Overview of the III International Conference on Agribusiness, Environmental Engineering and Biotechnologies – AGRITECH-III - 2020

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Abstract. The overview describes the main directions and results of the International Conference “AGRITECH-III-2020” held in Krasnoyarsk in June 18-20, 2020. It gives the details about the participants and the proceedings. The anchor partners of Krasnoyarsk Science and Technology City Hall were Krasnoyarsk State Agrarian University, Volgograd State Technical University and the Volga region research Institute of manufacture and processing of meat-and-milk production. A description of the main trends in modern agribusiness science as well as in the development of the agrarian university are given in the overview.

The Volume contains Proceedings of the III International Conference on Agribusiness, Environmental Engineering and Biotechnologies – AGRITECH-III-2020 which was held in Krasnoyarsk, Russian Federation in June 18-20, 2020.

The purpose of the Conference was to share the results and prospects of the achievements in using advanced high-tech chemical, biological and information technologies in agriculture and agribusiness, in the fields of energy, chemical, environmental, oil and gas engineering, mining and soil treatment technologies, as well as in modern areas of biodiversity and ecosystem stability research.

The Conference “AGRITECH-III-2020” was jointly organised by the International and Russian Union of Scientific and Engineering Associations (Moscow, Russia), Krasnoyarsk Regional Union of Scientific and Engineering Associations, Krasnoyarsk Science and Technology City Hall and Krasnoyarsk State Agrarian University. The scientific direction of the Conference "Innovative Development of Agrarian-and-Food Technologies" was carried out by partners from Volgograd: Volgograd State Technical University and the Volga region research Institute of manufacture and processing of meat-and-milk production.

The Program Committee and Editorial Board included prominent professors and scientists from the Russian Academy of Sciences, University of Maribor (Slovenia), Ruhr University in Bochum (Germany), Krasnoyarsk State Agrarian University (Russia), Institute in Belgrade (Serbia), Siberian Federal University (Russia), University and Institute of Volgograd (Russia) as well as specialists from Russian and foreign leading industrial enterprises.

A wide range of fundamental and applied problems in various biological and agri-technological systems has undergone consideration during the meeting.

The III Conference was organised in 7 main directions:
• Agribusiness, Economics and Organization of Agritech Engineering.
• Innovative Development of Agrarian-and-Food Technologies
• Information Technologies, Automation Engineering and Digitization of Agriculture.
• Chemical, Ecological, Oil and Gas Engineering.
• Biological Technologies in Agriculture: from Molecules to Ecosystems.
• Environmental Engineering and Management, Mining and Soil Treatment Technology.
• Biodiversity and Ecosystem Stability.

The program of the Conference included keynote and plenary talks as well as numerous presentations of the participants (figure 1).

Figure 1. Plenary talks and sections.
The scientific session of the Conference was held at Volga region research institute of manufacture and processing of meat-and-milk production and at Krasnoyarsk State Agrarian University, which is a modern educational and scientific complex, the activity of which is aimed at training personnel for the agricultural sector, performing research and development of rural territories of the Krasnoyarsk Territory.

The reports of the Rector of Krasnoyarsk State Agrarian University, Professor Nataly I Pyzhikova and the Director of the Institute of Economics and Management of Krasnoyarsk State Agrarian University Zinaida Shaporova were devoted to important issues of integrated rural development, which is the main condition for the preservation of rural settlements and the development of agricultural production.

In the Krasnoyarsk Territory, there are 570 municipalities, 482 (85%) of which are rural settlements. The population of the region is about 2 million 900 thousand, including the rural population of 655 thousand people. That is, a quarter of the region’s population lives in rural areas. In this regard, it is the development of all sectors and sub-sectors of the agro-industrial complex of the region that will contribute to the development of rural areas and rural employment.

The agro-industrial complex of the Krasnoyarsk Territory and its basic industry, agriculture, are the leading system-forming spheres of the economy of the region, forming the agri-food market, food and economic security of the region, labor and settlement potential of rural territories. Agricultural production in the Krasnoyarsk Territory is carried out by 441 agricultural organizations, 2578 peasant (farmer) households and individual entrepreneurs, 358.6 thousand personal subsidiary and other individual households of citizens, 1622 horticultural and vegetable garden non-profit partnerships. In order for the number of agricultural organizations to increase from year to year, the integrated development of these territories is necessary.

For the innovative development of agricultural production, we need not only advanced technologies for growing and processing agricultural products, but also specialists of the new formation, owning these technologies, as well as widely using digital technologies. In order to provide the agro-industrial complex of the region with highly qualified specialists, it is necessary to create comfortable living conditions in the countryside, and increase the prestige of the rural lifestyle. Therefore, the vector of socio-economic development of rural territories is taken in the region to the development of social infrastructure, medical support, education, the development of information and consulting services, the elimination of the "digital divide". It is necessary to minimize the gap between urban and rural environments. A villager should be able to receive social services of an appropriate level.

