	Social efficiency: 5.1. Unemployment, %	Not higher than 8 %	8-6%	6 % and less	about 4%
	5.2. Annual growth in income, %	3-5	5-6	about 6	about 4-5
6	The quality of raw materials and foodstuff	Low and medium	Medium	Medium and high	High
7	The population proportion in need of social support, %	up to 20	12-15	about 10	5-8
8	Assessment of export potential	Low and medium	Medium	Medium and high	High

Producers of agricultural raw materials do not have enough free financial resources; cooperation between agricultural enterprises and farms in the districts and the region as a whole is needed. Even in this case, help is needed from the regional and federal budgets in the way of business partners or in paying off the interest rate in full or in part on loans. All of the above will predetermine the prerequisites and economic base for the transition to the implementation of the fourth stage of the food security provision. For business cooperation - a wide field of interaction: from providing assistance in the processing of land shares and the forage preparation to providing young animals in mutually beneficial conditions. Consumer cooperation can find its place here, the resources of which turned out to be disengaged in increasing the volume of foodstuffs.

At the fourth stage of the food security provision, we have to make the transition to the consumption of environmentally friendly products in a wide range that takes into account the needs of all layers and groups of the population, home, and public food types, regional, national, age-specific professional

characteristics of consumer demand, etc. This is the most complicated and difficult problem to be solved since its implementation is associated with an increase in the share of highly capital-intensive industries (for example, the production of veal and lamb meat), and the development of technologies that exclude the use of bio-stimulants, herbicides, pesticides, etc. In Russia, a home type of food has developed over the centuries. We assume that this is due not so much to the traditions of the nation as to the low incomes of the population.

At the third and fourth stages of achieving food security, a system of government procurement of foodstuff for the needs of defense, the social sphere, strategic stocks, etc., should be put into practice. Such a procurement system should be based on other principles than existing now.

Currently, by announcing tenders for the purchase of food raw, the government is orienting procurers to lower prices. This does not stimulate producers, because they do not know at what price the raw materials grown by them will be purchased. It is not uncommon for commodity producers to sell their products under government orders, at prices that barely cover their costs. The government should conclude an agreement with the producers on the volume of purchases in advance, guarantee a minimum wholesale price, which allows not only to cover all production costs, but also to receive no big profit within 10-15% of profitability.

In general, we tried to generalize the staging of food security provisions and present its results in the form of the following table. It should be noted that certain groups of the population are already not only at the second and third, but even at the fourth stage of financial solvency.

Although, in general, the social orientation of the development of the agro-industrial complex should be aimed at first-priority satisfaction of the most urgent needs of the first and second stages, nevertheless, it is necessary to work on the backlogs of higher stages. It is time to start developing and implementing the third and fourth stages of food security. This will allow in advance to propose the relevant technical, technological, and organizational-economic solutions. Such decisions should be aimed at stimulating the real production of high-grade foodstuffs, strengthening the economy of the agro-industrial complex, by seizing the income of the “shadow” sector.

Thus, the presented materials are rather conditional, but they allow us to see the overall picture of achieving goals and specific indicators at different stages. The goals, indicators, and terms for the stages can be specified.

Large industrial enterprises and holdings may include agrarian workshops or even enterprises for the production of foodstuffs: vegetables, milk, meat, etc. The products of these rural units are intended for domestic consumption of the population employed in them. At the same time, the territory of such workshops and enterprises can be used as a recreation center for children and employees. Such an approach can contribute to personnel retention and the health promotion of children and the workers themselves.

In connection with the development and improvement of market relations, the creation of conditions that represent certain guarantees for ensuring the growth of food resources is gaining importance. To do this, it is necessary to bring into action and constantly improve the system of federal and regional orders for basic food products. In Russia, there are real opportunities for the growth of environmentally friendly products and raw materials. In the countries of Western Europe and the USA, there are practically no such lands left. These are our views on the prospects for ensuring the country's food security.

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#### **ЖЕРГІЛІКТІ АЗЫҚ-ТҮЛІК ҚАУІПСІЗДІГІН ҚАМТАМАСЫЗ ЕТУ САТЫЛАРЫ**

**Аннотация.** Зерттеу нысаны – мал шаруашылығы технологиясының экологиялық, экономикалық және әлеуметтік бағасын сипаттайтын ұйымдастырушылық-экономикалық үдерістері. Зерттеу барысында салыстырмалы талдау және басқада сараптамалық бағалау әдістері қолданылды. Сарапшылар ауыл шаруашылығы

мамандары, сауда-саттық қызметкерлері және сатып алушылар болды. Күрделі талдау әдісі өндірістік технологияларды бағалау үшін қолданылды. Сараптама әдісі жерге орналастырудың түрлі нысандарын дамыту перспективаларын қарастыруда қолданылды. Сауалнама әдісі тамақ өнімдерінің сапасын бағалауда қолданылады.

