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**«ЕКОЛОГІЯ – ШЛЯХИ ГАРМОНІЗАЦІЇ ВІДНОСИН ПРИРОДИ
ТА СУСПІЛЬСТВА»
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**СУЧАСНА ЕКОЛОГІЯ: ТЕОРЕТИЧНІ ТА
ПРИКЛАДНІ АСПЕКТИ**

**THE IMPACT OF INTENSIVE LIVESTOCK ON GLOBAL
CLIMATE AND ENVIRONMENTAL CHANGES**

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Intensive livestock farming has a tremendous impact on the climate and the environment. Our appetite for meat is one of the main factors in threatening temperature fluctuations. As a result, there are devastating cataclysms that not only our children and grandchildren will face, but also us, the modern generation.

Unfortunately, people's awareness of the link between diet and climate change is quite low. It's all about censorship and manipulation - spreading the truth about the harm of industrial livestock is extremely disadvantageous for corporations that produce and sell meat, meat products and dairy products. Agribusiness and the food industry cooperate with government agencies, sponsor national public health organizations, and cover up information about the detrimental effects of animal husbandry on human health and the world's environment. Nutrition standards are dictated by the companies whose products are killing us.

In 2015, within the framework of the UN Framework Convention on Climate Change, the Paris Agreement was concluded, the main purpose of which is to keep global average temperatures below +2 ° C. The United States, by the way, refused to ratify the agreement because its terms, according to then-President Donald Trump, would hamper the country's industrial development.

The connection between animal husbandry and climate is completely mutual. On the one hand, the amount of greenhouse gas emissions from livestock exceeds the amount of emissions from all transport in the world. Emissions come from intestinal fermentation, fodder and fodder production, and manure (one industrial farm «produces» about 70,000 tons of manure or manure per year). On the other hand, climate change is affecting livestock

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farming: changing the quality and availability of feed and feed, as well as the incidence and prevalence of animal diseases.

At the end of 2009, environmentalists from the World Bank Group published an article in the «World Watch» entitled «Animal Husbandry and Climate Change», which presents the results of data analysis from the UN. The result has been astonishing: livestock and the industry's products cause annual emissions of more than 32 billion tonnes of greenhouse gases, which account for the majority (about 51%) of all global emissions.

One of the largest sources of greenhouse gases in agriculture is intestinal fermentation, when methane is produced by animals during digestion and released into the atmosphere during chewing. The share of methane reaches 16% of the total greenhouse gases emitted by agriculture. Only one dairy cow releases about 500 liters of methane into the atmosphere every day. In addition, industrial livestock produces other greenhouse gases - nitrogen dioxide and carbon dioxide.

In general, as we can see, agriculture and animal husbandry are the second largest sectors of greenhouse gas emissions.

Today, greenhouse gases continue to retain more and more heat that enters our atmosphere from the sun, threatening the climate balance, which was and remains an inconspicuous but critical condition for human development.

Now let's look in more detail, how exactly, through what mechanisms livestock affects climate change.

Livestock is the largest exploiter of *land resources*, as a result of which the latter are becoming increasingly limited. The authors of the study of the environmental consequences of food production [1] found that 83% of agricultural land is used for grazing animals and fodder crops, they are confidently threatened by soil degradation and biodiversity loss.

Livestock poisons land resources with animal waste, antibiotics, hormones, chemicals, fertilizers, pesticides.

Beef production is the main reason for deforestation. Every second in the world a forest area the size of a football field is cut down. 91% of the forests of the Amazon, our lungs with you, are used for the needs of industrial animal husbandry.

Deforestation, in turn, is the cause of 20% of the *world's carbon emissions*, as well as landslides and landscape erosion.

Most of the water today is not used by people for drinking and household needs, but for livestock.

Agriculture uses about 70% (according to some studies, up to 92%) of the world's freshwater reserves, about 30% of which is livestock. However, the use of fresh water is only one of the central problems. The second most

important problem is waste management and disposal. Sewage effluents from septic tanks are no less destructive to freshwater bodies, seas and oceans.

A quarter of industrial water is used each year to make meat and dairy products. Thus, the agro-industrial complex is the largest consumer of water in the world. Due to the lack of treatment facilities, most of the used water is returned to the natural environment in the form of liquid manure, suspensions and wastewater.

Nitrates, phosphorus and nitrogen cause water blooms and kill fish. Contaminate our water with you and pesticides used for growing feed, and antibiotics, growth hormones, chemicals for tanning skins.

In fact, for the manufacture of various products of animal and plant origin requires a lot of water (table 1).

