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	ISI (Dubai, UAE) = 0.829	РИНЦ (Russia) = 0.126	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 8.997	IBI (India) = 4.260
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TO REDUCE GLOBAL CLIMATE ISLAND FOCUSED LOCAL COOPERATION

Abstract: *The article discusses the problem of global warming. The phenomenon of "greenhouse effect" was analyzed, and one of the main components of this phenomenon was methane gas and its causes. Experiments to eliminate methane gas by collecting manure from cattle, sheep, goats, and chickens in warehouses and processing it with earthworms have been conducted, the results of which are described in this article. The application of the proposed technology will reduce global warming due to the elimination of methane, increase the yield of cotton, wheat and other agricultural products by 15-20%.*

Key words: *global climate, "greenhouse effect", atmosphere, soil, carbon dioxide, methane, manure, waste, California red worm, vermotechnology, natural fertility.*

Language: *English*

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Introduction

It is known that the main cause of global warming is the phenomenon of "greenhouse effect", . That is why, a number of microgases play an important role in changing the heat balance of the earth and lead to a gradual increase in temperature on the earth. Although the gases that play a key role in the occurrence of this phenomenon transmit light rays by themselves, they capture infrared rays. Sunlight passes through the atmosphere and heats the earth's surface, and the earth itself reflects heat and infrared rays. The heat balance of the earth is constant as a result of the constant change in the amount of gases that create the "greenhouse effect" in the atmosphere. If their concentration increases in the air, the surface will heat up as a result of the corresponding change in temperature balance.

Three of the gases that create the "greenhouse effect", namely carbon monoxide, methane and water vapor, play a key role. This is because their concentrations increase rapidly as a result of anthropogenic impacts on the biosphere. The

'shadowing' property of heat rays is high in methane and especially nitrogen hemoxide molecules, but this property is relatively low in the carbon dioxide molecule. Carbon dioxide is released into the atmosphere through the combustion of organic fuels - oil, gas, coal, wood and other fuels, as well as the respiration of organisms. Most of the carbon dioxide is formed during photosynthesis and is directly involved in physiological processes by entering the newly formed organic compounds.

In the troposphere, all weather events, as well as the circulating motion of water and other chemical elements, occur. The greenhouse effect also occurs in the troposphere. The average temperature of atmospheric air is determined by the amount of solar radiation and the amount of radiation returned from the earth's surface. However, the amount of different substances present in the troposphere determines the greenhouse effect. For example, due to the presence of carbon dioxide (SO2), methane, chlorine, carbon dioxide, and ozone (03) in the troposphere, a certain amount of radiation returned from the earth is returned to the earth. Due to the presence of these same substances in the troposphere, the average temperature of the air in the lower atmosphere is now 150C. In the absence of a greenhouse effect, the temperature could be minus 300S, [1]. In the upper layers of the atmosphere, the air heats up to a certain extent due to the radiation returned from the earth, and this temperature returns to the earth. As a result of such complex processes, the reduction of the amount of various chemicals in the atmosphere, which now determine the effectiveness of the greenhouse, has become a major environmental problem. Because the climate is changing due to the greenhouse effect As a result of the above-mentioned adverse events, climate change is occurring, resulting in precipitation and flooding.

In recent years, objective data show that global temperatures are rising and the climate is shifting towards warming.

According to an international group of experts on climate change, officials and scientists in the field, if the situation continues like this, the temperature could rise by 2-4 0C in the next 50 years. This situation is expected to lead to the melting of glaciers and flooding of the land, leading to drastic changes in weather conditions.

The world community, realizing the ecological, economic, social and political consequences of climate change, is conducting research and various measures to prevent it.

The United Nations Framework Convention on Climate Change was signed by 155 states at the 1992 World Conference on Environment and Sustainable Development in Rio de Janeiro. [6] The ultimate goal of this authoritative international agreement is to prevent dangerous anthropogenic interference with atmospheric greenhouse gases. stabilization to the extent that it is preventable. This level needs to be achieved in a time that allows ecosystems to produce enough food to adapt naturally to climate change and not jeopardize further economic development on a sustainable basis. The Kyoto Protocol, signed on December 10, 1997, provides for individual states to reduce greenhouse gas emissions to 1990 levels.

