Formation of modern ecological culture among students of agricultural universities

Boris Voronin, Irina Chupina*, Yana Voronina, Lyudmila Zhuravleva and Elena Zarubina

Ural State Agrarian University, 620219, Karl Liebknecht Str., 42, Yekaterinburg, Russia

*E-mail: irinacupina716@gmail.com

Abstract. Modern society differs in production technology from the society of the 20th century. A huge amount of nature's resources are now being used for human needs. But the use of the resource potential puts a high pressure on nature. Therefore, the question of the development of ecological culture in society is now becoming especially important. A sign of ecological culture is the understanding that the preservation of nature is a prerequisite for the preservation of man. Environmental culture is currently being discussed more actively, since global disasters that threaten humanity are becoming more and more threatening every year. Therefore, the threat of an ecological crisis put a person before a choice - either to stop the impending catastrophe, or to deepen it further and put the world in front of the fact of extinction. That is why it is important to form an ecological culture and, first of all, ecological awareness. The priority areas in each country are now considered to be the formation of an ecological culture not only among adults, but also at the initial stage of school education.

1. Introduction
The ecological worldview is formed from childhood and throughout the entire conscious life of a person. A special role in environmental education, the formation of environmental ethics and environmental culture is assigned to students studying in educational institutions.

Considering that agriculture is closely related to the natural environment, and the preservation of natural resources in their original form depends on future agricultural specialists, it is important to form students' ecological worldview during their studies at an agricultural university.

The topic of the scientific article under consideration is relevant, since a large number of citizens still have not formed an ecological worldview in society, and this is a serious gap in environmental education and enlightenment of students in educational institutions, as well as in the training system of personnel of agricultural organizations.

The problems of the formation of an ecological worldview are considered in textbooks and teaching aids, in monographs and collections of scientific articles, in journal publications in Russia and abroad. This topic is especially actively considered in publications of the humanities and social sciences (sociology, cultural studies, psychology, history, pedagogy, philosophy, etc.).

Nevertheless, there is an expediency in the development of the topic of the formation of an ecological worldview in the modern conditions of the development of the economy and society, subject to transformational changes.
The scientific novelty of the topic of this article is due to the study of the educational system of students of an agricultural university on the ethics of environmental management, ecological culture and the formation of an ecological worldview, which together will contribute to the creation of an ecological legal order in society.

The practice of agricultural activity shows that agriculture, if the personnel of agricultural organizations do not comply with environmental standards and rules, can negatively affect the quality of the environment.

Special responsibility for the greening of agricultural production lies with the head and specialists of the organization, who, as a rule, have higher and secondary specialized agricultural education and studied the basics of environmental knowledge in educational institutions.

2. Materials and Methods
The article uses statistical data of the federal and regional levels. To summarize the research results, the methods of analysis and synthesis and the forecasting method were used. The method of environmental - legal analysis is used in the proposals of the authors to improve the educational base for students of an agricultural university on the effective functioning and development of modern agriculture on the issues of greening production.

3. Results and Discussion
The concept of "ecological culture" appeared in the middle of the twentieth century. However, until now, this concept does not have a clear and unambiguous definition. It is believed that ecological culture is a part of a common human culture that encompasses social and individual moral and ethical norms and values concerning the relationship between man and nature.

But, since the Russian Federation has not yet adopted the "Environmental Code" (it is in a state of preparation), it is premature to talk about the generally accepted understanding of the term "environmental culture" [1]. It should be noted that back in 2009, the State Duma of the Russian Federation rejected the draft Federal Law "On Environmental Culture". Thus, the Russian society still lacks the necessary legislative basis for the formation and development of modern environmental culture.

Despite this, it is currently generally accepted ideas about such foundations of the formation of environmental culture, such as environmental education, environmental education and environmental management. In addition, the main principles of ecological culture are generally accepted: the cult of the biosphere as opposed to the cult of the technosphere and the protection of man (security of existence). Among others, it is necessary to note the principle of sustainable development, safe existence; reproduction, as well as purely economic principles of critical loads and environmental insurance, etc. [2].

