Development of an innovation and investment model project for a rabbit farm

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Abstract. The development of the production of other types of meat has good prospects in the future, which will certainly contribute to improving the state of the livestock industry. Rabbit breeding has many incomparable advantages over other sub-breeds; therefore, it can be argued that rabbit breeding is one of the promising sub-sectors for further development. Using theoretical and empirical research methods, the authors identified a positive trend in the development of the subsector both in the world and in the Russian Federation due to the desire of the population for a healthy lifestyle. It is known that rabbit meat is dietary, easily digestible and recommended for use by all sex and age groups of the population. From an economic point of view, an increase in the production of rabbit products is a consequence of the steady growth in demand for all types of products in the sub-industry under consideration. Also, the authors note that the market capacity of the rabbit products is large enough: projects quickly pay for themselves due to the possibility of increasing production in a short time. Undoubtedly, there are factors that inhibit the development of the rabbit breeding subsector. The formation of supply chains of rabbit products and the lack of a stable feed base are the most pressing. Despite the identified problems, the rabbit breeding sector is gradually becoming one of the significant sub-sectors of the livestock industry, which in the near future will make it possible to talk about improving the efficiency of livestock production in general. The key points to be highlighted: (a) the current state of the rabbit breeding subsector in the world and in the Russian Federation was analyzed and the conclusion was made that the domestic sub-industry is at the stage of formation; (b) an opportunities for the development of the subsector and constraints were identified; (c) a project has been developed for the creation of a rabbit farm with an economic and technical-technological substantiation and assessment of economic efficiency. The proposed project of a rabbit farm can be considered as a model. Depending on the location and the need for rabbit breeding products, it is possible to change the project parameters for adaptation in a particular region.

1. Introduction
The current state of the livestock industry in Russia is characterized by insufficient efficiency of production, in connection with which this branch of agriculture requires special attention.

We consider rabbit breeding to be one of the priorities, since rabbit meat is a dietary one, which (a) does not cause allergic reactions due to its organoleptic characteristics; (b) is recommended for use by all age groups; (c) is gaining wide popularity in the world due to the desire of the population to a healthy lifestyle. More than that, there is a growing demand for rabbit meat in the market. The
payback period of projects is quite fast and is ensured due to the high fecundity and precocity of rabbits. Various modern equipment for the production and processing of rabbit products is available.

The development of domestic rabbit breeding and the assessment of its current state are considered in the works of N. Tinaev, E. Tinaeva, N. Balakirev, V. Kladovshehikova, V. Aleksandrova, V. Alexandrova, N. Shumilina, V. Komlatsky, S. Loginova, G. Komlatsky, Ya. Ignatenko, K. Kharlamov, and other Russian scholars. In their works, mainly questions of the rabbit breeding technology were studied, i.e. establishing a farm, its maintenance, breeding and mechanisms of the main production processes, but the problems of the effective functioning of the subsector and providing the population with a variety of rabbit products remain topical, which makes this study relevant.

The purpose of our research is to assess the current state of the domestic rabbit breeding subsector and propose an event for its further development.

To achieve the goal, the following tasks were set:

1. To analyze the current trends in the development of the rabbit breeding sector in the world and in Russia in particular;
2. To identify the strengths and weaknesses of the rabbit breeding subsector, consider opportunities and identify threats to its development;
3. To propose a model project of an innovative rabbit farm with an economic and technical-subtechnical substantiation and with the calculation of economic efficiency.

2. Methods
The reliability of the findings obtained during the study is ensured by applying the following methods:

- Comparisons - when analyzing the characteristics of different types of meat and the state of the domestic rabbit breeding subsector in comparison to world leaders;
- Synthesis - when indicators characterizing the technical and economic efficiency of the proposed model project of a rabbit farm are combined into a whole;
- Analysis - when identifying the benefits and opportunities of the rabbit breeding subsector over other sub-sectors of the livestock industry, as well as identifying threats and weaknesses hindering the development of the sub-sector, to develop proposals for its further development;
- Economic and statistical - when analyzing the number of rabbits and rabbit production in Russia by counting the main indicators of time series;
- Graphic - when drawing pictures.