The second major greenhouse gas is methane. It is known that methane gas is a process that occurs as a result of bacterial decomposition of animal and plant biomass, as well as in the processing of organic raw materials [6,7,8].

Materials and methods

Methane is formed as a result of bacterial, ie the vital activity of bacteria, digestive processes in the stomachs of animals (ruminants), as well as the chemical decomposition of biogenic, ie organic matter. These substances include amines, ammonia, carbonyl compounds, carbonic acids, mercaptans, hydrogen sulfides, and phenols, which are formed in the stomachs and intestines of animals as a result of the destruction of undigested nutrients and the enzymatic breakdown of amino acids. Their specific discharges are given in the table below, Table 1.

Table 1. Substances released into the atmosphere

Name of pollutants	Large horned animals (1tsn weight) mkg / day	Small horned animals (per 1 kg of body weight) mcg / day	Birds (Per 1 ton of weight) mkg / day
Amines, methylamine	1,32	0,86	0,88
Ammonia	37,0	22,0	16,0
Carbonyl compounds	1,5	1,3	2,2
Carbonic acids	1,0	1,86	2,5
Mercaptans	0,002	0,015	0,04
Hydrogen peroxide	2,2	1,8	4,4
Sulfides	0,78	1,5	4,2
Phenols	0,2	0,2	0,4
Total:	(44,002	(29,535	(30,62

It can be seen from this table that a significant proportion of pollutants are ammonia gas. Ammonia gas is then converted to methane as a result of biochemical processes.

According to social media, the number of cattle in Uzbekistan is 12,240.1 thousand, the number of sheep and goats is 20,427.8 thousand and the number of poultry is 71122.7 thousand.

To make it easier to calculate the pollutants released into the atmosphere by these animals and birds, we calculate their average weights, which are:

Cattle 12240100 head x 2.5 ts = 30600250 ts; sheep and goats 20427800 head x 0.25 ts = 5106950 ts; chickens 71122700 head x 0.02ts = 1422454 ts.

Using specific emissions of pollutants, we calculate the amount of pollutant emitted into the atmosphere by these animals and birds, particularly ammonia, Table 2.

Table 2. The amount of ammonia released into the atmosphere

Pollutant	The amount of year-round emissions from large horned animals is tn / year	The amount of year-round discharge from small horned animals tn / year	From birds the amount of emissions during the year is tn / year
Ammonia	0,413	0,041	0,0083

An increase in the addition of methane flux to the atmosphere will lead to an increase in atmospheric temperature in the future, which will have very negative consequences. Currently, the amount of methane in the atmosphere is estimated at 4600-5000 teregram Tg (Tg = 1012gr), [5,6,7-10].

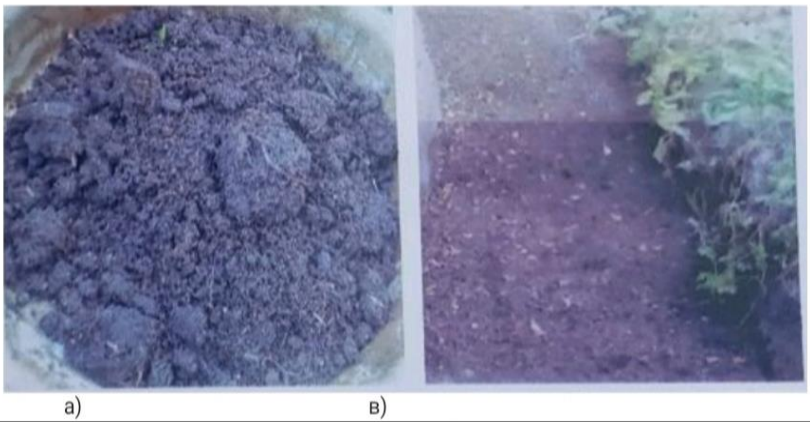
Reducing methane emissions is one of the global challenges and is extremely important today. Currently, this issue is being addressed in various ways. These include the extraction of methane gas from animal waste, deep industrial processing of waste, as well as the reduction of methane emissions from natural decomposition of organic waste, ie through the cultivation of "Vermo technology", in particular, earthworms. The main feature of these worms is that they convert them into biohumus by consuming various wastes, including animal wastes, as well as hay, leaves, plant residues and other industrial wastes. That is, these worms feed on the waste without allowing it to rot, resulting in the release of pollutants that can be released into the atmosphere during the decomposition of the waste and form biohumus, which is a valuable nutrient for soil nutrition.