The development of rural territories is reflected in 15 governmental programs of the region. The largest share of funds is spent under the state program “Development of agriculture and regulation of agricultural products, raw materials and food markets”. The structure of this program includes the subprograms “Sustainable development of rural territories” and “Personnel support of the agro-industrial complex”.

Krasnoyarsk State Agrarian University carries out research work to assess the level and quality of life of the rural population, which received support from the regional science fund. As a result, indicators of the quality of life of the population and the possibility of assessing their changes under the influence of state support measures will be highlighted. It is also important for making corrective actions in financing social and economic development programs.

Agriculture is one of the priority areas for the development of our country. Therefore, the task of the Krasnoyarsk Agrarian University is not only to provide highly qualified personnel for agricultural producers, but also to promote the introduction of scientific developments in agricultural production.

The international scope of the Conference was confirmed by the participation of representatives from 9 countries besides Russia (Japan, Bulgaria, Belarus, Kazakhstan, China, Ukraine, Uzbekistan, Tajikistan, Vietnam):

- Agricultural University in Plovdiv, Bulgaria
- Bukhara Engineering and Technological Institute, Bukhara, Uzbekistan
The participants from Russia (more than 50 regions) represented over 300 universities, scientific institutes and organisations, industrial enterprises:

- A.M. Prokhorov General Physics Institute, Russian Academy of Science, Moscow
- A.N. Nesmeyanov Institute of Organoelement Compounds of Russian Academy of Sciences, Moscow
- A.N. Severtsov Institute of Ecology and Evolution of RAS, Moscow, Nemchinovka Federal research center, Moscow Province
- A.O. Kovalevsky Institute of Biology of the Southern Seas of RAS (IBSS), Sevastopol
- Academy of Veterinary Medicine and Biotechnology - MBA by K.I. Skryabin, Moscow
- Achinsk Branch “Krasnoyarsk State Agrarian University”, Achinsk
- Agrochemical service center of Irkutsk
- Agrophysical Research Institute, St. Petersburg
- All Russian research institute of animal breeding, Lesnye Poliani, Pushkin district, Moscow region
- All Russian Scientific Research Institute of Soybean, Blagoveschensk

- Belorussian State University, Minsk, Belarus
- People's Police Academy, Hanoi, Vietnam
- People's Police University, Ho Chi Minh city, Vietnam
- Tajik State Finance and Economics University, Dushanbe, Republic of Tajikistan
- Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Tashkent, Uzbekistan
- Veterinary Research Institute, Samarkand, Uzbekistan
- VisionTech Inc., Tsukuba, Japan
- Zhetsysu State University named after I. Zhansugurov, Taldykorgan, Kazakhstan
- Kh. Dosmukhamedov Atyrau State University, Atyrau city, Kazakhstan
- National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine
- Niigata University, Niigata, Japan