The information and empirical base of the study was compiled by official data of the Ministry of Agriculture of the Russian Federation, the Federal State Statistics Service, the Unified Interdepartmental Information and Statistical System, the Federal Customs Service, the National Union of Breeders, as well as periodical materials and information and analytical agencies reflecting various aspects of the analyzed problem. The data were obtained by the authors in the course of calculations.

3. Discussion
According to the data of the World Trade Organization, the rate of consumption of meat and meat products per capita is 70.1 kg, of which the dietary meat should be at least 5%. In the Russian Federation, this indicator is estimated at 1%, and in European countries at 6-8%.

Rabbit breeding becomes more popular in the world every year because of the desire for a healthy lifestyle. The nutritional properties of rabbit meat are very different other types of dietary meat: chicken, turkey, horse meat, deer meat. The main products of rabbit breeding include the high-quality dietary meat and a number of by-products (leather, wool, paws, tail, ears, offal, and manure).
Comparing the rabbit meat with other types of meat, it can be noted that its characteristics are comparable to poultry meat, second only to the average market price (Table 1).

| Index                              | Type of meat     | Beef     | Pork     | Poultry meat | Rabbit meat |
|------------------------------------|------------------|----------|----------|--------------|-------------|
| Product weight                     |                  | 350-500  | 100-110  | 2-3          | 2,5-5       |
| The period of achieving the commercial weight, days. |                  | 540      | 160-180  | 50           | 42-49       |
| Feed conversion, k. ed.            |                  | 6,5-7,5  | 5-7      | 2,5-4        | 3-3,5       |
| Average cost of 1 kg, rub.         |                  | 90-100   | 85-95    | 60-70        | 80-90       |
| Average price for 1 kg in Russia, rub. |                  | 365      | 275      | 130          | 300         |
| Profitability of production, %     |                  | 24       | 27       | 40           | 43          |

Source: compiled by the authors according to [5, 6, 7].

Analyzing the state of the rabbit domestic market, we can say that there is a lag behind the foreign market. Nevertheless, after 2005, we can note the revival of the industry - in 2006, Russian rabbit breeding occupied only 3% of the market, but by the end of 2009 its area was 5% and 2011 is characterized as one of the positive, because domestic products reached 10%. The annual growth rate of livestock is about 9%. An important fact is the following fact: these indicators were achieved mainly by small farms, which are characterized by high profitability.

According to the Ministry of Agriculture of the Russian Federation [4], at the end of 2016, most of the rabbit population falls on households (82.8%), where there is an annual increase of about 4%. The share of agricultural organizations is 11.3 %, and PF (peasant farms) – 5.79% (Figure 1).

![Figure 1](image1.png)

**Figure 1.** The number of rabbits by categories 1990-2016, thousand heads.
Source: compiled by the authors according to [1, 6, 7].
According to the Federal State Statistics Service [6], the dynamics of rabbit production in the Russian Federation is positive. The year of 2010 is characterized by a significant increase (+3.9 thousand tons). The greatest acceleration occurred in 2009 (126.3 pp). This is explained by the fact that small and medium agribusinesses make the greatest contribution.

The sharp increase in rabbit production in 2010 came as a surprise. According to analysts [2, 10], a sharp decrease in production in 2011 was caused by an increase in taxes and strong fluctuations due to small production volumes (Figure 2).

![Figure 2. Dynamics of rabbit meat production in the Russian Federation, thousand tons. Source: compiled by the authors according to [1, 6, 7].](image)

Thus, in recent years, the share of domestic production in the Russian market of rabbit meat has continuously increased.

Summarizing all the above, we note that the Russian market for rabbit meat is at the stage of formation. Currently in Russia, there is no clearly defined market for rabbit meat. There are no regular customers; therefore, the dynamics of production indicators are also very unstable. Thus, there is an acute issue of the formation of supply chains for rabbit products.