Азық-түлік қауіпсіздігінің кезең-кезеңімен шешімін ұсынудамыз.

Бірінші кезеңді іске асыру кірістердің нақты өсімін көздейді. Бұған экономикадағы тоқырауды енсеру арқылы ғана қол жеткізуге болады. Өкінішке орай, халық табысының өсімі баяу. Бұл кезеңде көп нәрсе ауыл мен қалада жеке шаруашылықтарды қолдауға байланысты болып келеді. Шындығында бұл бағыт жоғалды. Бірінші кезеңнің сәтті жүзеге асырылуы әлеуметтік қатынастарды тұрақтандыруға мүмкіндік берді.

Екінші кезеңде қымбат және ақуызға, дәруменге бай өнімдерді: сүт, көкөніс пен картоп, ет және балық өнімдерін өндіруді ұлғайту арқылы жалпы тамақтану құрылымын түбегейлі жақсарту мәселесін шешу қажет. Бұл кезеңді іске асыру агроөнеркәсіптік кешенге едәуір инвестиция қажет етеді, сондықтан оны елдің және өңірлердің экономикалық өсу жағдайында жүзеге асыруға болады.

Азық-түлік қауіпсіздігінің үшінші кезеңін іске асыру халықтың үздік тобына, яғни орта тап өкілдері мен жан басына шаққандағы жоғары табысы бар тұрғындарға қатысты. Халықтың аталған сегментіне тән тамақ өнімі, жан басына шаққандағы тұтыну деңгейі бәріне бірдей қолжетімді бола бермейді. Үшінші кезең деликатес өнімінің диетасын біртіндеп жоғарылату арқылы сипатталуы керек, атап айтқанда, балық, ет-сүт және кондитерлік өндіріс, жабық жердегі көкөніс, жаңа піскен жидектер мен жемістер.

Азық-түлік қауіпсіздігіне қол жеткізудің үшінші және төртінші сатысында қорғаныс, әлеуметтік қызметтер, стратегиялық қор және т.б. үшін азық-түлікті мемлекеттік сатып алу жүйесін тәжірибеге енгізу қажет. Мұндай сатып алу жүйесі қазіргі принциптерге негізделуі тиіс.

Халықтың белгілі бір топтары екінші және үшінші деңгейде ғана емес, тіпті төлем қабілетінің төртінші сатысында да кездеседі. Негізінде агроөнеркәсіптік кешенді дамытудың әлеуметтік бағыты бірінші және екінші сатының шұғыл қажеттіліктері алғашқы қанағаттандыруға бағытталуы керек, сондай-ақ артта қалған жоғары сатылармен жұмыс істеу қажет. Азық-түлік қауіпсіздігінің үшінші және төртінші сатысын әзірлеп, іске асырудың уақыты жетті. Бұл тиісті техникалық, технологиялық және ұйымдастырушылық-экономикалық мәселелерді алдын ала шешуге мүмкіндік береді. Мұндай шешімдер «көлеңкелі» сектор кірісін ескере отырып, жоғары сұрыпты тамақ өнімінің нақты өндірісін ынталандыруға, агроөнеркәсіптік кешен экономикасын нығайтуға бағытталуы керек.

Ірі өнеркәсіптік кәсіпорындар мен холдингтерге ауылшаруашылық шеберханалары немесе тіпті тамақ өнімдерін өндіретін кәсіпорындар да кіруі мүмкін, мысалы, көкөністер, сүт, ет және басқалары. Ауылдық бөлімше өнімдері онда жұмыс істейтін халықтың ішкі тұтынуына арналған. Сонымен қатар, мұндай шеберханалар мен кәсіпорындар аумағын балалар мен еңбек ұжымдарының демалу орталығы ретінде пайдалануға болады. Мұндай тәсіл кадрлардың шоғырлануына, балалар мен жұмыс істейтін адамдар денсаулығына ықпал етеді.

