

Original report

Fur Farming in Russia: the Current Situation and the Prospects

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Fur farming in Russia is a relatively young branch of animal husbandry, started in the twenties of the XXth century. The product is the valuable fur of such farmed fur animals as mink, fox, sable, raccoon, and nutria. Nutria breeding is at the same time the source of highly nutritious diet meat. The basic object of fur farming is mink, comprising in value 90 per cent of the total production.

After World War II fur farming became an essential part of the agricultural production of the country and continued to develop successfully until the beginning of the nineties.

For many years the USSR was the world leader in the production of farmed fur animals, in some years the production reached 17 mill. skins. Over 70 per cent of the production was accumulated in Russia. The main producing areas were the north-western, central and far-eastern regions. Fur farming was one of the sources of foreign currency for the country.

The current situation in Russia is characterised by considerable changes caused by the reform of economic relations in general, including the agro-industrial sphere. In this respect, fur farming is not an exception.

Earlier the production of farmed fur animals was basically concentrated on 250 farms, 111 of them were large specialised state farms with 10,000-15,000 breeding females each, united by Zveroprom and the rest belonged to co-operatives.

In the nineties, many farms failed to adjust to the new economic realities. Among negative factors to be mentioned are the weakening of the financial situation, the cessation of all-round support from the

state, the destruction of vitally important connections with the fish and meat processing industries, with factories producing granulated feed. It was followed by a sharp rise of the cost of fish and meat feeding, energy, and transportation.

As a result, the increase of production costs exceeded the growth of the market prices.

The number of animals on the farms and the production of skins have fallen (see table 1). Only about 70 farms have managed to adapt themselves to the new conditions.

In spite of the worrying figures, the scientists are sure that using the previous positive experience and subject to meeting the present socio-economic requirements, there is a possibility to stabilise and to further develop fur farming in Russia.

This can be realised by undertaking complex measures along the following lines:

- The strengthening of the feeding basis of fur farming. The increase of the production of cheaper feeding staff, produced in the country.
- The maintaining, development, and rational distribution of all genetic varieties of the breeding stock. The improvement of organising and legislative basis.
- The improvement of administration and financing, which also involves favourable credit facilities.

- The improvement of the veterinary status of fur animals.
- The control of the fulfilment of the federal economic programs, covering fur farming.

As one of the ways out of the crisis, many farmers choose to unite their efforts and to integrate the smaller groups of farms with banks and other financial institutions. For example, JSC "Russpushnina" combines 5 large stable and healthy fur farms, confidently building up the production and quality characteristics. They are: "Saltykovsky", "Rodniki", "Vjatka", "Lesnye Kljuchi", "Krestovski fur complex" with the participation of Avtobank, Moscow. The fur farms of the Kaliningrad area, fur farms "Sudoslavski", "Gagarinski" work successfully.

The pedigree farm "Rodniki", the farm with high production results, is a experimental place for research activities of NIIPZK – the head scientific and research institution in Russia for fur farming.

Fur farming is a branch of agriculture, closely tied up with science, actively introducing into practice the latest scientific achievements at all stages of the fur production: breeding, maintenance, feeding, working on more human methods of killing the animals, the primary handling of skins.

Except for NIIPZK, scientific and technical support of the fur farming is provided by VNIIOZ after professor Zhitkov in Kirov, the Institute of Biology in Karelia, the Institute of Cytology and Genetics of the Siberian Branch of the Academy of Sciences of RF. We have to mention specially the Moscow Academy of Veterinary Medicine and Biotechnology, where the research activities are combined with education, its graduates are young people, qualified to work at the farms or alternative to stay in science.

The scientists of the Kirov institute work on the problems of adaptation of fur animals to different conditions of breeding. The technological and zoohygienic parameters offered by the scientists of the institute are directed to increase resistance and productivity of the animals.

The research made in the Karelian scientific centre studies the system of physiological and biochemical monitoring in the fur farming.

The Moscow academy specialises in the technology of mutation fox breeding.

In Novosibirsk, experimentally unique mutations of mink have been received. It is suggested that selection based on the definite type of behaviour is connected with pigmentation which is influenced by the synthesis of melanin. As a result of this selection, the scientists received new mutation which they called "black crystal".

Speaking about the achieved results, it should be admitted that today NIIPZK possesses the complex of technologies sufficient to produce progeny practically from all types of farmed fur animals.

In collaboration with the Institute for Agricultural Projects in Ivanovo, we have corrected the standard sizes of cages, offered for construction of fur and rabbit farms. This work has been done in accordance with the Recommendation of the standing committee of the Council of Europe (Strassburg, 1999) directed to improve the animal's welfare.

A number of practical measures are being undertaken to keep and rationally use the available pedigree livestock.

Starting from 1997, according to the directive of the Ministry of Agriculture, the activities in the sphere of animal breeding, including fur farming, for pedigree purposes should be licensed. At present the federal license for selling pedigree livestock of fur animals throughout Russia is given to 29 farms (63% compared with 1994).

