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**PEDAGOGICAL, SCIENTIFIC, EDUCATIONAL AND METHODICAL
WORK IN THE FIELD OF «ENVIRONMENTAL ENGINEERING» IN THE
YSAA (ARCTIC SAU)**

**ПЕДАГОГИЧЕСКАЯ, НАУЧНАЯ, УЧЕБНО-МЕТОДИЧЕСКАЯ РАБОТА
В ОБЛАСТИ «ПРИРОДООБУСТРОЙСТВА» ЯГСХА (АГАТУ)**



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Abstract. The purpose of the work is the analysis of scientific, educational, educational and methodological works in the field of environmental management, forestry, land reclamation, pedagogy in the Yakut SAA (Arctic SAU). The analysis of scientific papers showed the prospects for the development of scientific areas in the field of environmental management, forestry, land reclamation in the Republic of Sakha (Yakutia). In the scientific and educational works of the Candidate of Agricultural Sciences, Associate Professor of the Agrotechnological Faculty M.F. Grigorev - scientific and technical solutions in the field of agricultural technologies are substantiated. The papers propose to implement scientific projects taking into account the environmental impact assessment. The papers provide a rationale for the introduction of GIS technologies to assess the forest fund of the region. Proposed scientific and technical development for forestry and timber harvesting production in the region. A project of a forest nursery is proposed on the basis of adapted scientific and technical developments. Also, an assessment of the work of meliorative systems was carried out, on the basis of this; practical recommendations were given for their improvement and modernization. The efficiency of processing animal waste has been proven. Based on this technology for the production of vermicompost. Thus, the presented analysis showed that there is a good basis for continuing scientific research in the field of environmental management.

Аннотация. Цель работы анализ научной, учебной, учебно-методических работ в области природообустройства, лесного хозяйства, мелиорации, педагогики в ЯГСХА (АГАТУ). Анализ научных работ показал перспективность развития научных направлений в области природообустройства, лесного хозяйства, мелиорации в Республике Саха (Якутия). В научных и учебных трудах – обоснованы научные и технические решения в области агротехнологий. В работах предлагается внедрять научные проекты с учетом оценки воздействия на окружающую среду. В работах дается обоснование внедрения ГИС-технологий

для оценки лесного фонда РС (Я). Предложены научные и технические разработки для лесного хозяйства и лесозаготовительного производства РС (Я). Предложен проект лесного питомника на основе адаптированных научных и технических разработок. Также проведена оценка работы мелиоративных систем; на основании этого даны практические рекомендации по их улучшению и модернизации. Была доказана эффективность переработки отходов животноводства. На основании этого технология производства биогумуса. Анализ показал, что исследования выполнены на актуальную тему и обладают новизной и практической значимостью. Таким образом, представленный анализ показал, что имеется хорошая база для продолжения научных исследований в области природообустройства.

Keywords: environmental engineering, Forestry business, forestry, educational work, science

Ключевые слова: природообустройство, лесное дело, лесное хозяйство, учебная работа, наука

Now "Environmental engineering" is a popular and actual scientific and technical direction. At FSBEI HE Yakut State Agricultural Academy (now FSBEI HE Arctic SAA), Republic of Sakha (Yakutia), directions Environmental engineering and water use, Forestry - began its professional development at the Department of "Environmental engineering" of the Faculty of Engineering. The department implemented the training of bachelors in the areas of 35.03.01 "Forestry business", 35.03.02 "Technology of timber harvesting and wood processing industries", 20.03.02 "Environmental engineering and water use", 21.03.02 "Land management and cadasters", as well as earlier by specialty "Forestry". Recently the department was reorganized into the faculty "Faculty of forest complex and land management", and the direction 20.03.02 "Environmental engineering and water use" stayed in the Faculty of Engineering.

During the time the department "Environmental engineering" successfully passed the state accreditation of specialist and bachelor's programs. Today a good

educational and scientific technical base has been created for these educational programs. Scientific direction "Environmental engineering" - received a new development at the University. Initiative scientific research is being carried out on the possibility of increasing soil productivity, analysis and proposals for improving hydraulic structures, reclamation systems.

In this paper we will analyze some of the achievements – in particular works of **Mikhail Fedoseevich Grigorev**, Candidate of Agricultural Sciences - scientific work in the field of agriculture, Environmental engineering, forestry, as well as educational publications.

M.F. Grigorev during his work at the department taught the following disciplines: "Organization and technology of work on Environmental engineering and water use" (bachelor), "Landscape science" (bachelor), "Information technology in Forestry" (bachelor), "Fundamentals of scientific research in Forestry" (bachelor), "History of Forestry" (bachelor), "Basics of monitoring forest lands" (bachelor), "Silviculture" (bachelor, specialist), "Melioration of Forest landscapes" (bachelor), "Machinery and equipment in Forestry" (bachelor), "Forest tree nurseries" (bachelor), "Geoinformation technologies in Forestry" (bachelor), "Introduction to the profession" (bachelor), and etc.

It should be noted that M.F. Grigorev is a Member of the Scientific school of "Innovative developments in the field of timber harvesting industry and forestry" of Doctor of Technical Sciences, Professor Grigoriev Igor Vladislavovich.

M.F. Grigorev – author and co-author of scientific articles, monographs and university textbooks by directions Forestry, technology of work on Environmental engineering and water use, agriculture and crop production, pedagogy, etc.

In a scientific work [1] the project of creating an agrotraining ground on the territory of the YSAA was rationale. Regulatory documents and standards by which the landscape will be assessed are given.