Нарықтық қатынастардың дамуына және жетілуіне байланысты азық-түлік ресурс өсімін қамтамасыз етудің белгілі бір кепілдігін ұсынатын жағдайды жасау маңызды бола түсуде. Ол үшін негізгі тамақ өнімдеріне федералды және аймақтық тапсырыс жүйесін енгізіп, үнемі жетілдіру қажет. Ресейде экологиялық таза өнімдер мен шикізаттың өсуіне нақты мүмкіндіктер бар.

**Түйін сөздер:** азық-түлік қауіпсіздік кезеңі, тұтыну құрылымын жақсарту, ауыл шаруашылығы мен ауыл шаруашылығы міндеттері, өнім сапасын жақсарту.

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## ЭТАПЫ ОБЕСПЕЧЕНИЯ РЕГИОНАЛЬНОЙ ПРОДОВОЛЬСТВЕННОЙ БЕЗОПАСНОСТИ

**Аннотация.** Объектом исследования являются организационно-экономические процессы, характеризующие эколого-экономические и социальные оценки технологии животноводства. В ходе исследований применялись методы сравнительного анализа и экспертной оценки, другие методы. В качестве экспертов выступали специалисты сельскохозяйственных предприятий, торговые работники и покупатели. Метод

комплексного анализа был использован при оценке существующих технологий производства. Экспертный метод нашел применение при основании перспектив развития различных форм хозяйствования на земле. Опросный метод нашел применение оценке качества продовольственных товаров.

Нами предлагается поэтапное решение продовольственной безопасности.

Реализация первого этапа предполагает реальный рост доходов населения. Обеспечить это можно только преодолев стагнацию в экономике. К сожалению, рост доходов населения идет медленно. На этом этапе многое зависит от поддержки введения личных подсобных хозяйств в селах и городах. В действительности это направление оказалось упущенным. Успешная реализация первого этапа позволила стабилизировать социальные отношения.

Реализация второго этапа обеспечения продовольственной безопасности увязана с изысканием и задействованием внутренних резервов АПК в регионах. Так, в области исключительно велики различия в показателях эффективности производства молока и мяса по отдельным хозяйствам.

Реализация третьего этапа продовольственной безопасности касается достаточно обеспеченных слоев населения, это представители среднего класса и населения с высокими душевыми доходами. Тот душевой уровень потребления продуктов питания, который является типичным для этих слоев населения не будет доступен всем и каждому. Третий этап должен характеризоваться постепенным возрастанием в рационе питания деликатесной продукции: изделий рыбной, мясо-молочной и кондитерской промышленности, овошей закрытого грунта, свежих ягод и фруктов.

На третьем и четвертом этапах достижения продовольственной безопасности должна быть введена в практику система государственных закупок продовольствия для нужд обороны, социальной сферы, стратегических запасов и т.д. Такая система закупок должна базироваться на других принципах, чем сейчас.

Следует учесть, что отдельные группы населения уже находятся не только на втором и третьем, но даже на четвертом этапе платежеспособности. Хотя в принципе социальная ориентация развития АПК должна быть направлена на первоочередное удовлетворение самых насущных потребностей первого и второго этапов, тем не менее, необходимо работать над задлами и более высоких этапов. Пора приступать к разработке и реализации третьего и четвертого этапов продовольственной безопасности. Это позволит заблаговременно отладить соответствующие технико-технологические и организационно-экономические решения. Такие решения должны быть направлены на стимулирование реального производства полноценных продуктов питания, укрепления экономики АПК, за счет изъятия доходов «теневое» сектора.

Крупные промышленные предприятия и холдинги могут иметь в своем составе аграрные цеха или даже предприятия по производству продуктов питания: овощей, молока, мяса и др. Продукция этих сельских подразделений предназначена для внутреннего потребления занятого в них населения. Одновременно территорию таких цехов и предприятий можно использовать в качестве базы отдыха детей и трудовых коллективов. Такой подход будет способствовать закреплению кадров, укреплению здоровья детей и самих трудящихся.

В связи с развитием и совершенствованием рыночных отношений важное значение приобретает создание условий, представляющих определенные гарантии обеспечения наращивания ресурсов продовольствия. Для этого надо ввести в действие и постоянно совершенствовать систему федеральных и региональных заказов на основные товары продовольственного назначения. В России имеются реальные возможности для роста объема экологически безопасной продукции и сырья.

**Ключевые слова:** этапы продовольственной безопасности, совершенствование структуры потребления, задачи АПК и сельского хозяйства, повышение качество продуктов.

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