Among measures directed to pursue the state policy in the sphere of fur farming, we should mention the foundation under the auspices of the Ministry of Agriculture of Coordination Council on fur farming. The idea was born by the Russian Fur Union, the organisation which continually takes care of the state of things in the fur breeding in Russia. One of the working groups is engaged in selection and maintenance of the pedigree livestock of fur animals.

Our institute has organised the computerised information centre which accumulated pedigree data and which is prepared to help reconstruct the branch.

In spite of the hard times only recently we have created several new colours of farmed fitch: pearl, golden, pastel and silvery type.

We realise that competitive fur farming should be based on a rational system of feeding. The main target is to reduce the cost of feeding by 40-50%, using fish and poultry by-products, dry protein feed, premixes etc. We see good prospects in the mixed type of feeding, the production of complete granulated dry feeding, the prevention of contamination caused by using doubtful feed products.

The creation of a reliable system of diagnostics, the prevention of contagious diseases, and the treatment of fur animals is very important for further development of fur farming due to the existing rather complicated epizootical situation. In this respect, the most worrying situation is caused by aleutian disease of mink. As a whole, the situation with the diseases of fur animals remains under control, though still there are problems to solve as to the specific precautions, preventive measures and treatment of a number of diseases.

In today's everyday practice a lot of traditional biopreparations are used, but the future belongs to new products based on nuclear biotechnology and gene engineering.

Many years of research of molecular and genetic mechanisms of toxine building allowed to find a number of diagnosticums to determine toxogene microflora in the feeding material.

The usage of resident and transit microflora opens wide prospects for introduction into the body of an animal of protection and such vital ingredients as indispensable amino-acids, vitamins, ferments.

One more important aspect for the fur complex in Russia is the securing of the ecological security of the fur production, the introduction of modern technologies of fur processing.

The production facilities and the scientific potential of the fur breeding are appropriate with the challenges of today and allow the fur farming of Russia to be competitive on the world market.

Table 1. The production on the Russian fur farms in figures
(According to the data of the Fur Farmers Union)

The name of the animal	Breeding females (1000)	Number of skins (1000)	Price of 1 skin in roubles	Production cost of 1 skin in roubles
1966				
Mink	1359,8	4379,5	130,0	148,0
Blue fox	151,5	742,9	217,0	224,0
Silver fox	93,0	290,5	453,0	399,0
Total	1604,3	5412,9		
1997				
Mink	1098,2	3682,3	137,0	179,0
Blue fox	120,0	639,6	256,0	336,0
Silver fox	70,3	250,6	459,0	433,0
Total	1288,5	4572,5		
1998				
Mink	953,4	2904,5	197,0	270,0
Blue Fox	89,2	406,9	398,0	529,6
Silver fox	71,2	193,8	522,4	620,3
Total	1113,8	3505,2		
1999				
Mink	926,4	2375,7	350,0	420,0
Blue fox	87,7	348,0	755,0	790,8
Silver fox	72,8	154,7	1156,0	1138,2
Total	1086,9	2878,4		

Inhibition of Transient LES Relaxations and Reflux in Ferrets by GABA Receptor Agonists

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Transient lower esophageal sphincter (LES) relaxation is the major mechanism of gastroesophageal reflux. This study uses an established ferret model to evaluate GABAB receptor agonists' ability to reduce triggering of transient LES relaxations. One hundred sixty manometric/pH studies were performed on 18 conscious ferrets. In untreated animals, intragastric infusion of 25 ml glucose (pH 3.5) led to 2.0 ± 0.6 reflux episodes over the first 30 min. Twenty-nine of forty-seven reflux episodes occurred during transient LES relaxation, and 18 occurred after downward drifts (<1 mmHg/s) in basal LES pressure. The GABAB receptor agonists baclofen (7 $\mu\text{mol/kg}$ ip), CGP-44532, and SKF-97541 (both $\text{ED}_{50} < 0.3$ $\mu\text{mol/kg}$) reduced reflux episodes and transient LES relaxations. The putative peripherally selective GABAB receptor agonist 3-aminopropylphosphinic acid (80-240 $\mu\text{mol/kg}$) was ineffective, as was the GABAA receptor agonist muscimol (5 $\mu\text{mol/kg}$). Baclofen's inhibition of transient LES relaxations and reflux was unaffected by low-affinity GABAB receptor antagonists CGP-35348 and CGP-36742 at 100 $\mu\text{mol/kg}$ but was reversed by higher-affinity CGP-54626 and CGP-62349 (0.7 $\mu\text{mol/kg}$) or by CGP-36742 at 200 $\mu\text{mol/kg}$. Therefore, GABAB receptor inhibition of reflux shows complex pharmacology. Our and other data indicate the therapeutic potential for these drugs.

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