The Central Federal District and Volga Federal District are the leaders in the production of rabbit meat due to the large number of farms, PF (peasant farms) and (PrF) private farms. In addition, the popularity of this industry is growing year by year.

The largest producers on the rabbit market include: Krol and Co LLC (CFD), Kovrovsky Rabbit LLC (CFD), LELECHI LLC (CFD), SVK Agro PF (CFD), Russian rabbit LLC (CFD); Russian Rabbit CJSC (VFD); Roshinsky APK (UFD), Rabbit LLC (UFD), Polyus LLC (NCFO). Their cumulative production is more than 1.4 thousand tons of rabbit meat per year, i.e. about 10% of total production. The largest number of large rabbit breeding enterprises is located in the Central Federal District.

Opportunities for the development of the rabbit breeding industry are provided by organoleptic properties; non-waste production; large market capacity (330 thousand tons); quick payback of projects (up to 1.5 years); the versatility of the business (meat, pelts, down, leather, offal, young breeds, litter acting as fertilizer, etc.); actively carried out selection work; development of innovative technologies for breeding and keeping rabbits.

Undoubtedly, there are weaknesses and threats that hinder the development of this industry. The most acute issues are the lack of stable demand, the formation of supply chains of products, the lack of government support, stable high-quality food supply, qualified personnel, risk insurance, concentration
Based on the foregoing, we believe that the prospects for the development of the domestic rabbit breeding industry are obvious: rabbit meat is dietary, with a rich set of vitamins, the slaughter weight indicator is quite large (up to 62%), profitability is high (43%), the low market competition, the possibility of increasing production in a short time, etc.

According to a number of analysts [3, 2, 12], the capacity of the rabbit market is large. If production increases, import substitution will occur. Imported meat is presented mainly in frozen form. Its demand from the domestic population is low. Due to the fact that Russian consumers are quickly responding to the offer of chilled meat, we consider the obvious advantage of domestic rabbit meat compared to imported frozen counterpart.

Undoubtedly, there are factors that have a negative impact on the development of the rabbit breeding industry, but the consequences of them can be minimized by using innovative technologies and with proper management of the enterprise. According to [11], the industry has a great number of problems, especially those related to land issues, high-quality feed, institutional and legal support, professional training, information support, and many others.

Summarizing the above, it can be argued that the Russian market for rabbit meat is almost at the formative stage. Currently in Russia, there is no clearly defined market for rabbit meat. There are practically no regular customers, in connection with this, the dynamics of production indicators are also extremely unstable. Thus, the issue of the formation of supply chains of rabbit products is very acute [9].

Based on the foregoing, we consider it expedient to build an industrial rabbit farm according to the innovation and investment model project developed by us, the goal of which is to provide the domestic market with high-quality and useful rabbit-breeding products of a diverse range.

4. The Innovation and Investment Project
An innovative industrial rabbit farm is designed to grow rabbits and sell meat, skins and offal (liver, heart). The focus on the production of dietary rabbit meat is due to the presence of unmet demand for these products and the possibility of reducing the market share owned by import suppliers.

The rabbit farm will be located in the Klin district of the Moscow region, which will ensure the availability of the necessary resources and proximity to the main consumers of the products produced in the Moscow region and the city of Klin. This territory will be owned by the rabbit farm.

The general contractor is the Eurabbitek LLC from Kazan. It will also supply innovative equipment from the leading Italian companies, namely Meneghin and SINT Tecnologie, and the breeding stock of the Hy-Plus hybrid breed from the French company called Hypharm.

