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**PROSPECTS FOR RESEARCH IN THE FIELD OF ENVIRONMENTAL
MANAGEMENT AND MELIORATION**

**ПЕРСПЕКТИВЫ ИССЛЕДОВАНИЯ В ОБЛАСТИ
ПРИРОДООБУСТРОЙСТВА И МЕЛИОРАЦИИ**



Степанова Светлана Иннокентьевна, кандидат химических наук, доцент, доцент химического отделения, ФГАОУ ВО «Северо-Восточный федеральный университет имени М.К. Аммосова» (677013, Российская Федерация, Республика Саха (Якутия), г. Якутск, ул. Кулаковского, д. 48), тел. +7 (4112) 49-68-58, arcsau@bk.ru

Степанова Дария Ивановна, кандидат сельскохозяйственных наук, доцент, доцент кафедры «Энергообеспечения в АПК», ФГБОУ ВО «Арктический государственный агротехнологический университет» (677007, Российская Федерация, Республика Саха (Якутия), г. Якутск, ул. Сергеляхское ш. 3 км, д. 3), тел. +7 (411) 47-33-26, arcsau@bk.ru

Stepanova Svetlana Innokentievna, Candidate of Chemical Sciences, Associate Professor, Associate Professor of the Department of Chemistry, FSAEI HE "North-Eastern Federal University named after M.K. Ammosova" (677013, Russian Federation, Republic of Sakha (Yakutia), Yakutsk, st. Kulakovskogo, h. 48), +7 (4112) 49-68-58, arcsau@bk.ru

Stepanova Daria Ivanovna, Candidate of Agricultural Sciences, Associate Professor, Associate Professor of the Department "Energy supply in the agro-industrial complex", FSBEI HE "Arctic State Agrotechnological University"

Abstract. The purpose of this work is to review scientific, educational and methodological achievements in the field of environmental management, forestry and nature protection. In this case, we note the effectiveness of cooperation in the field of environmental management. It should be noted that environmental management is a promising scientific direction. In scientific works and educational publications A.I. Grigoreva the scientific substantiation of the use of agricultural technologies for the Republic of Sakha (Yakutia) is presented. The papers substantiate the need to use GIS for the inventory of the forest fund, as well as for planning timber harvesting production. The use of remote sensing methods in forestry can also be used as a tool for assessing the state of natural landscapes. The need to study reforestation as one of the criteria for the application of technologies for forestry and timber harvesting production was also presented. The need for forest fire analysis and technology development was also noted. Another paper presents an analysis of land reclamation measures in the Republic of Sakha (Yakutia). Based on this, practical recommendations for the improvement and modernization of technical systems are presented. Thus, the relevance and prospects of scientific research are noted. Scientific research has novelty and practical significance.

Аннотация. Цель данной работы - обзор научной, учебно-методических достижений в области природообустройства, лесного хозяйства и охраны природы. В данном случае мы отмечаем результативность сотрудничества в области природообустройства. Нужно отметить, что природообустройство является перспективным научным направлением. В научных трудах и учебных публикациях представлено научное обоснование использования агротехнологий для РС (Я). В работах обоснована необходимость использования ГИС для инвентаризации лесного фонда, а также для планирования лесозаготовительного производства. Использование методов ДЗЗ в лесном хозяйстве также может использоваться в качестве инструмента для оценки состояния природных ландшафтов. Также была представлена необходимость изучения лесовосстановления, как одного из критериев для применения технологий для

лесного хозяйства и лесозаготовительного производства. Была отмечена необходимость анализа по лесным пожарам и разработки технологий. В другой работе представлен анализ мелиоративных мероприятий в РС (Я). На основе этого представлены практические рекомендации по улучшению и модернизации технических систем. Таким образом, в научных работах и учебных публикациях отмечается актуальность и перспективность научных исследований. Научные исследования обладают новизной и практической значимостью.

Keywords: environmental management, forestry, scientific work, educational work.

Ключевые слова: природообустройство, лесное хозяйство, научная работа, учебная работе.

The scientific direction of environmental management is developing in various fields of science and technology. Now this scientific knowledge is the most relevant and has the prospect for further development of technologies. Promising areas in the development of science and technology include forestry, technology of timber harvesting and wood processing industries, environmental engineering, water use, nature management and etc. Today we are actively working on joint initiative scientific topics in the field of nature management. There are some technical results and scientific achievements in this direction of work. In this direction, there is a creative collaboration with employees Federal State Autonomous Educational Institution of Higher Education North-Eastern Federal University named after M.K. Ammosova - NEFU named after M.K. Ammosova (ex. Yakut State University named after M.K. Ammosova), Republic of Sakha (Yakutia), Yakutsk.

In this work we will analyze the educational, scientific and technical achievements of MSc **Aleksandra Ivanovna Grigoreva**, Senior Lecturer, Department of Higher Mathematics, NEFU named after M.K. Ammosova.