- All-Russia Research Institute of Hydraulic Engineering and Land Reclamation of A.N. Kostyakov, Moscow
- All-Russian research Institute of experimental veterinary medicine named after K. I. Scriabin and Ya. R. Kovalenko of the Russian Academy of Sciences, Moscow
- All-Russian Research Institute of Food Biotechnology, Moscow
- All-Russian research Institute of food biotechnology-branch of the Federal state budgetary institution of science of the Federal research center for nutrition, biotechnology and food safety, Moscow
- All-Russian research Institute of physiology, biochemistry and animal nutrition – branch of the Federal research center of animal husbandry – academician L. K. Ernst, Borovsk, Kaluga region
- All-Russian Scientific and Research Institute of Phytopathology, Bolshie Vyazmy Village
- All-Russian Scientific Research and Technological Institute of Biological Industry, Moscow region
• All-Russian Scientific Research Institute for Fundamental and Applied Parasitology of Animals and Plant – a branch of the Federal State Budget Scientific Institution “Federal Scientific Centre VIEV”, Moscow
• All-Russian Scientific Research Institute of Economics and Norms
• All-Russian Scientific Research Institute of Fundamental and Applied Parasitology of Animals and Plants named after K.I. Skryabin (ARS RIP) - Branch of the Federal State Budget Scientific Institution «Federal Scientific Center - All-Russian Scientific Research Institute of Experimental Veterenari Medicina K.I. Skryabin and Y.R. Kovalenko the Russian Academy of Sciences», Moscow
• All-Russian Scientific Research Institute of Soybean
• All-Russian scientific research institute of veterinary entomology and arachnology Branch of Federal State Institution Federal Research Centre Tyumen Scientific Centre of Siberian Branch of the Russian Academy of Sciences, Tyumen
• All-Russian Veterinary Research Institute of Pathology, Pharmacology, and Therapy, Voronezh
• Altai State Agricultural University, Barnaul
• Altai State University, Barnaul
• Anapa Zonal Experimental Station of Viticulture and Wine-making - Branch of "Federal State Budgetary Scientific Institution" North-Caucasus Federal Scientific Center of Horticulture, Viticulture, Wine-making”, Anapa
• Banzarov Buryat State University, Ulan-Ude
• Bashkir state agrarian university, Ufa
• Bauman Moscow State Technical University, Moscow
• Belgorod State Agricultural University named after V. Gorin, Belgorod
• Blagonravov Institute of Mechanical Engineering, Russian Academy of Sciences, Moscow
• Bratsk State University, Bratsk
• Budget Scientific Institution Federal Scientific Center “All-Russian Research and Technological Poultry Institute” of Russian Academy of Sciences, Sergiev Posad
• Bunin Yelets State University
• Buryat State Agricultural Academy named after V.R Filippov, Ulan-Ude
• Cardiology Research and Production Center, Moscow
• Center for standardization, metrology and testing in the Krasnoyarsk territory, Republic of Khakassia and Republic of Tyva
• Central Research Institute of Dental and Maxillofacial Surgery, Moscow
• Central Siberian State Nature Biosphere Reserve, Bor village
• Cheboksarskiy technical school of construction and urban development, Cheboksary
• Chechen State University, Grozny
• Chelyabinsk Tube Rolling Plant, Chelyabinsk
• Chuvash State University named after I.N. Ulyanov, Cheboksary
• D. Mendeleev University of Chemical Technology of Russia, Moscow
• Department of thermal engines, automobiles and tractors, Vyatka State Agricultural Academy, Kirov
• Department of zootechnology and recycling of animals products, Primorsky State agricultural academy, Ussurisk
• Diplomatic Academy of the Ministry of Foreign Affairs of the Russian Federation, Moscow
• Don State Agrarian University n.a. I.T. Trublin, Krasnodar
• Don State Agrarian University, Rostov-on-Don
• Don State Technical University, Rostov-on-Don
• East Siberia State University of Technology and Management, Ulan-Ude
• Experimental production farm «Kuraginskoe», branch of the Federal state budgetary scientific institution «Federal research center Krasnoyarsk scientific center of the Siberian branch of the Russian Academy of Sciences», Krasnoyarsk territory, Kuraginskoe
• Faculty of Biology and Chemistry Chechen State University
• Faculty of Foreign Languages, Krasnoyarsk State Pedagogical University named after V.P.Astafiev, Krasnoyarsk
- Faculty of information technology, Chechen State University
- Far Eastern State Agrarian University, Blagoveshchensk
- Far Eastern State Technical Fisheries University, Vladivostok
- Federal Agricultural Research Center of the North-East named N. V. Rudnitskogo, Kirov
- Federal Altai Scientific Centre of Agro-BioTechnologies, Barnaul
- Federal Research Center – All-Russian Research Institute of Experimental Veterinary Medicine named after K.I. Scriabin and Ya.R. Kovalenko of the Russian Academy of Sciences
- Federal Research Center Krasnoyarsk Science Center of the SB RAS;
- Federal Research Center of Agricultural Biotechnology of the Far East named after A.K. Chaik, Ussuriisk;
- Federal Research Center of Fundamental and Transnational Medicine, Novosibirsk
- Federal Research Centre of Biological Systems and Agrotechnologies of RAS
- Federal Rostov Agricultural Scientific Center (branch), Rostov-on-Don
- Federal Scientific Center for Agroecology, Complex Reclamation and Protective Forestation of the Russian Academy of Sciences, Volgograd
- Federal Scientific Center for Agroecology, Integrated Recycling and Protective Forrest Production of RAS
- Federal Scientific Center for Biological Systems and Agricultural Technologies of the Russian Academy of Sciences
- Federal Scientific Center for Medical and Preventive Health Risk Management Technologies of the Federal Supervision Agency for Customer Protection and Human Welfare
- Federal Scientific Centre VIEV, Moscow
- Federal Scientific Rice Centre, Krasnodar
- Federal State Budget Scientific Institution North Caucasus Federal Scientific Center for Horticulture, Viticulture, Winemaking (FSBSI NCFSCHV), Krasnodar
- Federal State Budgetary Institution “Utrish State Nature Reserve”, Anapa