4. 1. Product Description
According to calculations, the average (up to 22%) level of profitability of production and sales activities will be provided by the presented ratio of selling prices and production costs. The volume of production and sales of meat, as well as skins, liver and rabbit heart (table 2), according to the obtained results, should ensure the return on investment costs for a period not exceeding 3 years.

| Indicator name       | Unit meas. | 2020 | 2021 | 2022 | 2023 | 2023 in % to 2020 |
|----------------------|------------|------|------|------|------|-------------------|
| Production of meat   | t          | 458  | 467  | 481  | 486  | 106%              |
| Manufacture of skins | pc         | 241  | 259  | 246  | 251006 | 256026 | 106% |
| Liver production     | t          | 37   | 38   | 38   | 39   | 106%              |
| Heart production     | t          | 2    | 2    | 2    | 2    | 106%              |
4.2. Production technology

Innovation and investment project is designed for the construction of a rabbit farm with a content of 3450 female rabbit. Due to the schedule of the project implementation, it is planned to achieve the established production volumes at the level of production costs necessary to ensure a stable level of profitability of the enterprise at the level of at least 22%. The system will be “empty-busy” for a cycle of 49 days. It is planned to further increase the production capacity through the sale of biohumus and other by-products, which would allow for waste-free production.

4.3. Environmental issues of production

Innovation and investment project involves the development of production of industrial rabbit breeding. Applied innovative technological processes include compliance with the norms and maximum permissible concentrations of substances in the waste.

For the accumulation and storage of manure no closer than 50 m from the rabbitries equipment is provided for the lagoon to which the manure will be sent. In the future, it is planned to introduce an innovative technology for processing organic fertilizers into biohumus.

In order to comply with the veterinary and sanitary rules for the biological safety of animals and their products, along with other measures, it is provided for: preventive vaccination activities; sanitary control of animals; regular sanitization, disinfection and dissection; rodent control; regular monitoring of water and feed quality; establishment and observance of the rules for visiting the complex.

5. Analysis of the Sales Market for Rabbit Products

Sales of products are proposed to carry out in supermarkets. The possibility of selling products through participation in the system of government orders is also being considered. In the future, it can be realized through restaurants.

In order to sell rabbit skins, negotiations are planned with factories engaged in the manufacture of hides and tailoring of fur products, as well as various sales schemes for frozen rabbit skins.

The competitiveness of the enterprise is supposed to be ensured by the use of innovative technologies that guarantee high quality products, environmental safety of production, maximum mechanization of labor, and the rhythm of supplies.

In the foreseeable future, a sharp increase in competition in the main sales market is not expected, because the proposed innovative industrial rabbit farm will be the only one in the Klin district.

5.1. Potential market capacity
In addition to the existing opportunities for an innovative project, an increase in the load and a possible expansion of the processing capacity are considered, which will make it possible to talk about waste-free production.

5.2. **Project marketing strategy**

The innovation and investment project for the development of production for PF (peasant farms) provides for the expansion and diversification of rabbit production, as well as a significant improvement in its quality.

The innovative project envisages the following measures. (1) The formation of the livestock of rabbits and compliance with the requirements for the hybrid composition of the livestock will ensure the planned volume of production of rabbit production. (2) The use of innovative technologies in the enterprise will lead to ensuring the required level of quality of rabbit products, increasing the competitiveness of products and the selling price. (3) The conclusion of long-term supply contracts with customers of products (primarily meat) will ensure the predictability of sales.

6. **Organizational Plan**

6.1. **Organizational and legal form of the project**

For the implementation of the project, the organizational and legal form of a peasant farm is recommended. This allows one to apply for tax purposes an unified agricultural tax (UAT) at a rate of 6%.

6.2. **Key partners**

The main partners of PF (peasant farms) in the implementation of the project should be:

- The financial participation comes from the Sberbank of Russia PJSC (under the project financing program in the agro-industrial complex, we offer to take a loan in the amount of 80% of the project investment budget (83,972 thousand rubles) for a period of 2.5 years; the loan rate will be 13%);
- The supply of equipment and its installation – the Eurabbitek LLC (Kazan);
- The supply of livestock of rabbits as well as concentrated feed and feed additives – Lidan LLC (Istra District, Moscow region).

The organization of implementing additional production volumes are performed by the staff of the organization, including through the redeployment of personnel.