In connection with the significant macroeconomic and environmental changes that have occurred in recent decades, society is faced with the task of bringing the basic elements of environmental culture in line with the new reality. One of its key features is political and macroeconomic instability, uncertainty, high and steadily growing environmental risks. This, in particular, was discussed at the last International Climate Summit in April 2021.

Therefore, despite the existing significant scientific groundwork in the development of problems of environmental culture in the context of the need to ensure sustainable socio-economic development, it is necessary to adjust modern research in this area, taking into account the growing social, political and economic turbulence.

Note that other countries are currently facing various negative effects of the current global environmental crisis. Starting from climatic changes, destruction of traditional biogeocenoses, and ending with the consequences of man-made disasters and epidemics. The Covid-19 pandemic is just one such problem, along with Ebola, swine and avian flu epidemics.

At the moment, society faces in all its complexity the task of forming a new type of ecological culture, corresponding to the creative type of economy and the increasing role of intellectual capital,
accelerating innovation processes in it. The modern economy is no longer a model of traditional "lean manufacturing", but a business. It is characterized by the transition to the model of "fast-reacting production", which makes it necessary to develop such a system of moral, ethical and technical and technological standards of modern environmental culture, which would have the necessary properties, such as variability, flexibility and would allow you to quickly navigate the "market failures".

However, it should be emphasized that the very understanding of the "green economy" still remains within the framework of the psychology of consumption. It is mainly about a careful attitude, a lean policy, saving resources, i.e. all about the same traditional model of "lean manufacturing", but not about the new model of "responsive manufacturing". Green economy theorists propose to rationally distribute limited resources between sectors of the national economy that provide current consumption, but offer only general recommendations in the area of abandoning the use of natural resources and the use of high and non-waste technologies. Today, there are three main approaches to the development of a green economy: general economic, sectoral and technological. But the problem of “living in harmony with nature” remains unsolved due to the absence of an anthropological approach based on the cultural dimension of the person himself.

In foreign studies, a consumer approach is also traced, when the development of environmental management is associated not with the environmental culture of economic activity in general, but with the growth of the competitiveness of corporations and the extraction of additional profits, or with the growth of corporate capitalized value. A special aspect of research concerns the culture of entrepreneurship, which is considered much less often [3].

The formation and development of ecological culture by and large is currently not provided with the necessary system for effective management of these processes. Despite numerous efforts in the field of regulation, these processes rather resemble an arbitrary, multidirectional and independent movement towards a certain cultural model, which is not a standard or norm of economic behavior. Within the framework of such a process, the issues of greening the economic life of people acquire particular importance, since it is the economy that has a decisive impact on the state of the environment. And also those ecocentric meanings that people endow in the everyday and scientific minds with ecological culture. Since in the economic sphere people play different roles (producer, consumer, intermediary, manager), the specific versions of their ideas about the essence of ecological culture, the hierarchy of its values and the ways of their implementation differ significantly from each other. And here an increase in the level of environmental education does not yet give any guarantees that a certain universal standard will be formed as a result - an example of environmental culture, equally acceptable for various categories of the population.

In this regard, the formation of a single ecological educational space, in which a person could assimilate and master the elements of ecological culture, is of particular importance. And to do this both in the field of education and in the field of personal space (everyday life, family).

Obviously, for residents of large cities, the craving for nature is more pronounced than for rural residents. On the other hand, the environmental friendliness of the production itself at industrial enterprises is significantly lower than in rural households or farms.

In this formulation of the question, the very nature of many environmental problems is outside the scope of scientific research, and environmental management resembles a rapid response system, the wear of which grows as the emerging problems grow. Subjects of economic practice are faced with new environmental problems, not being essentially engaged in environmental monitoring. The situation with exhaustible natural resources (forests, fresh water, hydrocarbons, etc.) is becoming especially acute. But even with inexhaustible resources, the situation is quite complicated. With an expected world population of 9 billion people. by 2050, the growth of greenhouse gas emissions from energy production may reach more than 65%, which is already critical for the state of the atmosphere and its ability to reproduce.