In a scientific article [2] the results of studies on the study of the formational characteristics of forest boundaries in the territory of Central Yakutia are presented. A research methodology for determining the boundaries of forests is presented. It

should be noted that annual fires to a greater extent affect the formation characteristics of forests, the dynamics of reforestation. Therefore, research is being carried out to automate the process of delineating the boundaries of the forest in GIS programs. It should be noted that this function is not available in standard GIS programs, which will complicate the work. But this function is present in almost all programs (graphic editors). Also in this case it is a good opportunity for educational, scientific and industrial students practice.

In another article [3] – Actual information on forest identification is presented: the boundaries of natural landscapes, areas, formational characteristics, types of forests, damage to forests, burnt areas, etc.). The methodology of scientific research has been updated in terms of field research, as well as the approach to working with natural forest boundaries. The obtained scientific information significantly complements the scientific base of research on the study of forests of the Republic of Sakha (Yakutia).

In a scientific article [4] presented rationale technologies and equipment for forestry, logging complex the Republic of Sakha (Yakutia). These proposals are made taking into account regional climatic and technical conditions the Republic of Sakha (Yakutia). Wood harvesting in the region should be mechanized, taking into account soil and climatic conditions. Data on the effect of timber harvesting on soil degradation in permafrost conditions have been obtained. Based on these scientific and technical proposals, comprehensive scientific research is currently being carried out.

In scientific work [5] presented perspective plan for organizing a of forest nursery. The plan contains all the basic technical and additional elements of forest nursery. In the presented plan it is proposed to use scientific technical developments adapted to the natural and climatic conditions of the Republic of Sakha (Yakutia). Other proposals in the presented project are promising developments in the field of mechanization and automation of technological processes.

In another scientific work [6] – presented a plan and the main thesis on the issue of silvicultural and ecological assessment of timber harvesting in the larch

forests of Central Yakutia. The use of GIS technologies for assessing forest change, including forest boundaries, assessing landscape damage, resource potential, etc., is proposed. Results on a scientific and practical topic form the basis for continuing research in this direct.

A scientific article [7] provides information on hydraulic structures, as well as irrigation systems of the Republic of Sakha (Yakutia). Analysis of the data is necessary to repair and modernize hydraulic structures in the region. Information on the effectiveness of this irrigation systems is also presented. Practical recommendations are given to improve the operation of hydraulic structures in the Republic of Sakha (Yakutia). Research on this topic is currently ongoing.

Another scientific work [8] presents data on land reclamation activities carried out in Churapchinsky ulus of the Republic of Sakha (Yakutia). In this case, based on the analysis of materials, it is proposed to improve the work of reclamation systems, as well as agrotechnological methods for improving soils in Churapchinsky ulus. On the basis of these data, practical recommendations have been formulated for improving irrigation and drainage systems in the district.

In a scientific article [9] information is provided on the possibility of recycling agricultural waste, as well as the production of vermicompost from them using vermitechnologies in the conditions of the Republic of Sakha (Yakutia). It is known that most of the animal waste is the manure of farm animals (cattle, horses, pigs, laying hens, etc.). In this case, it is a serious negative impact on the environment; on the other hand it is a good material for the production of vermicompost. The relevance of these studies lies in the fact that in conditions of weak accumulation of organic matter in the soils of Yakutia, this is an opportunity to improve the efficiency of vegetable growing. Studies have shown that the vermicompost produced from the manure of farm animals (cattle, horses, pigs) and litter (laying hens) had good qualities in the content of organic matter and minerals. Studies were carried out to determine the effect of vermicomposts on the efficiency of growing vegetables in the conditions of the Republic of Sakha (Yakutia). Scientific research data have shown

that the use of biohumus contributes to a better harvest of vegetables in the conditions of Yakutia.

In another scientific work [10] – contains information on the effectiveness of the estuary irrigation system in conditions of permafrost Yakutia. Data analysis showed the dynamics of land productivity depending on the estuary irrigation system. Proposed measures to modernize the estuary irrigation system in conditions of permafrost Yakutia.

In a scientific article [11] all the problems of melioration in Yakutia are listed in the expanded version. This analysis of scientific information is accompanied by practical recommendations for melioration land. Research in this area of scientific work continues in the direction of management of technical systems and resources.

In another scientific article [12] – the influence of various norms of vermicomposts on the productivity of cucumber in the conditions of protected ground in Central Yakutia is being studied. Based on the results of the experiment, it was found that when vermicompost is introduced, the chemical composition of soil mixtures improves. The result was a greater harvest.

We also want to note the scientific, social and educational work of M.F. Grigorev, who were highly appreciated and received awards:

2017 - Certificate of honor of the Yakut State Agricultural Academy - for conscientious work and contribution to the development of the Yakut SAA, as well as with the celebration of the national holiday "Ysyakh-2017", Yakutsk city.

2017 - Laureate diploma of the 1st degree - III International contest of scientific and educational concepts and developments "Pedagogical achievements-2017", nomination "Program of discipline, educational and methodological complex", Scientific and Innovation Center, Krasnoyarsk city.

2017 - Certificate of honor of the Scientific and Innovation Center (Krasnoyarsk city) - for contribution to the development of scientific research; significant success in the organization of scientific, educational and methodological activities, and also with the holiday "Knowledge Day" and the professional holiday "Teacher's Day".

2013 - Winner of the Grant of the President of the Republic of Sakha (Yakutia) for young scientists and specialists in the scientific direction "Agricultural Sciences", Yakutsk city.

Thus, on the example of a promising employee M.F. Grigorev, we show scientific and educational achievements in the field of technology of work on Environmental engineering and water use, Forestry, Melioration land - as an effective activity of the department "Environmental engineering".

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