- Federal State Establishment United Administration of Barguzinsky State Nature Biosphere Reserve and Zabaikalsky National Park (“Zapovednoe Podlemorye”), Ust-Bargizin
- Federal State Research Institute of the Federal Penitentiary Service of the Russian Federation, Moscow. Academy of Management of the Ministry of Internal Affairs of Russia, Moscow
- Federal state-funded Budget institution of the higher education «Tver State Agricultural Academy», Tver
- Filippov Buryat State Academy of Agriculture, Ulan-Ude
- Financial University under the Government of the Russian Federation, Moscow
- Food biotechnology department, Kazan National Research Technological University, Kazan
- FRC Kazan Scientific Center, Kazan
- FSBEI HE "MSAVMB named after K. I. Skryabin", Moscow
- FSC of Agricultural Biotechnology of the Far East named after A. K. Chaika, Ussuriysk
- Genetics Scientific and Research Laboratory of Kursk State University, Kursk
- Gorodovikov Kalmyk State University
- Gorsky State Agrarian University, Vladikavkaz
- Grozny State Oil Technical University named after Academician M. D. Millionshchikov, Grozny
- Helprivod Company Ltd, Chelyabinsk
- I.M. Sechenov First Moscow State Medical University (Sechenov University), Moscow
- I.Y. Yakovlev State Pedagogical University of Chuvash, Cheboksary
- Imtek Company Ltd., Moscow
- Innovative Pharmacology Research, LLC (IPHAR), Tomsk
- Institute for African Studies of the Russian Academy of Sciences, Moscow
- Institute of Automation and Electrometry, Novosibirsk
- Institute of Biological Problems of the North, Far Eastern Branch of the Russian Academy of Sciences, Magadan
- Institute of Biophysics, Siberian Branch, Russian Academy of Sciences, Krasnoyarsk
- Institute of Computational Modeling, Siberian Branch of the Russian Academy of Sciences, Krasnoyarsk
- Krasnoyarsk branch of VNIRO («NIIERV»), Krasnoyarsk
• Institute of Continuous Education in Forestry, Divnogorsk
• Institute of Economics Ural Branch of the Russian Academy of Sciences, Ekaterinburg
• Institute of Economics, Kazan State Agrarian University, Kazan
• Institute of Experimental Medicine and Biotechnology of Samara State Medical University of Ministry of Health of the Russian Federation, Samara
• Institute of food production, Krasnoyarsk state agrarian University, Krasnoyarsk
• Institute of General and Experimental Biology of the SB of the RAS, Ulan-Ude
• Institute of Life Sciences, North-Caucasus Federal University, Stavropol
• Institute of Medicine, Federal State Budgetary Educational Institution of Higner Education «Orel State University named after I.S. Turgenev», Orel
• Institute of Monitoring of Climatic and Ecological Systems, Siberian Branch of the Russian Academy of Sciences, Tomsk
• Institute of Natural Sciences and Biotechnology, Federal State Budgetary Educational Institution of Higner Education «Orel State University named after I.S. Turgenev», Orel
• Institute of North Industrial Ecology Problems of the Federal Research Centre «Kola Science Centre of the Russian Academy of Sciences», Apatity
• Institute of Northern Development Problems SB RAS, Tyumen
• Institute of Railway Transport, a branch of Far Eastern State University of Transportation in Ussurisk
• Institute of Soil Science and Agrochemistry, Siberian Branch of the Russian Academy of Sciences, Novosibirsk
• Institute of Solid State Chemistry and Mechanochemistry of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk
• Irkutsk Interregional Veterinary Laboratory, Irkutsk
• Irkutsk National Research Technical University
• Irkutsk Scientific Research Institute of Agriculture
• Irkutsk State Agricultural University named after A.A. Ezhevsky, Irkutsk region
• Irkutsk State Transport University, Irkutsk
• Irkutsk State University, Irkutsk
• ITMO University, Saint Petersburg
• Izhevsk State Agricultural Academy, Izhevsk, Russia
• Kabardino-Balkar State Agrarian University named after V.M. Kokov, Nalchik
• Kalashnikov Izhevsk State Technical University
• Kaliningrad State Technical University, Kaliningrad
• Kalmyk State University named after B.B. Gorodovikova, Elista
• Kaluga branch of Moscow State Technical University named after N.E. Bauman, Kaluga
• Kaluga State University named after K.E. Tsiolkovski, Kaluga
• Katanov Khakass State University, Abakan
• Kazan (Volga region) Federal University, Kazan city
• Elabuga Institute of KFU, Elabuga
• Kazan National Research Technological University
• Kazan State Academy of Veterinary Medicine by N.E. Bauman, Kazan city
• Kazan State Agrarian University, Kazan
• Kazan State Power Engineering University, Kazan
• Kemerovo State University, Kemerovo
• Khakas Technical Institute of Siberian Federal University, Abakan
• Kopeysky machine-building plant
• Kostroma State University, Kostroma
• Kozma Minin Nizhny Novgorod State Pedagogical University (Minin University), Nizhny Novgorod Region
• Krasnodar research center for animal husbandry and veterinary medicine, Krasnodar
• Krasnodar Scientific Research Institute of Storage and Processing of Agricultural Products – Branch of the FSBSI “North-Caucasian Federal Scientific Center of Horticulture, Viticulture, Winemaking”, Krasnodar
• Krasnoyarsk Research Institute of Agriculture of the Federal research center Krasnoyarsk scientific center SB RAS
• Krasnoyarsk State Agrarian University, Krasnoyarsk
• Krasnoyarsk State Medical University named after Professor V.F. Voyno-Yasenetsky,
- Krasnoyarsk state pedagogical University named after V. P. Astafiev
- Kuban State Agrarian University named after I.T. Trubilin, Krasnodar
- Kuban State Technological University, Krasnodar
- Kursk State Agricultural Academy named after I.I. Ivanov, Kursk
- Kursk branch of the Financial University under the Government of the Russian Federation
- Laboratory of Forest Health, Reshetnev Siberian State University of Science and Technology, Krasnoyarsk
- Laboratory of Nature-Inspired Technologies and Environmental Safety of the Arctic of the Federal Research Centre «Kola Science Centre of the Russian Academy of Sciences»
- Law Institute, Krasnoyarsk State Agrarian University, Krasnoyarsk
- Lesosibirsk Branch of Reshetnev Siberian State University of Science and Technology, Lesosibirsk
- Limited liability company Research and production center "Micromir"