Table 1. Water consumption rates for the production of various types of agricultural products

№	For produce of the agricultural and food products	Water consumption (liters)
1	1 kg of beef	15500
2	1 kg of pork	4800
3	1 kg of chicken	3900
4	1 kg of cheese	5000
5	1 kg of tomatoes	180
6	1 kg of cucumbers or pumpkins	240
7	1 kg of wheat	1827
8	1 kg of soybeans	2145
9	1 kg of oranges	460
10	Goes to the production of one hamburger	2400

The average resident of the United States and Europe consumes 5,000 liters of water per day when eating meat, while using only 100 to 250 liters of water per day for drinking and hygiene.

The projected increase in production and consumption of animal products will lead to further depletion of freshwater and land resources of the planet.

Let us note at once that climate change is a more correct term, because the term global warming does not give a clear understanding of the possible consequences.

It turns out that if humanity does not start taking fundamental measures to combat climate change by 2035, it will not be able to limit the growth of the global average temperature to a safe two degrees Celsius. Even more, scientists say that the chance to stop warming by 1.5 degrees is almost lost.

In this century, the temperature on the planet will rise by an average of 4 degrees. This has not been the case for the last 4 million years.

If the temperature rises by 2 degrees - coral reefs die. When rising by 3-4 degrees, many regions of the world will become uninhabitable due to abnormal heat. Agriculture is disappearing around the equator, so we will not be able to feed the world's population. This is exactly what can be observed today in Greenland: the ice on the entire surface of the island melts, its white surface darkens and, as a result, does not reflect heat. Greenland stops cooling the air and starts heating it. Reactions will soon begin - the methane stored in the frozen soil will thaw and begin to surface. For its part, the planet will heat up even more and emit even more methane.

Due to the drought, agriculture will suffer, wheat, rice and corn crops will fall catastrophically. People are threatened by large-scale famine, as the world's population will grow and arable land will shrink (by 2050, the world's population could increase to 9 billion people and above). Then - mass forest fires, floods, acute shortage of fresh water. The inhabitants of the island states are threatened by flooding (glaciers are melting - the sea level is rising), migrations will begin everywhere, and therefore there will be problems with refugees and their accommodation. And this will lead to depletion of resources and local wars. If we do not take climate change under control, it will become very painful for humans and other species of the Earth.

All global change begins with personal change. A logical step for all those who want to reduce the harmful effects of animal husbandry on the environment - to reduce the consumption of animal products. The choices we make every day at the table directly affect the climate. Our health and the health of our planet depends on the very simple things we can do. In addition, world meat consumption has already reached unhealthy levels and is on the rise. In industrialized countries, the average person already eats meat twice as much as the established physiological norm. Excessive consumption is already increasing the incidence of obesity and diseases such as cancer and diabetes.

But such a decision must be made consciously. You should not change your diet and lifestyle dramatically - it is better to act gradually, start small. Even a partial rejection of animal products will bring enormous benefits.

In order to comply with the terms of the Paris Agreement, it is necessary to reduce greenhouse gas emissions from 40% by 2050, and by the end of the century it is necessary to bring the level of emissions to zero. The first way to do this is to stop deforestation, the main cause of which is animal husbandry itself. The next step is to mobilize the world's youth, because it is they who have an open, unbiased system of values and great influence on society.

At the state level, the general message to the population remains clear: people need to reduce their consumption of meat, fish and eggs. For your health and the health of our planet.

The state, for its part, must inform the public about a healthy alternative to animal products in the diet. Legislatively oblige agribusiness to reduce greenhouse gas emissions and, consequently, meat production. This is the first step towards fulfilling the terms of the Paris Agreement.

A global shift in the understanding of the consequences of intensive livestock farming is possible if the population is informed: under what conditions goods and food of animal origin are produced, what environmental consequences it leads to, how it affects individual health and what is the risk to life on Earth; in general.

For example, an urgent issue for Ukraine in the context of ecology is the adoption of Law 10019, which prohibits fur production in Ukraine, counteracts the relocation of such business from the EU, strengthens environmental protection, criminal liability for cruelty to fur animals. Otherwise, the ecological catastrophe will become our next state symbol.

The changes that will save life on Earth do not require huge investments, innovative projects or new energy sources.

People who have embarked on the path of ecological use of resources are changing their attitudes towards other inhabitants of the planet and the view itself is not what it means to be human. Any mass change is a threat to established traditions, a threat to someone's profit, a surplus profit - in the case of animal husbandry.

Global warming is a catastrophe on a global scale. Due to the fact that greenhouse gases are invisible, it is quite easy for us not to notice the climate crisis and not to think about it until its devastating consequences begin to unfold before our eyes.

Used sources: I.J. Poore, T. Nemecek. Reducing food's environmental impacts through producers and consumers. / *Science* 360, 987-992 (2018), // 19 <http://science.sciencemag.org/>