Senior Lecturer **A.I. Grigoreva** - author, co-author of scientific articles, monographs, university textbook, educational program, workbooks, teaching aids, patents and database registration certificates.

Scientific article [1] presents the results of scientific research on updating forest data using specialized software and remote sensing data. The updated methodology in the program of work contributed to a better identification of forest landscapes by distinctive features. Objects were identified, such as burnt areas, wood harvesting sites, insect damage, etc. The boundaries of forest landscapes were identified and refined by age and composition of the forest stand. The studies presented an assessment by forest types, reforestation assessments, etc. It should be noted that research on this topic is currently ongoing.

Another scientific article [2] – information is given on the assessment of forest damage using remote sensing data and GIS programs. Taking into account the data of field studies, information on the state of forest landscapes was corrected. In this case, digital information can be edited, deleted, updated with new data. It also indicated the need to compile databases for storing, sorting, processing data from field studies on the inventory of forest landscapes. Scientific research on improving the identification of forests has been carried out on a topical topic, is novel and of practical importance for forestry.

In scientific work [3] information is analyzed on the impact of logging equipment on reforestation. It should be noted that these scientific data will be useful from a practical point of view for wood harvesting production. Data analysis showed that the impact of various techniques significantly affects reforestation processes. The paper emphasizes the need for a more detailed study of the impact of various technologies on the preservation of undergrowth, damage to undergrowth, the state of forest soils, as well as on reforestation processes. At present, on this scientific topic - together with the above initiative topic, comprehensive scientific research is being carried out.

Another scientific work [4] provides an analysis of forest fires in the Kobyaisky ulus of the Republic of Sakha (Yakutia). In general, annual fires in Yakutia are the most common anthropogenic negative impact on nature and society. In this regard, the need for technical work to prevent the occurrence of forest fires in the region is increasing. Also in this direction, the actual topic is the development of

effective technologies to combat forest fires. Statistical data are given by years, the largest number of fires and areas covered by fire are noted. This data can be useful for forest development projects, as well as for reforestation

The scientific work [5] considered the basic issue of reforestation. It is known that the study of reforestation - actual scientific and practical topic for forestry and timber industry of the Republic of Sakha (Yakutia). These scientific and technical proposals will be useful in planning work on forestry and logging in the Republic of Sakha (Yakutia). It should be noted that research on this scientific topic is ongoing.

In scientific work [6] it is considered a project to create a forest nursery on the territory of the Republic of Sakha (Yakutia). The need to create a forest nursery was substantiated from a practical and scientific point of view by many scientists from ASAU, as well as specialists from the forest sector of the Republic of Sakha (Yakutia). It was noted that the promising project is based on the basic technology with adapted technical solutions. The proposed technical solutions in the project of creating a forest nursery on the territory of the Republic of Sakha (Yakutia) have sufficient scientific and practical rationale.

The monograph [7] presents comprehensive research in the field of land reclamation of the Republic of Sakha (Yakutia). The book contained a justification for the use of reclamation measures to improve land. The efficiency of the estuary irrigation system is considered. Information is presented on the dynamics of hayfield productivity depending on reclamation and agrotechnological work. Substantiated technical measures are proposed to improve and upgrade irrigation systems. As a rationale for the use of land reclamation measures, information on natural, climatic and soil conditions is presented. Measures for the disposal of livestock waste were also proposed. This technological solution is complex - since in this case it is proposed to use waste as starting materials for vermitechnologies. As a result, we get vermicompost (organic biofertilizer) – which contributes to higher yields of vegetable crops. These biofertilizers are characterized by the fact that they contain a sufficient amount of organic matter, as well as compounds of mineral substances in an

assimilable form. It should be noted that research in the field of microbiological activity continues in this direction (microorganisms and their numbers).

The scientific article [8] presents the results of scientific research on the effect of different amounts of biofertilizers on the cultivation of tomatoes in the conditions of the Republic of Sakha (Yakutia). The experimental results obtained showed that different amounts of biofertilizers do not equally affect plant growth, including leaf area.

In another scientific article [9] – information is presented on the study of the influence of various norms of biohumus on the quality of vegetable products in the Republic of Sakha (Yakutia). The data show that the amount of biofertilizer applied affects the qualitative composition of the resulting vegetable products.

The work [10] presents data on the effect of different amounts of biofertilizers on the on the leaf area of tomato in the conditions of Central Yakutia. These data are useful primarily for determining the effect of different amounts of vermicompost on plant growth. Therefore, research in this direction continues.

It should be noted that the research was conducted on topical issues of modern production. The obtained data of scientific research have scientific and practical significance for forestry, environmental management and technology development.