7. **Financial Plan**

7.1. **Initial data**

The initial data for the financial analysis of the project is partially given in the previously reviewed sections of the innovation project. Additional data provide information on the tax environment of the innovation project, the dynamics of the volumes and prices of sales, consumption rates and prices for the necessary resources, as well as the production plan for all types of products.

7.2. **The tax burden**

For the implementation of the project, the organizational and legal form of a peasant farm is recommended. This allows the use of an unified agricultural tax (UAT) for tax purposes at a rate of 6%. Clearly information about taxes is presented in Table 3.
### Table 3. Tax burden.

| Name of taxes paid by the company | Rate % | The tax base | Charging period (days) | Privileges |
|----------------------------------|--------|--------------|------------------------|------------|
| An unified social tax            | 30.2   | Salary       | 30                     |            |
| Am unified agricultural tax *     | 6      |              |                        |            |
| An excise on raw materials and   |        |              |                        |            |
| finished products                |        |              |                        |            |
| Customs duties on equipment, raw |        |              |                        |            |
| materials, materials, components |        |              |                        |            |
| finished products                |        |              |                        |            |
| Land tax                         | 0.3%   | Cadastral valuation of land |            |
| Local taxes                      |        | Privilege    |                        |            |

### Table 4. Nomenclature and prices for products.

| Name       | An amount | Price per unit, rub. | Total per year, thousand rubles |
|------------|-----------|---------------------|---------------------------------|
| Carcass, kg| 458 391   | 650                 | 297 954                          |
| Skin, pcs. | 241 259   | 30                  | 7 238                           |
| Liver kg   | 36 715    | 200                 | 7 343                           |
| Heart kg   | 1 591     | 170                 | 270                             |

### 7. 3. Nomenclature and prices of products and services

Table 4 shows data on the nomenclature and prices for the company’s products.

### Table 5. Investment costs, thousand rubles.

| Name                                           | Cost, thousand rubles |
|------------------------------------------------|-----------------------|
| **Capital expenditures:**                      | **89 965**            |
| Manning farm equipment “turnkey”, installation  | 80 000                |
| Purchase of livestock (3 510 heads)            | 4 320                 |
| including female rabbits                       | 3 600                 |
| repair females                                  | 540                   |

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### 7. 3. The number of staff and wages

As of July 2019, the number of personnel at the innovative industrial rabbit farm will be 34 people.

The average salary will be 45,525 rubles per month. At the same time, the growth of real (not nominal) wages is expected.

### 7. 5. Investment costs

The investment value of the innovative project of an industrial rabbit farm will be 104,000,965 rubles. Sources of project financing: own funds – 20%; borrowed funds – 80%. Investment costs will be formed from capital costs and working capital gains. Capital costs include the acquisition of the farm equipment and installation, the purchase of livestock (rabbits, repair females, males), the purchase of the PF land registration PF. A detailed calculation of investment costs is presented in Table 5.

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| Manning farm equipment “turnkey”, installation  | 80 000                |
| Purchase of livestock (3 510 heads)            | 4 320                 |
| including female rabbits                       | 3 600                 |
| repair females                                  | 540                   |
The largest share of the costs accounted for the purchase of equipment and installation - 80,000 thousand rubles and for the purchase of productive female rabbits – 3,600,000 rubles. Thus, the base investment per one productive female rabbit is 30,425 rubles.

7.6. Product Costing

The structure of production cost per 1 ton of rabbit meat includes material costs, labor costs with social contributions, depreciation, and other costs. We attributed the purchase of feed, payment for electricity, and the purchase of medicines to the material costs. Depreciation charges were calculated for buildings, equipment, and animals from the main herd. A detailed calculation of the production cost of 1 ton of rabbit meat is presented in Table 6.

