

The article is dedicated to the 130th anniversary of the birth of the outstanding scientist of Zootechnical science - Ivan Semenovich Popov

This year marks 130th anniversary of the academician of the Lenin All-Union Academy of Agricultural Sciences, Ivan Semenovich Popov. His contribution to the zootechnical science is great - feeding agricultural animals, studying the need for nutrients and biologically active substances, their rationing to animals in order to ensure maximum productivity, while maintaining a good state of the animal health and their reproductive function. In addition, academician was a laureate of the Lenin Prize.

I. S. Popov was a significant scientist in the field of the feeding agricultural animals. Academician was a public figure, meaningful zoo technician and a great professor.

N. P. Chirvinsky was his scientific leader in the period from 1896 to 1931. By 1933 Popov headed department of feeding agricultural animals in the Moscow Zootechnical Institute. By the 1936 he became the head of this department in the Russian Timiryazev State Agrarian University and headed it till the last days of his life.

Ivan Popov was born on the November 10th, 1888 in the Vasilyevsky village in the Moscow region. He graduated rural school and an agriculture town school. In 1908 - 1909, as a student of the agriculture school, Ivan Popov published the results of his first experimental work devoted to elucidating the effect of root crops on the chemical composition and physiological properties of milk fat in the magazine "Scientific review of the dairy farm". After graduation he has been studying at the Moscow Agricultural Institute (now Russian Timiryazev State Agrarian University).

Popov's great interest and ability to research work began to show up in his student years. He took direct part in scientific studies under the guidance of Professor E.A. Bogdanov and Professor M.I. Pridorogin. Also, he studied the state of cattle breeding in the Efremov district of the Tula region. In the 1913, after graduation, academician stayed at the department of the general zootechny in order to prepare for scientific work.

In the 1915 he published an article "Serodiagnostics as an auxiliary method for clarifying questions of the origin of animals" in scientific magazine "Vestnik Zhivotnovodstva" ("Animal Herald"). This article was one of the first articles, which emphasized the new interior problem. It was a problem of the origin of farm animals, which allowed the author to approach the issues of pedigree business with scientific analysis.

I.S. Popov was actively interested in both feeding and breeding of farm animals.

Popov's explorations in the meat cattle breeding field, such as: "Pedigree books of cattle, horses, pigs", "Breeding in the US", "New in the dairy cattle", "About improving dairy cattle" (report at the congress of zoo experts), "Meat cattle breeding in the USA", "Feeding pigs" are considered as very valuable. He devoted all his years of scientific and pedagogical career to the studying of the feeding of

farm animals. His study on the verification of Kelner system of nutritional assessments on feeds is considered as meaningful scientific exploration. In the 1928 it was published in German. Popov emphasized that the general nutritional value of grain forages are distinguished for different species of animals, he used the method of control slaughter of animals to determine the general nutritional value of the feed. As a result academician found that the use of pig's feed energy is significantly higher than in Oscar Kellner's work. Subsequently, other Russian and international researchers came to the same conclusions. These conclusions confirmed by experiments of Scandinavian scientists (Breuer etc). Popov formulated the essence of the "feed norms", set out the principles of rationing, gave a scientific justification for the need of agricultural animals for different productivity in nutrients, argued the norms for feeding cows, animals that are fattening (cattle and pigs) and breeding producers. Standards proposed by Popov are based on the results obtained in numerous experimental studies in the laboratory and production conditions.

In the 1918 Popov was a professor of zoo technology in the Saratov University. Then in the 1921 he was invited by P. N. Kuleshov in the Moscow Higher Zootechnical Institute as a head of the feeding farm animals department.

Then, in the 1927 Popov's academic title of professor in the department of general zootechny has been approved. In the 1934 Popov was awarded the degree of Doctor of Agricultural Sciences. The reason was numerous of his studies on the effect of feed on the productivity of animals and studying the nutritional value of feeds.

In June of the 1956 I.S. Popov was elected as a member of the Lenin All-Union Academy of Agricultural Sciences.

From the beginning of the heading the feeding department Ivan Popov has developed a methodological manual for practical studies and compiles a guide "Feed norms and feed tables". This guide has gained wide popularity not only as a training aid, but also as a manual for practical workers in the field of animal husbandry.

The manual for feeding agricultural animals was published in the 1926 and in the subsequent period (before 1957) was reprinted nine times. Reprinting of the book testifies the significance of Chirvinsky's and Bogdanov's ideas.

N.P. Chirvinsky stated that "the physiological and chemical side is the core of the doctrine of the feeding." E.A. Bogdanov insisted on the need for a scientific justification of the nutritional assessment of feeds, which indicated that all aspects of nutrition should be taken into account and evaluated in each case independently.

Since 1930 I.S. Popov is the head of the laboratory of the feeding farm animals in the All-Union Research Institute of Animal Husbandry.

All the data obtained as a result of the systematic collection and study of materials on the composition and nutritional content of feeds, were consolidated in the system and in the 1933 the first published Soviet tables composition and nutrition of the feed of our country. So, there was no need to use American and German materials anymore.

The scientist studied the fodder resources of the USSR, the nutritional value of feed and animal feeding. As a result of many years of research, he developed the widely known tables on the composition and nutritional value of fodder ("Feed of the USSR, composition and nutritional", 1932). Thirteen editions of this work have confirmed its great value for practical and scientific workers in agriculture.

Popov's merit in the improving theory and practice of feeding and disseminating knowledge is undeniable.

Scientist has managed the Department of Feeding Agricultural Animals of the Moscow Zootechnical Institute in the period from 1933 to 1936. After its unification with the Timiryazev Academy, he was a head of this department at the academy for the rest of his life.