In the next thirty years, humankind also expects a colossal decline in biodiversity. And this carries with it the threat of the spread of hunger, epidemics and ecological balance. In such a situation, it is necessary to rebuild not only the ecological culture, but also the culture of consumption, culture of
work, culture of management, and find new scenarios of economic behavior that are fundamentally different from the traditional ones.

In fact, we are talking about the diversification of ecological behavior while maintaining and subsequently improving the quality of the ecological environment, and at all its levels: the natural environment and the habitat in which the person himself directly lives. This approach corresponds to the very essence of ecological production, in which not only the goods produced have high ecological quality, but the ecological environment is preserved and improved.

The modern ecological culture is an element of the whole structure of ecological production. Its nature and content are influenced by the ecological environment, the state of science and the established practice of environmental management. However, for the formation of a new type of ecological culture, it is necessary to strengthen its regulatory impact. There are certain obstacles on this path (lobbying of corporate interests by large corporations, cartels, low efficiency of law enforcement practice).

The gap between the ecological behavior of people in public and private space also plays a role here. You can, for example, comply with the requirements of environmental culture and environmental legislation in public production and ignore them at home, or vice versa. To harmonize the forms of environmental behavior in public and private space, it is necessary not only to ecological culture as a set of moral and ethical norms of human behavior in relation to the natural environment, but also to a certain ecological psychology. The nature of thinking is such that, in addition to education, upbringing also plays an important role in its development, which is given to a person at home, in the family to a greater extent than in school or university. The problem is aggravated by the current situation in the education system, where in recent years the volume of teaching load in humanitarian subjects, which previously performed just an educational function, has been constantly decreasing. Therefore, there is nothing strange in the fact that the development of ecological culture in modern society is proceeding with great difficulty, and the pace of this process is not adequate to the pace of change in the ecological situation.

In the most general form, the abilities necessary for the formation of an ecological culture are associated with the subjective properties of the thinking of each specific individual, which allow him to make appropriate management decisions.

An important aspect of the formation of a modern ecological culture corresponding to a creative type of economy is the adaptation of people's subjective abilities to specific value systems. One of the most relevant values is traditionally considered freedom (freedom of choice of activity, freedom of behavior, freedom of opinion, etc.). However, the absolutization of freedom as an economic value in recent decades has shown the fallacy of this approach.

The adequacy of the value orientation of people and the moral and ethical norms of their behavior to the real state of ecology is a condition for optimizing economic activity and preserving the very fact of the existence of mankind as a whole. And here it is necessary to optimize not only the content of the values themselves, but also the structure of the ecological culture of a modern person.

The problem of the existence of humanity as a goal serves as an object of economic science, without which it turns into a digital theory. Within the framework of the creative economy, as an economy in which it is creativity that becomes the foundation of its development, such adequacy is extremely necessary.

At the same time, the very concept of ecological culture still does not find its place in the scientifically developed priorities of economic policy in the Russian Federation.

Another direction in the formation of a modern environmental culture of business entities can be the inclusion of special sections on environmental topics in the corporate social reporting of enterprises. In particular, in the field of environmental protection, the formation of environmental standards of the enterprise, the environmental culture of personnel, the state of the environmental education and training system.

As criteria for assessing the level of quality, the following can be used here: the completeness of the reflection of environmental problems in the policy of the enterprise, the practical results of their
solution, the participation of employees in these processes, the opinions of employees about the effectiveness of environmental measures.