Table 6. Production cost of 1 ton of rabbit meat, thousand rubles.

| Name                                      | Cost |
|-------------------------------------------|------|
| Material costs                            | 400  |
| Including:                                |      |
| Feed                                      | 190  |
| Electric Power                            | 110  |
| Medicines                                 | 100  |
| Remuneration with social contributions    | 56   |
| Depreciation                              | 16   |
| Including:                                |      |
| Equipment                                 | 5.7  |
| Building                                  | 1.2  |
| Animals from the Main Herd                | 9.5  |
| Other                                     | 62   |
| TOTAL                                     | 534  |

The calculation of the cost of the steps of the billing period is based on graphs that reflect the dynamics of cost standards and the dynamics of prices by months of the calendar year.

7.7. Calculation of revenue from sales of products

Revenue from the sale of products of an innovative industrial rabbit farm was calculated by multiplying the estimated quantity of goods sold by the average selling price. A detailed calculation of revenue is given in Table 7.
Table 7. The calculation of revenues.

| Indicators                                      | 2020  | 2021  | 2022  | 2023  |
|------------------------------------------------|-------|-------|-------|-------|
| **Meat**                                        |       |       |       |       |
| The number of rabbits at the end of the year,  | 3 450 | 3 450 | 3 450 | 3 450 |
| heads                                          |       |       |       |       |
| The average output of one female, heads         | 69,9  | 69,9  | 69,9  | 69,9  |
| Meat yield, t                                   | 458   | 458   | 458   | 458   |
| Marketability ratio                             | 1     | 1     | 1     | 1     |
| Implementation, t                               | 458   | 458   | 458   | 458   |
| Average selling price, thousand rubles / t      | 650   | 683   | 717   | 752   |
| Revenue, thousand rubles                        | 297 700 | 312 585 | 328 214 | 344 625 |
| **Skins**                                       |       |       |       |       |
| Realization, pcs.                               | 241   | 241   | 241   | 241   |
| Average selling price, thousand rubles / pcs.   | 30    | 32    | 33    | 35    |
| Revenue, thousand rubles                        | 7 230 | 7 712 | 7 953 | 8 435 |
| **Liver**                                       |       |       |       |       |
| Implementation, t                               | 37    | 37    | 37    | 37    |
| Average selling price, thousand rubles / t      | 200   | 210   | 221   | 232   |
| Revenue, thousand rubles                        | 7 400 | 7 770 | 8 177 | 8 854 |
| **Heart**                                       |       |       |       |       |
| Implementation, t                               | 2     | 2     | 2     | 2     |
| Average selling price, thousand rubles / t      | 170   | 179   | 187   | 197   |
| Revenue, thousand rubles                        | 340   | 357   | 375   | 394   |
| **TOTAL REVENUES, thousand rubles**             | 312 670 | 328 424 | 344 719 | 362 308 |

7. 8. The need for initial working capital

On the basis of standards on stocks of finished products and raw materials, cash reserves for the payment of wages and overhead costs determined the need for the initial working capital. In the framework of calculations for years, the need is included in the composition of investment costs, taking into account the gradual increase in production capacity.

7. 9. Calculation of financial indicators

The calculated dynamics of cash flows, performed with the release of the main types of activity: production, investment and financial, which are associated with obtaining a loan and servicing the arising debt, are presented in Figure 3.
Figure 3. The main cash flow of the project, thousand rubles.

7. Sources, forms and conditions of financing

Data on sources, volumes and terms of project financing are given in Table 8. It is supposed to receive borrowed funds at 13% per annum in the amount of 83,972 thousand rubles.

Table 8. Sources, forms and conditions for financing an innovative project.

| Name of sources and forms of financing investment costs | Interest rate on loans (%) | Interest period (days) | Amount of funds (thousand rubles) |
|-------------------------------------------------------|---------------------------|-----------------------|----------------------------------|
| Own project funds (total)                             |                           |                       | 20 993                           |
| Funds coming from the founder                         |                           |                       | 20 993                           |
| Borrowed funds (Sberbank)                             | 13                        | 30                    | 83 972                           |

Repayment schedule: From February 2019
Interest payment: From February 2019

* The specified percentage (13%) per annum corresponds to payments of 1,083% per month.