And also it should be noted that in addition to the effectiveness of cooperation with the Senior Lecturer A.I. Grigoreva, her contribution to scientific, educational, methodological and social work is highly appreciated and received Awards:

2020 - Letter of thanks from the International Scientific and Practical Conference "Science and education: experience, problems, development prospects" Section 2.6 Innovations in veterinary medicine and biotechnology, Krasnoyarsk State Agrarian University, Krasnoyarsk city

2022 - Letter of thanks from the Faculty of Agrotechnology, Arctic State Agrotechnological University - for active participation in scientific activities, Yakutsk city

2020 - Diploma for participation in the III All-Russian Scientific and Practical Conference "Problems of technical service in the agro-industrial complex", Samara State Agrarian University, Samara city

2020 - Diploma of the best graduate in the nomination "Scientific activity", Arctic State Agrotechnological University, Yakutsk city

2019 - Letter of thanks from the Organizing committee of the Scientific and Practical Conference Complex issues of agricultural science for the agro-industrial complex of the Republic, Yakut State Agricultural Academy, Yakutsk city

2019 - Diploma for participation in the V All-Russian Scientific and Practical Conference "Improving the efficiency of the forestry complex" Institute of Forest, Mining and Building Sciences, Petrozavodsk State University, Petrozavodsk city

2018 - Letter of thanks from the Organizing committee of the Scientific and Practical Conference Regional issues of development of agriculture in Yakutia, Yakut State Agricultural Academy, Yakutsk city.

2018 - Diploma of the participant of the Regional Scientific and Practical Conference Agricultural Science: Problems and Prospects, Yakut State Agricultural Academy, Yakutsk city.

Thus, on the example of cooperation with a promising researcher A.I. Grigoreva, was showed the effectiveness of creative scientific work.

Список источников

1. Ушницкий А.А. Актуализация границ лесных выделов по материалам дистанционного зондирования земли / А.А. Ушницкий, А.И. Григорьева, М.Ф. Григорьев, Д.И. Степанова, Т.Н. Федорова // Перспективы науки. - 2017. - № 3 (90). - С. 56-59.

2. Григорьев М.Ф. Оценка повреждений лесов по данным дистанционного зондирования земли / М.Ф. Григорьев, А.И. Григорьева, Д.И. Степанова // Научное обеспечение устойчивого функционирования и развития АПК Якутии: сборник научных трудов; Якутская государственная сельскохозяйственная академия, Агротехнологический факультет. - Якутск: Алаас, 2019. - С. 94-100.

3. Ушницкий А.А. Воздействие лесозаготовительной техники на лесовосстановление / А.А. Ушницкий, М.Ф. Григорьев, А.И. Григорьева // Роль науки и образования в развитии сельского хозяйства Якутии: сборник научных трудов. - Якутск, 2017. - С. 154-157.
4. Григорьев М.Ф. Анализ горимости лесов Кобяйского улуса Республики Саха (Якутия) / М.Ф. Григорьев, А.И. Григорьева // Повышение эффективности лесного комплекса [электронный ресурс]: материалы Пятой Всероссийской национальной научно-практической конференции с международным участием; Петрозаводский государственный университет. - С. 28-29.
5. Григорьев М.Ф. К вопросу лесовосстановления / М.Ф. Григорьев, Д.И. Степанова, А.И. Григорьева // Ресурсосберегающие технологии и технические средства для производства продукции растениеводства и животноводства: сборник статей V международной научно-практической конференции. - Пенза: РИО ПГАУ, 2020. - С. 42-43.
6. Степанова Д.И. К вопросу создания питомника на территории Якутии / Д.И. Степанова, М.Ф. Григорьев, А.И. Григорьева // Аграрные ландшафты, их устойчивость и особенности развития: сборник научных трудов по материалам международной научной экологической конференции. - Краснодар: КубГАУ, 2020 - С. 430-432.
7. Григорьев М.Ф. Теоретическое обоснование мелиоративных мероприятий в земледелии Якутии: монография / М.Ф. Григорьев, Д.И. Степанова, А.И. Григорьева. - LAP Lambert Academic Publishing, 2019. - 89 с.
8. Степанова Д.И. Эффективность вермикомпостов при выращивании томата в условиях Якутии / Д.И. Степанова, А.И. Григорьева, М.Ф. Григорьев // Аграрная наука в инновационном развитии сельского хозяйства Якутии: сборник научных статей. Выпуск 2; Арктический государственный агротехнологический университет. - Якутск, 2021. - С. 42-45.
9. Степанова Д.И. Влияние вермикомпостов на качество томата / Д.И. Степанова, А.И. Григорьева, М.Ф. Григорьев, М.М. Докторов // Научное и методическое обеспечение развития сельского хозяйства в Республике Саха

(Якутия): сборник статей научно-практической конференции, посвященной 100-летию образования Якутской АССР, (Арктический государственный агротехнологический университет, 9 февраля 2022 г.). - Якутск, 2022. - С. 145-147.