Results and discussion

Experiments show that earthworms produce 600 kg of biohumus per 1 ton of processed organic matter.

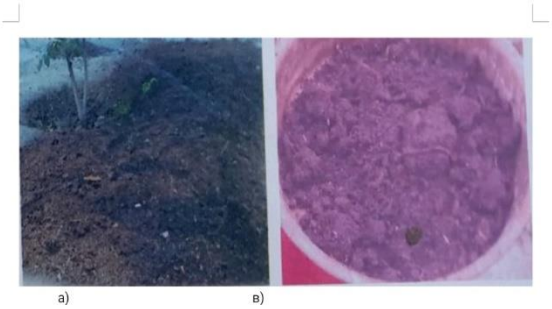
Table 3. Indications for the treatment of waste with earthworms

Waste, (1t)	Earthworm, (m3)	Biogumus, (t)	Full processing period, months
Cattle, sheep, goats, rabbits, chicken manure	0,1	0,6	4-6



а) в)

Picture. 1 a, v. The period of care of worms



Picture 2. a, v. Worm breeding grounds.

Laboratory experiments were performed as follows. Substrate (cattle, sheep, rabbit, chicken manure) was carried out in several deep trenches of specially prepared dimensions (1.0x1.0x1.0) m or 1.0 m3 in the experimental area, Figures 1.2 a, c. Each pit was filled with 300 kg of different fertilizers, 2000, 4000, 6000, 8000 and 10000 worms were placed in the pits, and the periods of conversion of manure into biohumus in different variants were studied.

variant: the number of worms is -2000
1- cattle manure 300 kg
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 Humidity 80-85%.
The period of conversion to 5 biohumus is 12-14 days

1- sheep manure 300 kg
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 Moisture 80-85% The period of conversion of 5 manure into biohumus is 12-14 days

1- 300 kg of chicken manure
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 Humidity 80-85%.
The period of conversion of 5th manure into biohumus is 12-14 days

1- rabbit manure 300 kg
2-muhit (ph) - 4-5
Temperature 3 - 18-24oS
4 Humidity 80-85%.
The period of conversion of 5th manure into biohumus is 12-14 days
variant: the number of worms - 4000
1- cattle manure 300 kg
2-muhit (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion to biohumus is 10-12 days

1- sheep manure 300 kg
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion of 5th manure into biohumus is 10-12 days

1- 300 kg of chicken manure
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion of 5th manure into biohumus is 10-12 days
1- rabbit manure 300 kg
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion of 5th manure into biohumus is 10-12 days

Option 3: the number of worms - 6000
1- cattle manure 300 kg
2-muhit (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
5- The period of conversion to biohumus is 8-10 days

1- sheep manure 300 kg
2-muhit (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion of 5 manure into biohumus is 8-10 days

1- 300 kg of chicken manure
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion of 5 manure into biohumus is 8-10 days
variant: the number of worms - 8000
1- cattle manure 300 kg
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion to 5 biohumus is 6-8 days

1- sheep manure 300 kg
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion of 5th manure into biohumus is 6-8 days

1- 300 kg of chicken manure
2-environment - 4-5
3-temperature (pH) - 18-24oS
4 humidity 80-85%
The period of conversion of 5th manure into biohumus is 6-8 days

1- rabbit manure 300 kg
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion of 5th manure into biohumus is 6-8 days

option: the number of worms - 10000

1 kg of manure 300 kg
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion to 5 biohumus is 4-6 days

1- sheep manure 300 kg
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion of 5th manure into biohumus is 4-6 days

1- 300 kg of chicken manure
2-muhit (ph) - 4-5
Temperature 3 - 18-24oS
4 Humidity 80-85%.
The period of conversion of 5th manure into biohumus is 4-6 days

1- rabbit manure 300 kg
2-environment (ph) - 4-5
Temperature 3 - 18-24oS
4 humidity 80-85%
The period of conversion of 5th manure into biohumus is 4-6 days

Table 3.