At the expense of profit is also the return of the main debt in accordance with the planned schedule.

8. Evaluation of the Economic Efficiency of an Innovative Project

An innovative project with the considered baseline scenario is characterized as effective. Indicators of the economic efficiency of innovative industrial rabbit farm are presented in Table 9.

Table 9. Indicators of economic efficiency of innovative industrial rabbit farm.

| Indicator name | 2019 | 2020 | 2021 | 2022 | 2023 |
|----------------|------|------|------|------|------|
| Revenues from sales, thousand | 0    | 297700 | 312585 | 328214 | 344625 |
rubles

Cost, thousand rubles 0 244572 256801 269641 283125
Gross profit, thousand rubles 0 53128 55784 58573 61500
The average number of employees, people 34 34 34 34 34
Salary fund, thousand rubles 875 18000 18000 18000 18000
Profitability, % 0 22 22 22 22
Other income, thousand rubles 0 14970 15839 16505 17683
Investment activity, thousand rubles 104965 0 0 0 0
Production costs, thousand rubles 0 244572 256801 269641 283125
Profit before tax deductions, thousand rubles 104965 68098 71323 75078 79183
Tax deductions, thousand rubles 264 5845 5864 5886 5911
Loan repayment, thousand rubles 0 51316 32656 0 0
Net profit, thousand rubles -105229 10937 32803 69192 73272

Estimates of the effectiveness of the innovative project are given in Table 10. All parameters were obtained for 3 years (excluding the residual value of investments) based on the calculated data.

Return of borrowed funds is carried out in 2.5 years with a delay of 12 months. At the same time, the accumulated balance remains positive at all steps of the settlement period, which indicates the financial feasibility of the innovative project (the minimum is 639 thousand rubles, which is already in the 3rd month of the project).

Coverage ratio of loan debt does not fall below 1.358. This value is achieved at step 31. The average value of this ratio for the period of payments is 2.326.

Table 10. Innovation project performance indicators and calculation parameters.

| No | Indicator name | Notation | Value |
|----|----------------|----------|-------|
| 1  | Payback period (nominal), months | PBP | 24 |
| 2  | Discounted payback period, months | DPBP | 35.5 |
| 3  | Net present value of the project “as a whole” in the prices of the base period, ths. rub. | NPV | 142,451 |
|    | the same with risk and inflation | - | 89,583 |
| 4  | Internal rate of return of the project “as a whole,” % | IRR | 49.8 |
|    | the same when using borrowed funds, % | - | 74.8 |
| 5  | Discount rate (excluding risk and inflation), % | Rate | 15.0 |
| 6  | Risk premium (increase in sales) per year, % | Risk Premium | 10.0 |
| 7  | Discount rate (without taking into account risk-adjusted inflation), % | - | 25.0 |
| 8  | Projected inflation per year, % | Inflation | 12.0 |
| 8.1 | including the appreciation of resources | - | 12.0 |
| 8.2 | rise in price of production | - | 12.0 |
| 9  | Discount rate (taking into account risk and inflation), % | - | 40.0 |
| 10 | Investment return index (project “as a whole”) | PI | 2.58 |
|    | the same with risk and inflation | - | 2.05 |

9. Risk Assessment
9.1. Sensitivity analysis

The sensitivity analysis of efficiency indicators and financial feasibility of an innovative project indicates the average level of risk.

The effectiveness of an innovative project for a billing period becomes zero if the output of rabbits per one female rabbit will be less than 90% of the planned level. Changes in the prices of resources and products can lead to zero project efficiency when reaching the design capacity, if the profitability of production is below 22%. The impact of inflation on a project, as shown in Table 10, is relatively small.

9.2. Break-even level

According to the results, it can be argued that the production will remain breakeven at 82% of the production volumes (threshold values), which are included in the baseline scenario, which characterizes the project as resistant to various changes.

