УДК 636

СВИНОВОДСТВО И ГЛОБАЛЬНОЕ ПОТЕПЛЕНИЕ

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Аннотация. В статье рассматривается влияние глобального потепления на производство свинины, представлены рекомендации по уменьшению выбросов и управлению ими для снижения негативного влияния на окружающую среду и повышения экономической прибыли.
Ключевые слова: свиноводство, глобальное потепление, парниковые газы, изменение климата.

PIG BREEDING AND GLOBAL WARMING

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Abstract. The article examines the impact of global warming on pork production, provides recommendations for reducing and managing emissions to reduce the negative impact on the environment and increase economic profit.
Key words: pig breeding, global warming, greenhouse gases, climate change.

Pig breeding, as the earliest ripening branch of animal husbandry, has always played and will continue to play an important role in providing the world's population with meat and fats. Pork production systems changed from forestry to grazing, to earthen and finally to specially designed buildings [7]. The global pig industry is diverse and complex in production methods, economics and cultural values.

The pig industry must be ready for climate change and strive to minimize its environmental impact. Energy comes to the Earth from the Sun, first of all, in the form of short-wave radiation. It warms everything on Earth. The heat of the earth transfers the energy back in the form of infrared radiation. However, infrared radiation has a long wavelength, so most of this energy is captured by greenhouse gases. Greenhouse gases include carbon dioxide, water vapor, methane, and nitrous oxide. This energy heats up our atmosphere, leading to global warming, the main driver of climate change. As a result, we see higher temperatures, erratic and extreme weather, droughts, wildfires, severe hurricanes and heavy rains.

The main negative impacts of climate change and global warming on pork production are as follows: higher temperatures lead to a lower fertility rate for sows; in the fattening section, excessive heat leads to a decrease in feed consumption, which reduces the growth rate of pigs; warmer weather increases the survival rate of insect pests that can spread disease; higher morbidity in pig production leads to higher costs for veterinary services and medicines. Climate change can lead to droughts and reduced water availability. There may also be increased production costs for cooling and ventilation, higher energy costs for feed and protein due to lower yields due to extreme weather conditions.

Agriculture accounts for about 19% of greenhouse gas emissions worldwide. Crop production accounts for about 40% of the production of greenhouse gases in agriculture, and livestock production - 60%. At the same time, the two main gases produced by livestock (CH_4 and N_2O) are more powerful energy absorbers than CO_2 (CH_4 is 32 and N_2O is 280 times more than CO_2). Methane is released from the digestion of ruminants and the anaerobic decomposition of pig manure. N_2O occurs as a result of microbial and atmospheric nitrogen changes in animal manure or as a result of the introduction of manure into the land [8].

Environmentalists and the public criticize agriculture for its negative impact on the environment. The pig industry needs to minimize its current and future impacts on climate change. Pork producers can minimize greenhouse gas emissions and negative impacts on production by:

- development of diets with low protein content and amino acid bioavailability;
- using manure as a valuable resource to reduce emissions;
- installation of methane catchers and its use as an energy source;
- introduction and incorporation of manure into the soil of sown areas only to the extent that crops can assimilate it;
- using minimal tillage and cover crops so that nitrogen remains in the soil and is available for crops when growing corn and soybeans;
- using by-products of bioethanol production as a component of the diet;
- planting trees or native grasses in and around the production area to create windbreaks and shade that will also absorb CO_2.

Manufacturers have control options that can use less energy and cope with extreme weather conditions. When renovating buildings and building new ones, it is necessary: to consider the possibility of using centrifugal fans for ventilation of premises, rather than axial ones, where possible, since they are more efficient, work better against external wind forces and are easier to maintain; strengthen the structures and insulation of buildings to withstand stronger winds and extreme temperatures; use natural light; install solar panels for energy use; consider the option of external or partial external decoration to save energy.

Enterprises are likely to have to pay for their greenhouse gas emissions in the future. In addition, it is likely that there will be opportunities to receive payment for actions to reduce greenhouse gas emissions and sequestrate carbon. America has the Climate Trust, which plans and manages programs for businesses to reduce their carbon footprint [1].

It offers the following two broad pathways to reduce emissions and enhance carbon capture capabilities:

1. Carbon accumulation of soil: techniques such as composting and grazing in animal husbandry create more biomass in soils, not only improve soil quality such as fertility and water retention, but also bind carbon.

2. Changes in fertilizer management: practical changes in the rate, timing, placement and type of fertilizer may be eligible for carbon offsetting if greenhouse gas emissions are reduced.

Climate change is real, causing global warming, posing challenges to the sustainability of pork production. With awareness and challenge, there are ways to deal with it. A deeper study of the techniques presented here, combined with planning and incorporation into a business and management plan, will help create a profitable and positive public image for a sustainable industry in the future. The positive dynamics of pig breeding is closely related to the use of digital innovative technologies, which are based on resource conservation and optimization of negative impact on the environment [2, 3, 4, 5]. It is also necessary at the state level to support small and medium-sized pork producers in the construction of modern farms and workshops for slaughtering animals with payment of part of all costs from the budget, as well as to develop agricultural cooperation [6].

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