№ т/р	Manure type	**Quantity**	**Ph**	**t ºC**	Humidity **%**	Biohumus rotation time
Option 1 The number of worms is 2000						
1.	Cattle manure	300	4-5	18-24	80-85	12-14 day
2.	Sheep manure	300	4-5	18-24	80-85	12-14 day
3.	Rabbit manure	300	4-5	18-24	80-85	12-14 day
4.	Chicken manure	300	4-5	18-24	80-85	12-14 day
Option 2 The number of worms is 4000						
1.	Cattle manure	300	4-5	18-24	80-85	10-12 day
2.	Sheep manure	300	4-5	18-24	80-85	10-12 day
3.	Rabbit manure	300	4-5	18-24	80-85	10-12 day
4.	Chicken manure	300	4-5	18-24	80-85	10-12 day
Option 3 The number of worms is 6000						
1.	Cattle manure	300	4-5	18-24	80-85	8-10 day
2.	Sheep manure	300	4-5	18-24	80-85	8-10 day
3.	Rabbit manure	300	4-5	18-24	80-85	8-10 day
4.	Chicken manure	300	4-5	18-24	80-85	8-10 day
Option 4 The number of worms is 8000						
1.	Cattle manure	300	4-5	18-24	80-85	6-8 day
2.	Sheep manure	300	4-5	18-24	80-85	6-8 day
3.	Rabbit manure	300	4-5	18-24	80-85	6-8 day
4.	Chicken manure	300	4-5	18-24	80-85	6-8 day
Option 5 The number of worms is 10,000						
1.	Cattle manure	300	4-5	18-24	80-85	4-6 day
2.	Sheep manure	300	4-5	18-24	80-85	4-6 day
3.	Rabbit manure	300	4-5	18-24	80-85	4-6 day
4.	Chicken manure	300	4-5	18-24	80-85	4-6 day

Experiments have shown that the period of conversion of different fertilizers into biohumus depends on the density of worms under the same conditions, the more densely we place them, the faster the conversion of manure and waste into biohumus. When the number of worms was 10,000, the manure was completely converted to biohumus in 4-6 days.

The experiments were carried out at the farm "Istiqlol" in Altynkul district of Andijan region and in laboratory conditions. Table 4 shows the analysis of agrochemical analysis of the resulting "biohumus" product.

Table 4. Agrochemical analysis of Biogumus products

Namunaing t / r	Moisture content of the sample, %	**Агрокимёвий анализлар натижалари**							methane
		Salinity level (with chlorine)		Nitrone n in nitrate mode, mg / kg	phosphorus		potassium		
		%	Group		Activ mg/kg	Total%	Interchangeable,%	Total%	%
1	50.3	0.007	unsalted	87	108	1,8	670	1,2	-
2	52.4	0.014	unsalted	78	78	1.4	348	0.88	-
3	51.6	0.007	unsalted	81	96	1.6	364	0.96..	-
4	52.2	0.007	unsalted	82	90	1.2	356	0.92	-
middle	**51.6**	**0.009**	unsalted	**82**	**93**	**1.5**	**434.5**	**0.99**	**-**

The results of agrochemical analysis showed that the land area of the farm is highly supplied with nitrogen in the form of exchangeable potassium, mobile phosphorus and nitrate, [11]. Due to the low chlorine ion content in the soil, low salinity, no methane gas formation was observed.

In addition to preventing the formation of methane gas, the resulting biohumus has been shown to give high results in increasing the yield of cotton, wheat and other agricultural products on land, [12]. Due to this, the use of mineral fertilizers will be proportionally reduced, the application of biohumus will increase plant vigor, increase their resistance to various pests, which will reduce the use of pesticides, improve ecology, grow ecologically clean products and increase agricultural exports.

Conclusions

Treatment of animal manure by earthworms reduces emissions of methane gas into the atmosphere.

By applying the resulting biohumus to the land, it gives high results in increasing the yield of cotton, wheat and other agricultural products.

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