- LLC "Business School", Abakan
- LLC Stankotechprom Chelyabinsk
- Magadan Branch of All-Russian Research Institute of Fisheries and Oceanography («MagadanNIIRO»), Magadan
- Main Directorate of Communications of National Guard Troops of the Russian Federation, Moscow
- Mari Agricultural Research Institute – branch of Federal Agrarian Research Center of the North-East named N.V. Rudnitsky
- Municipal educational budgetary institution «Comprehensive evening school of Medvedevo district», Mari El Republic
- Mari State University, Yoshkar-Ola, Mari El Republic
- MBEI SGES No. 15, Irkutsk
- Mechanical Engineering Research Institute of the Russian Academy of Sciences, Moscow
- Michurinsk State Agrarian University, Michurinsk
- Minin Nizhny Novgorod State Pedagogical University
- Mining Institute of North-East Federal University named after M.K. Ammosov, Yakutsk, Republic of Saha (Yakutia)
- Moscow Polytechnic University, Moscow
- Moscow Region State University, city of Mytishi
- Moscow State Academy of Veterinary Medicine and Biotechnology - MVA by K.I. Skryabin, Moscow
- Moscow State University M.V. Lomonosov, Faculty of Biology, Department of Mycology and Algology, Moscow
- Institute of Veterinary Medicine, Veterinary Sanitary Expertise and Agro-Security of Moscow State University of Food Production, Moscow
- Moscow State University of food production
- FARM PARK, Moscow
- Moscow State University of Technologies and Management named after K. G. Razumovsky (the First Cossack University), Moscow
- Murmansk Arctic State University, a branch in Apatity
- N. I. Vavilov Saratov State Agrarian University, Saratov
- National Research University Higher School of Economics
- Nesmeyanov Institute of Organoelement Compounds Russian Academy of Russian Academy of Science, Moscow
- Nizhny Novgorod State Agricultural Academy
- Nizhny Novgorod state engineering and economic university, Knyaginino, Nizhny Novgorod Region
- North-Eastern Federal University
- North Caucasian Federal Scientific Agrarian Center
- North Caucasian Research Institute of Mountain and Piedmont Agriculture – the Affiliate of Vladikavkaz Scientific Centre of the Russian Academy of Sciences, Mikhailovskoye
- North Caucasus Research Institute of Mountain and Pre-mountain Horticulture, Nalchik
- North Ossetian State University, Vladikavkaz
- North-Caucasian Federal University, Stavropol
- North-Eastern Federal University named after M.K. Ammosov, Yakutsk
- Northern Trans-Ural State Agricultural University, Tyumen
Nosov Magnitogorsk State Technical University
Novokubansk branch of Russian Research Institute of Information and Technical and Economic Research on Engineering Support of Agro-industrial Complex, Novokubansk
Novosibirsk State Agrarian University
Novosibirsk State Technical University
Omsk agricultural research center
Omsk state pedagogical University
Omsk state technical University
Orel State Agrarian University named after N.V. Parakhin
Orel State University of Economics and Trade, Orel
Orenburg State Agrarian University, Orenburg
P. A. Stolypin Omsk state agrarian University, Omsk
P.K. Anokhin Institute of Normal Physiology, Moscow
Pacific National University, Khabarovsk
Peoples’ Friendship University of Russia (RUDN University), Moscow
Perm Institute of the Federal Penitentiary Service of Russia, Perm
Perm Military Institute of National Guard Troops of the Russian Federation, Perm
Perm National Research Polytechnic University, Perm
Perm State Agrarian-Technological University named after academician D N Prianishnikov, Perm
Perm State University
Peter the Great St. Petersburg Polytechnic University, St. Petersburg
Petrozavodsk State University, Petrozavodsk
Platov South-Russian State Polytechnic University (NPI), Novocherkassk
Plekhanov Russian University of Economics, Moscow
Polzunov Altai State Technical University, Barnaul
Povolzhsky Research Institute of Production and Processing of Meat and Dairy Products
Primorskaya State Academy of Agriculture, Ussuriisk
Primorsky Scientific research Institute named by A.K. Chaika of the Far East region
Research Center Kurchatov Institute - St. Petersburg Institute of Nuclear Physics, Leningrad Region, Gatchina
Research Center of the Ural Branch of the Russian Academy of Sciences, Yekaterinburg
Research Centre for Medical Genetics (RCMG), Moscow
Research Institute of Agriculture of the Northern Trans-Urals - Branch of the Tyumen Scientific Center SB RAS
Reshetnev Siberian State University of Science and Technology, Krasnoyarsk
RF Ministry for Civil Defense, Emergency Management and Natural Disasters Response, Moscow
Territorial Authority of the Federal State Statistics in the Volgograd Region, Volgograd
RiK-Energo Ltd, Chelyabinsk
Rosinformagrotekh FSBSI
Rostov State Medical University
Rostov State Medical University, Rostov-on-Don
Rostov State University of Economics, Rostov-on-Don
Volga Region Research Institute of Manufacture and Processing of Meat-and-Milk Production, Volgograd
Rubtsovsk Industrial Institute (branch), Rubtsovsk
Russian Academy of Sciences, Moscow
Russian Air Force Military Educational and Scientific Center “Air Force Academy named after Professor N.E Zhukovsky and Y.A. Gagarin”
Russian Federal Research Institute of Fisheries and Oceanography, Moscow
Russian Presidential Academy of National Economy and Public Administration, RANEPA, Orel
Russian research institute of food biotechnology - a branch of Federal state budget institution of science «Federal research center of food, biotechnology and food safety»
Russian Research Institute of Game Management and Fur Farming, Kirov
Institute of Living Systems of Immanuel Kant Baltic Federal University, Kaliningrad
Russian State Agrarian University - Moscow Timiryazev Agricultural Academy, Moscow
• Russian State Social University, Moscow
• Russian University of Transport (MIIT), Moscow
• Saint Petersburg Mining University, Saint Petersburg
• Saint Petersburg State Forest Technical University named after S.M. Kirov, St. Petersburg
• Saint Petersburg State University of Aerospace Instrumentation, St. Petersburg
• Saint-Petersburg State Institute of Technology
• Saint-Petersburg University of EMERCOM of Russia, Saint-Petersburg