The transition to a new technological structure and to a new creative type of economy sets itself the important task of adopting an all-Russian "Environmental Code", which should reflect the problem of purposeful formation and improvement of ecological culture, clearly define its basic principles and measures of social responsibility for their violation, and also directions, methods and ways of ecological protection of a person in the conditions of the modern ecological crisis. The measures taken in recent years to improve the sanitary and epidemiological situation and ensure safe living conditions for people may well serve as initial guidelines in solving this problem. However, in our opinion, a certain tightening of legal norms and sanctions applied to violators of environmental legislation and perpetrators of more frequent man-made disasters is necessary [4].

Of particular importance in solving the problem of forming a new type of ecological culture, adequate to the type of creative economy, may be the introduction of specific ecological and cultural characteristics, principles and norms in the strategy of spatial and regional development of the Russian economy, as well as the transition to a comprehensive assessment of the effectiveness of their content and implementation from the standpoint "Green economy". In addition, cross-program effects due to cross-program interaction should be considered. Thus, it is necessary to develop a new assessment methodology for the implementation of state programs not only in the field of economics, but also in the field of science and education, which will make it possible to more closely link the requirements of environmental production and the norms of environmental culture.

It is necessary to strengthen the ethical principle in environmental culture and turn it into a priority of modern environmental and economic education, as well as the introduction in the country's higher educational institutions of the mandatory study of the subjects "Environmental culture", "Environmental psychology", "Environmental economics", "Environmental management" ... This will make it possible to form “mass ecological consciousness” among the new generation of Russians, on the basis of which it will be possible to more successfully solve many social, economic and environmental problems [5].

For example, at the Ural State Agrarian University, students-agronomists are currently studying the discipline "Agroecology". Zootechnical students study the ecological foundations of animal husbandry. These areas are mainly associated with the study of general and special technological methods of organizing production, taking into account environmental requirements. At the same time, not enough attention is paid to teaching academic disciplines that form ecological culture, ethics of nature management and other humanitarian knowledge, which, in aggregate, can be the basis for the existence of an ecological worldview.

In a synthesized form, the above areas of student training can be combined in the academic discipline "Social Ecology", which is considered as a complex area of socio-economic and humanitarian knowledge, where various levels of mastering humanistic reality are organically combined: historical, theoretical, scientific and empirical. The main goal of social ecology is to optimize human existence and the environment on a systematic basis.

A large place in social ecology belongs to the field of environmental education, upbringing, education.

Scientists consider the most important functions of social ecology: environmental, pragmatic, prognostic, ideological and methodological.

Social ecology is the basis for the formation of legal ecology, the principles of which are involved in the creation of the branch of environmental law.

Environmental law functions as a branch of law in the Russian legal system, a branch of science, a branch of legislation and an academic discipline.

All these functions of environmental law provide high-quality legal regulation of a complex of relations for the rational and saving use of natural resources and legal protection of the environment, which, in aggregate, has a decisive influence on the state of environmental safety of the state and society.
The task of environmental law is to formulate requirements for environmental legal responsibility for offenses and crimes related to non-compliance with environmental legislation [6].

The logical conclusion of activities in the field of greening economic and other social relations, as a rule, comes legal responsibility. This legal mechanism can also influence the ecological worldview. Let us consider what is the role of ecological culture in this area.

Ecological culture is considered by scientists as an organic unity of ecological development of consciousness, emotional and mental states and scientifically grounded volitional unitary-practical activity. Ecological culture is organically linked with the essence of the personality as a whole, with its various aspects and qualities.

Ecological culture is a moral and spiritual sphere of human life, contributing to the preservation and development of the "society-nature" system.

The problem “man-society-nature” is already by its very definition so significant and voluminous that not only its competent solution, but even its initial formulation is impossible without a developed and mature worldview. Without a high level of worldview, it is impossible to come to the emotional perception of the surrounding world, which is so important for ecology. Due to the vital importance of environmental issues, environmental education and upbringing becomes mandatory, which are implemented in the system - preschool, school, secondary specialized and higher education, as well as non-formal environmental education of the adult population.

Environmental education is not part of formal education as it has new meaning and new goals.