9.2. Variants of the project

The considered variant of the innovation project is not the only one. Other options, the calculations for which do not include the project plan, differ in: technological solutions (method of housing, breed of rabbits, methods of manure disposal, etc.); the schedule for the implementation of the planned activities; object allocation scheme; the scale of production (in terms of the level of output of rabbits from 1 female rabbit and the size of the livestock); the scheme and schedule of debt servicing (interest payment and repayment of principal). The presented option has a number of advantages in terms of the effectiveness and sustainability of the project to changes in the conditions of implementation.

9.3. Assessment of project risks

To reduce the risk in innovation, we can recommend several ways: the distribution of risk among the participants; reservation; insurance; diversification of innovation activities; risk transfer by contracting.

As risks for the rabbit subsector, the following can be singled out: high mortality / diseases of rabbits; the emergence of a competitor, entry into the market of regional / federal networks; decline in profitability due to the deteriorating economic situation.

To avoid or minimize the aforementioned risks, we can recommend the following measures: timely vaccinations, regular deworming, proper feeding and safe conditions, regular cleaning, feeding troughs, drinking troughs, cleaning manure, timely identification of symptoms (knowledge of basic rabbit diseases); ensuring several core sales channels, effective advertising of products; expanding the range of products; using competitive advantages (low price, proximity to the consumers); cost reduction; searching for additional sources of income (selling fat, liver, biohumus, and waste left after slaughter).

10. Project Security

As a security for the project, it is proposed to use pledge of property of the rabbit farm in the amount of 112,628 thousand rubles.

Starting from the second year, the property acquired by the project, buildings and structures, purchased livestock, and other results of the project implementation can act as collateral. In general, the ratio of debt service schedule and collateral is presented in Figure 4.
Figure 4. Loan to collateral ratio.

Summing up, we note that the branch of rabbit breeding requires special efforts and conditions for its further development. We believe that the rabbit breeding industry has broad prospects due to an increase in the share of industrial rabbit farms built on the proposed model project.

11. Suggestions for Future Research
Prospects for further research of the problem are in a more detailed study of the promotion of rabbit products to the market. It is planned to consider options for self-realization of products and the creation of a marketing cooperative.

12. Conclusion
An analysis of the development trend of rabbit breeding in the world led to the conclusion that, due to the population’s desire for a healthy lifestyle, rabbit meat is gaining popularity due to its qualitative characteristics. The leaders in the production of rabbit products are China, Italy, France, Spain, but international trade is very poorly developed.

In the course of the study, the current state of the domestic rabbit breeding industry was assessed. In particular, it was found that the Russian industry was lagging behind the foreign one. However, in recent years, we have seen its revival. The annual growth rate of livestock is about 9%, and it is increasing.

The dynamics of rabbit production is positive. A significant increase was observed in 2010, when there was an increase in 3.9 thousand tons. Calculations showed that the greatest acceleration occurred in 2009 (126.3 pp), because the largest contribution was made by small and medium agribusiness.
Since there is an increasing need for rabbit breeding products, the construction of industrial rabbit farms according to the innovation-investment model project developed by the authors was proposed as one of the ways to solve the problem.

Calculations showed that the costs of an innovative investment model project of a rabbit farm for 3,450 breeding stock will amount to 104,000,965 rubles. The discounted payback period of a rabbit farm is estimated at 2.96 years, which is quite a high figure. Profitability will be at 22%. Net present value is positive, which indicates the feasibility of investments. The investment return index showed that for 1 rub. in investments will account for 2.58 rubles in profits from operating activities, which is a high effective indicator of the effectiveness of investments. In this case, all parameters were calculated on the condition that meat will be the main production of the rabbit farm. In addition, we will receive additional income from the sale of skins, liver, and heart. In the future, it is possible to increase the production capacity through selling by-products and biohumus, so we can talk about waste-free production here.

Since the proposed innovation-investment project of a rabbit farm is a model one, its variation is possible for different regions of the Russian Federation. For similar research, please refer to [13-15].

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