During fifty years Ivan Popov has been tirelessly and fruitfully investigating the problems of feeding farm animals along with teaching in universities. He has been studying animal husbandry on the international level, summarizing scientific materials. That made a possibility for soviet scientists to get acquainted with the state of international farm animal breeding.

Ivan Popov published numerous of original works on dairy and meat cattle breeding according to the methods of zootechnical research.

Academician created the manual "Feeding of High-Productive Cows" (published in 1932 and 1941), which contains information about the composition of milk from highly productive cows, the needs of animals in protein and minerals, elucidation the technique of expansion after calving, the importance of the structure of food rations, the effect of low temperatures on milkiness et al.

The developed system for feeding cows during the ripening period in the "Pervomaiskoye" farm of the Moscow Region provided an average milk yield per 1 forage cow of 6,310 kg.

Popov studied the influence of feeding on the sexual function of animals. The dependence of sexual potency and sperm production of producers on the total level of feeding, protein nutrition and protein quality, mineral and vitamin nutrition of rations is established.

Norms for certain animal species (for example, breeding producers) are developed by I.S. Popov for the first time in the world. Since 1955 I.S. Popov was engaged in the protein nutrition of the farm animals.

Also, he was the initiator of the research on amino acid nutrition and the amino acid composition of domestic fodders used in pig and poultry.

The first researches carried out in our country under his leadership gained wide scope and allowed us to give specific tasks of the chemical industry for the production of synthetic amino acids. That gave a possibility to improve plenty of feeds.

I.S. Popov is the first who created tables for zoo scientists of the amino acid composition of feed. He used the data of domestic research, as well as critically selected materials of international literature.

I.S. Popov was the first who offered the method of the chemicalization of feeding.

He proved the possibility of using ruminant synthetic nitrogenous substances while feeding. A significant place in his works is occupied by research on the use of chemical agents in the feeding of the farm animals. He refers chemical treatment of feed to chemical processing of feed, preparation of synthetic preparations of vitamins, amino acids, use of urea and amino-ammonia compounds of organic acids as additives and partial replacement of protein in animal diets.

Ivan Popov considered development of the feed industry with the extensive use of chemicals and biological products as the key to the development of animal feed production in our country.

Scientist conducted series of experiments on feeding horses.

During the experiment feeding rate were installed. Then the choice of substitutes for military horses was determined. In addition, norms for breeding mares and young animals were completed. Eventually, the optimal feeding rates for breeding and fattening pigs were determined.

Since the 1956, when Ivan Popov was elected as a member of the All-Union Academy of Agricultural Sciences, he headed the Council for the Coordination of Research in the USSR and the Methodological Commission on the theoretical basis for feeding farm animals.

The fundamental textbooks, books for scientists and specialists written by him represent a rich contribution to the zootechny.

In the 1959 Ivan Popov was awarded the Lenin Prize. His book "Feeding farm animals" was repeatedly reprinted. Popov is the author of a textbook, that has nine editions, which is translated into languages of different nationalities of the USSR and into a number of international languages. Despite the fact that the textbook is intended for students of zootechnical universities, it is the reference book of many thousands of workers in various specialties in agriculture, who have to deal with the organization of animal feed and animal feed.

Ivan Popov has made his practical contributions only if there was a sufficiently carefully tested experimental material. Popov's production manual "Feed norms and feed tables" had has Particularly widespread popularity.

This work, published in mass editions, was used by more than one decade of cattle breeders in our country and abroad. The works of I.S. Popov considered as the scientific basis for the revision of methods for assessing the nutritional value of feed and rations. He headed a group of leading zootechnical figures, who prepared materials on a new energy feed unit. In March of the 1963, at the plenary meeting of the department of animal husbandry of the All-Union Academy of Agricultural Sciences, academician stated the need to change the assessment of the exchange energy rations instead of oat feed units. These proposals were very principled and promising.

I.S. Popov as a teacher has deserved wide popularity and respect. He considered postgraduate study as area where great zoo scientists could come from. Academician insistently pointed out that the current level of development of various branches of biological science requires a higher scientific and theoretical basis for post-graduate zootechnicians. He cared about equipping the department

with the latest equipment, about mastering new research methods by specialists and scientists.

Numerous of specialists, who became independent scientists, have begun under his leadership.

At the department under the leadership of I. S. Popov 40 post-graduate students have written Ph.D. theses and eight people defended their doctoral dissertations.

Popov is known not only as a scientist and teacher, but also as a major public figure. For a long time he was a member of the State Scientific Council under the People's Commissariat for Education, deputy chairman of the Central Zootechnical Commission of the People's Commissariat of Agriculture of the USSR. Academician was a member of the committee for awarding the Lenin Prizes and an expert commission for awarding academic degrees and titles.

I. S. Popov left a rich scientific legacy - numerous monographs, manuals, production directories, included in the gold fund of the world zootechnical science. He published more than 100 original works and 20 monographs and books about feeding farm animals.

Finally, scientist was a significant representative of the founders of the national zootechnical science (N.P. Chirvinsky, P.N. Kuleshov, E.A. Bogdanov, M.F. Ivanov, M.I. Pridorogin, etc.), who promoted the domestic agricultural science first time in over the world.

Meaningful pedagogical, scientific and public work of Popov left a bright legacy in the zootechnical science of our country.

Ivan Semenovich Popov was awarded the Order of the Red Banner of Labor, the Badge of Honor, the medal "For Valiant Labor in the Great Patriotic War" and two gold medals of All-union agriculture exhibition.

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