10. Степанова Д.И. Влияние вермикомпостов на листовую площадь томата / Д.И. Степанова, А.И. Григорьева, М.Ф. Григорьев, М.М. Докторов // Научное и методическое обеспечение развития сельского хозяйства в Республике Саха (Якутия): сборник статей научно-практической конференции, посвященной 100-летию образования Якутской АССР, (Арктический государственный агротехнологический университет, 9 февраля 2022 г.). - Якутск, 2022. - С. 168-171.

References

1. Usnitsky A.A., Grigoreva A.I., Grigorev M.F., Stepanova D.I., Fedorova T.N. (2017) Actualization of borders of forest stands using remote sensing data. Science Prospects, no. 3 (90), pp. 56-59.
2. Grigorev M.F., Grigoreva A.I., Stepanova D.I. (2019) Forest damage assessment based on remote sensing data. Materials of the collection of scientific papers "Nauchnoye obespecheniye ustoychivogo funktsionirovaniya i razvitiya APK Yakutii" [Scientific support for the sustainable functioning and development of the agro-industrial complex of Yakutia], Yakut State Agricultural Academy, Yakutsk (Russia), pp. 94-100.
3. Usnitsky A.A., Grigorev M.F., Grigoreva A.I. (2017) Impact of logging equipment on reforestation. Materials of the collection of scientific papers "Rol' nauki i obrazovaniya v razvitii sel'skogo khozyaystva Yakutii" [The Role of Science and Education in the Development of Agriculture in Yakutia], Yakut State Agricultural Academy, Yakutsk (Russia), pp. 154-157.
4. Grigorev M.F., Grigoreva A.I. (2019) Analysis of the burning of forests in the Kobyaisky ulus of the Republic of Sakha (Yakutia). Proceedings of V All-Russian Scientific and Practical Conference "Povysheniye effektivnosti lesnogo kompleksa"

[Improving the efficiency of the forest complex], Petrozavodsk State University, Petrozavodsk (Russia), May 22, 2019, pp. 28-29.

5. Grigorev M.F., Stepanova D.I., Grigoreva A.I. (2020) On the issue of reforestation. Proceedings of V International Scientific and Practical Conference "Resursosberegayushchiye tekhnologii i tekhnicheskiye sredstva dlya proizvodstva produktsii rasteniyevodstva i zhivotnovodstva" [Resource-saving technologies and technical tools for the production of crop and livestock products], Penza State Agrarian University, Penza (Russia), February 21-22, 2020, pp. 42-43.

6. Stepanova D.I., Grigorev M.F., Grigoreva A.I. (2020) To the question of creating a kennel in the Yakutian territory. Proceedings of International Scientific and Ecological Conference "Agrarnyye landshafty, ikh ustoychivost' i osobennosti razvitiya" [Agrarian landscapes, their stability and features of development], Kuban State Agrarian University, Krasnodar (Russia), March 24-26, 2020, pp. 430-432.

7. Grigorev M.F., Stepanova D.I., Grigoreva A.I. (2019) Theoretical justification of land melioration measures in the agriculture of Yakutia: monograph (LAP Lambert Academic Publishing). 89 p.

8. Stepanova D.I., Grigoreva A.I., Grigorev M.F. (2021) Efficiency of vermicomposts when growing tomato in Yakutia. Materials of the collection of scientific papers "Agrarnaya nauka v innovatsionnom razvitii sel'skogo khozyaystva Yakutii" [Agrarian science in the innovative development of agriculture in Yakutia], Arctic State Agrotechnological University, Yakutsk (Russia), vol. 2, pp. 42-45.

9. Stepanova D.I., Grigoreva A.I., Grigorev M.F., Doktorov M.M. (2022) Influence of vermicomposts on the quality of tomato. Proceedings of Scientific and Practical Conference "Nauchnoye i metodicheskoye obespecheniye razvitiya sel'skogo khozyaystva v Respublike Sakha (Yakutiya)" [Scientific and methodological support for the development of agriculture in the Republic of Sakha (Yakutia)], Arctic State Agrotechnological University, Yakutsk (Russia), February 9, 2022, pp. 145-147.

10. Stepanova D.I., Grigoreva A.I., Grigorev M.F., Doktorov M.M. (2022) Influence of vermicomposts on the leaf area of tomato. Proceedings of Scientific and Practical Conference "Nauchnoye i metodicheskoye obespecheniye razvitiya sel'skogo

Московский экономический журнал. № 9. 2022

Moscow economic journal. № 9. 2022

khozyaystva v Respublike Sakha (Yakutiya)" [Scientific and methodological support for the development of agriculture in the Republic of Sakha (Yakutia)], Arctic State Agrotechnological University, Yakutsk (Russia), February 9, 2022, pp. 168-171.

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