• Samara State Agrarian University, Kinel
• Samara State Medical University, Samara
• Scientific Center for Integrated Safety of the Nuclear and Radiation Safety
• Scientific Production Firm “Sady Chechni” Ltd.
• Sechenov University, Moscow
• Sevastopol state university, Sevastopol
• Shuy branch of Ivanovo State University, Shuya
• Siberian Federal Research Center of Agricultural Biotechnology of the RAS, Krasnoyarsk
• Siberian Federal University, Krasnoyarsk
• Siberian Institute of Plant Physiology and Biochemistry, Siberian Branch of the Russian Academy of Sciences, Irkutsk
• Siberian Law Institute of the Ministry of Internal Affairs of Russia
• Siberian Research Institute of Soil Management and Chemicalization of Agriculture SFSCA Russian Academy of Science, Krasnoobsk, Russia;
• Siberian state industrial university, Novokuznetsk
• Siberian State Medical University, Tomsk
• Siberian Zoological Museum, Institute of Animal Systematics and Ecology, Russian Academy of Sciences, Novosibirsk
• Sibniugleobogaschenie LLC, branch of Prokopyevsk
• Smolensk agricultural Academy, Smolensk
• South Ural State Agrarian University, Chelyabinsk city
• St. Petersburg State Forestry University named after S.M. Kirov, Saint-Petersburg
• State Agrarian University of the Northern Trans-Urals, Tyumen
• State Agricultural Academy, Ivanovo
• State Humanitarian Technological University, Orekhovo-Zuevo
• State University of Land Management, Moscow
• State University of Management, Moscow
• Stavropol State Agrarian University
• Stock Company «Experimental Design Bureau «Electroavtomatika» named after P A Yefimov, Saint Petersburg
• ITMO University, Saint Petersburg
• Sukachev Institute of Forest SB RAS, Federal Research Center «Krasnoyarsk Science Center SB RAS», Krasnoyarsk
• Surgut State University, Surgut
• Tatar Scientific Research Institute of Agriculture, FRC Kazan Scientific Center, Russian Academy of Sciences, Kazan city
• Technological Institute – branch of Federal State Budgetary Educational Institution of Higher Education «Ulyanovsk State Agricultural University», Dimitrovgrad
• The department of chemical plant machinery and equipment, Institute of Chemical Engineering, Ural Federal University, Ekaterinburg
• The Diplomatic Academy of the Ministry of Foreign Affairs of the Russian Federation
• The North Caucasus Research Institute of Mountain and Piedmont Agriculture – the Affiliate of Vladikavkaz Scientific Centre of the Russian Academy of Sciences, Mikhailovsky Village
• Gorsky state agrarian university, Vladikavkaz
• The Russian Presidential Academy of National Economy and Public Administration, Chelyabinsk branch, Chelyabinsk
• The Shukshin Altai State Humanities Pedagogical University, Altai Krai, Biysk
• Tobolsk Complex Scientific Station of the Ural Branch of the Russian Academy of Science, Tobolsk
• Togliatti State University, Togliatti, Samara region
• Trade and economic Institute, Siberian Federal University, Krasnoyarsk
• Tuva Institute for integrated development of natural resources of the Siberian branch of the Russian Academy of Sciences, Kyzyl
• Tuvan State University, Kyzyl
• Tyumen State University, Tyumen
• Ufa Institute of biology – Subdivision of the Ufa Federal Research Centre of the Russian Academy of Sciences
• Ufa state petroleum technological university, Ufa
• Ural Agricultural Pilot Station, Uralsk
• Ural Branch, Institute Botanic Garden, Ekaterinburg
• Ural Federal University, Ekaterinburg
• Ural Institute of State Fire Service of EMERCOM of Russia, Ekaterinburg
• Ural state economic University
• Ural State Medical University of the Ministry of Health of the Russian Federation, Ekaterinburg
• Ural State Mining University, Yekaterinburg
• Ural state agricultural university, Yekaterinburg
• V. A. Negovsky Research Institute of General Reanimatology, Federal Research and Clinical Centre of Intensive Care Medicine and Rehabilitiology, Moscow
• V.B. Sochava Institute of Geography SB RAS, Irkutsk
• V.I. Illichev Pacific Oceanological Institute, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok
• V.I. Vernadsky Crimean Federal University, Simferopol
• V.M. Gorbatov Federal Research Center for Food Systems of Russian Academy of Sciences, Moscow
• V.M. Kokov Kabardino-Balkarian State Agricultural University, Nalchik
• Vereshchagin Vologda State Dairy Farming Academy, Vologda
• Vernadsky Institute of Geochemistry and Analytical Chemistry of Russian Academy of Sciences, Moscow
• Astrakhan State University, Astrakhan
• Vladikavkaz Scientific Centre of the Russian Academy of Sciences, Vladikavkaz, RNO-Alania
• Vladimir State University named after A.G. and N.G. Stoletov
• Volgograd State University
• Volga Research Institute of Production and Processing of Meat and Dairy Products
• Volga Scientific Research Institute of Production and Processing of Dairy and Beef Products, Volgograd
• Volga State University of Technology, Yoshkar-Ola
• Volgograd State Medical University
• Volgograd State Socio-Pedagogical University, Volgograd
• Volgograd State Technical University
• Vologda branch of FGBNU FNC VIEW RAN, Vologda
• Vologda branch of the Federal research center-all-Russian research Institute of experimental veterinary medicine named after K. I. Scriabin and Ya. R. Kovalenko of the Russian Academy of Sciences, Vologda
• Vologda State Dairy Farming Academy named after N.V. Vereshchagin, Vologda
• Voronezh institute of high technologies
• Voronezh Institute of the Federal Penitentiary Service of Russia, Voronezh
• Voronezh State Agricultural University named after Emperor Peter the Great, Voronezh
• Voronezh State Medical University named after N.N. Burdenko
• Health Department of the Lipetsk Region Administration
• Voronezh State Technical University, Voronezh
• Vyatka State Agricultural Academy, Kirov
• Winogradsky Institute of Microbiology, Research Center of Biotechnology of the Russian Academy of Sciences, Moscow
• Yakutsk State Agricultural Academy, Yakutsk
• Yaroslavl State Agricultural Academy, Yaroslavl
• Yaroslavl State Technical University, Yaroslavl
• Volga Region Research Institute of Manufacture and Processing of Meat-and-Milk Production, Volgograd
• Yury Gagarin State Technical University of Saratov