In addition to academic disciplines, environmental education must be developed with the help of play activities, which will bring not only an entertaining moment, but also show the creative abilities of students. Games show patterns of behavior in certain situations. Another educational point is the observation method. With its help, any indicators are compared and evaluated.

The discussion method, as one of the teaching methods, helps to find the optimal solution in controversial situations, where students express their opinion about the problems that have arisen. Of particular interest, along with the game moments, are ecological holidays and themed events. For example, "Day of the Forest", "Autumn Festival", where the main goal is not entertainment, but the formation of an active life position and responsibility for the environment.

General approaches to the greening of education, and through teaching the formation of an ecological worldview, is especially important for students of an agricultural university as future specialists in the agricultural sector, which is closely related to the use of natural resources and the preservation of the natural environment.

The greening of agricultural activities at all stages of agro-industrial production is a pillar direction in the development of the agricultural sector of the economy in modern conditions. Today's students of an agricultural university, along with the study of academic disciplines that form their ecological culture, ethics of environmental management, environmental and legal behavior in society, environmental outlook, should take an active part in the Green movement (environmental movement).

Working in agriculture as specialists, graduates of an agricultural university are obliged to comply with environmental requirements that are legally established by the federal law "On Environmental Protection" and other regulatory legal acts of environmental legislation.

Of great importance in the complex of measures for the formation of environmental law and order is given to legal responsibility for environmental offenses.

4. Conclusion

A creative economy is an economy in which a person not only preserves and reproduces nature, the environment, but also in which he considers them as key values and conditions for his own full-fledged existence, his cultural development. Accordingly, it is necessary to form a modern type of ecological consciousness as the basis of ecological culture [8].
In this regard, it is necessary to strengthen measures to ensure the implementation of the "green growth strategy" developed by the OECD countries [9], adapting the strategy itself to the specific conditions of the domestic economy. Moreover, in the context of modern political and macroeconomic instability, international cooperation in the environmental field remains one of the few areas that allows strengthening not only environmental, but also cultural and economic cooperation.

At present, environmental problems are becoming a priority not only in Russia, but throughout the world. Industrial enterprises cannot cope with large flows of pollution. And the agricultural sector is no exception. As new technologies are introduced into agricultural activities, the violation of the ecological balance is increasingly aggravated.

Environmental problems in agriculture include soil erosion, pollution of water bodies, and depletion of flora and fauna. Added to this are the problems of deforestation. Arable land is discarded every year due to erosion, soil and water pollution.

Pesticides do a lot of harm. And if pesticides are used in large quantities, they seep into ground and surface waters. Synthetic fertilizers also have a negative impact on the environment. They can contain a certain amount of heavy metals, which cause great harm to the health of animals and people, if the plants that are then eaten are grown on soil contaminated with heavy metals.

The next threat is the presence of nitrates in the soil. Vegetables and fruits that are grown on nitrate fertilizers pose a fairly significant threat to human health.

Livestock complexes are also environmental pollutants. If manure is considered one of the best fertilizers, then the ingress of liquid manure into water bodies can cause an epidemiological hazard for nearby settlements.

Therefore, students of agricultural universities who, after graduation, will work in agricultural organizations, must know and understand the threats to the environment that may occur. To do this, it is necessary to form the ecological worldview of students already from the first year.

Each person can make a small contribution to improving the environment. The most elementary requirements are maintaining cleanliness of premises and streets, compliance with fire safety requirements and cleanliness in nature. This is where the basics of environmental education begin. Environmental education helps to realize that everyone is responsible for everything that happens on the planet. Therefore, the main goal of environmental education is to foster a responsible attitude towards the environment. Therefore, a system of knowledge about the environment and its problems, as well as ways of solving these problems, should be formed. It is necessary to form the needs of the students of agricultural universities in the correct environmental behavior not only in the workplace, but also in everyday life. It is necessary for students to develop skills for independent study of the environment and its assessment.

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