The event has offered a platform for bringing together students, postdocs, innovative academics and industrial experts to exchange their ideas and contribute new engineering approaches to research agri-mechanical and automation processes in various technological-, biological- and eco-systems. Great
interest was aroused by the section devoted to economics and organization of agritech engineering, biological technologies, biodiversity and ecosystem stability.

The Conference provided the premier interdisciplinary and multidisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, concerns, practical challenges encountered and the solutions adopted in the fields of environmental and biological sciences, agritech engineering, chemical, mining and soil treatment technologies, digitization of agriculture, aerospace technologies for the development of agribusiness and precision farming [1-3] etc. Although the schedule of the Conference was very tight, there were very vivid discussions among the participants. The participants who could not come to the Conference due to different reasons including the problem of high transportation costs presented on-site presentations which are available on the web-site of the Conference. More than 50 participants who could not come due to the restrictions connected with COVID-19 presented poster presentation which can be found at the website of the conference and took part in the online session with reports which had been prepared and sent to the Organizing Committee beforehand. The online section was held on the Zoom platform (zoom.us) which let all the participants to watch the reports and ask questions online as well as to write them in the chat format. The speakers answered the questions online. The participants who could come to the Krasnoyarsk State Agrarian University (Krasnoyarsk) or to the Volga region research institute of manufacture and processing of meat-and-milk production (Volgograd) also participated in the discussions and question sessions. The overall technical quality of the conference was good, the platform let to add up to 500 participants simultaneously. The participants could watch the reports, write questions and communicate. The moderator could change the roles so that the speaker could answer questions and make comments.

All participants were invited to present their papers in this Volume and all submitted manuscripts went through the independent peer review process. We are very grateful to all reviewers from Russia, China, USA, Slovenia, Germany, Serbia and Republic of Kazakhstan for their time and highly professional comments. We deeply believe that their reviews gave opportunity to improve the scientific quality of the presented papers which may be useful for academic, scientific and agri-industrial partners.

More than 1000 reports were submitted to the Organizing Committee of the Conference. 568 reports were selected for inclusion into this Volume after the review process. All the papers were subjected to rigorous peer-review by conference committee members and international reviewers. The papers were selected based on their quality and relevance to the Conference directions and on the results of their presentation at the Conference session. The proceedings present to the readers the recent advances in the field of agribusiness, economics and organization of agritech engineering, biological and information technologies, environmental, chemical, ecological, power, oil and gas engineering. These papers reflect modern engineering approaches in all Conference directions, broaden the researches of the previous Conferences [4-11].

We chose the IOP Conference Series: Earth and Environmental Science (EES) to provide all contributors with the opportunity to publish their papers in an international, peer-reviewed journal. This is understood and appreciated by all the participants of our Conference, and therefore this Volume provides an excellent overview of the main topics of our Conference. The Proceedings of the I Conference AGRITECH were published in IOP Conference Series in August 2019 [5] and the Proceedings of the II Conference AGRITECH were published in IOP Conference Series in January 2020 [9].

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References
[1] Testoedov N A, et al. 2018 IOP Conf. Ser.: Mater. Sci. Eng. 450 022004
[2] Testoedov N A, et al. 2018 IOP Conf. Ser.: Mater. Sci. Eng. 450 022002
[3] Testoedov N A, et al. 2018 IOP Conf. Ser.: Mater. Sci. Eng. 450 022008
[4] 2018 IOP Conf. Ser.: Mater. Sci. Eng. 450 011001
[5] Kovalev I V, et al. 2019 IOP Conf. Ser.: Earth and Environ. Sci. 315 011001
[6] Kovalev I V, et al. 2019 IOP Conf. Ser.: Mater. Sci. Eng. 537 011001
[7] Kovalev I V, et al. 2019 J. Phys.: Conf. Ser. 1399 011001
[8] Kovalev I V and Voroshilova A A 2020 IOP Conf. Ser.: Mater. Sci. Eng. 734 011001
[9] Kovalev I V, Pyzhikova N V and Voroshilova A A 2020 IOP Conf. Ser.: Earth and Environ. Sci. 421 011001
[10] Antokhina Yu A, et al. 2020 J. Phys.: Conf. Ser. 1515 011001
[11] Kovalev I V and Voroshilova A A 2020 IOP Conf. Ser.: Mater. Sci. Eng. 862 011001