

IMPROVEMENT OF ECO-TAXATION OF GOODS PRODUCER OF PIG HUSBANDRY IN UKRAINE

O. Varchenko, Bila Tserkva National Agrarian University

I. Svynous, Bila Tserkva National Agrarian University

Y. Grynchuk, B. Khakhula, Bila Tserkva National Agrarian University

M. Ibatullin, Bila Tserkva National Agrarian University

ABSTRACT

The article is devoted to substantiation of directions of ecological taxation of agricultural enterprises - producers of pig products, as one of the components of the state ecological policy. This circumstance is caused by the integration processes of Ukraine in the European community, requires flexible adaptation of the regulation instruments of the pig industry, where an important role is assigned to the levers of production environmentalization.

The generalization of domestic practice and foreign experience gives grounds to believe that the instruments of the state's environmental policy should be focused on reducing the harmful impact of the production of pig products on the environment of the corporate sector of the agrarian economy, in particular the pollution of water and air basins.

Based on the data of the State Statistics Service of Ukraine, surveys of the activity of agricultural enterprises-producers of pig production and research of scientists, it has been proved that pig farms are one of the sources of environmental pollution. Due to the insufficient level of financial support for the farms of the corporate sector of the agrarian economy-the producers of pig products and the liberal nature of environmental legislation, leads to the fact that the above-mentioned business entities do not pay much attention to environmental protection. It is suggested that agricultural enterprises-producers of pig production should be paying environmental tax, and its funds should be directed to environmental protection measures. As a basis for calculating the value of the above tax should be the indicator of the density of pigs per 100 hectares of agricultural land, depending on natural climatic zones.

Keywords: Pig Farming, Agricultural Enterprise, Environment, Eco-Taxation, Regulatory Support.

INTRODUCTION

Now an important condition for ensuring the effectiveness of economic regulation of the market of pig products is the orientation of its levers on the ecologization of production. At the same time, in Ukraine, in the process of activity, economic entities in the overwhelming majority have a negative impact on the environment. As a result, there is an unfavorable ecological situation, adversely affects both the quality and safety of products, and the environment of rural areas and the country as a whole. As is known, one of the acute problems of pig production is the reduction of the level of ammonia and bad smells in the areas adjacent to the pig complex. Innovative technologies used to minimize this problem.

The generalization of the specifics of the development of the pig industry in the countries of the world convinces that environmental policy instruments are clearly focused on reducing the

harmful impact of pigs on the environment, in particular, the main objectives are to reduce water pollution and the solution of odor problems. In recent years, measures have been introduced, in individual countries, to address other environmental problems, in particular, ammonia emissions OEDC (2003). It should be noted that in the vast majority of countries, the initiators of the introduction of tools to solve environmental problems were caused by local and regional government bodies, in some cases, environmental policy is developed at the level of the livestock sector, including pig production, however, some activities were introduced in response to international environmental agreements, and this trend is likely to continue. That is why the European integration of Ukraine requires a flexible adaptation of agricultural regulation instruments, including pig production, where an important role is played by the levers of production ecologization.

Scientists, both domestic and foreign, have proved that the production of various types of livestock products has different effects on the ecology of the environment. In modern scientific research, scientists are paying increasing attention to issues of climate change and developing scenarios for the ecological impact of beef and milk production systems, since ruminant animals account for the majority of greenhouse gas emissions caused by livestock systems (Steinfeld et al., 2006; Ripple et al., 2014; Sivak & Vilkhovy, 2013). The production of pig production is also associated with environmental problems; these include ensuring the quality and safety of animal feed and the release of nitrogen and phosphorus, released in manure when distributed as fertilizer (Basset-Mens & Van Der Werf, 2005; Eshel et al., 2014, Macleod et al., 2013; Thoma et al., 2013). Feed production is considered to be the largest source of environmental impact on the pig industry (Basset-Mens & Van Der Werf, 2005; Nguyen et al., 2011), since the pig's diet is usually based on cereals that are grown using fertilizers, pesticides and other resources. Emissions that occur in the pig's premises, both during the storage of manure, and when applied as fertilizer, are also very important, when eutrophication and acidification caused by pig systems are determined (McAuliffe et al., 2016). At the same time, researchers note the need to use a scientific approach to managing the storage of manure on the farm (Prapasongsa et al., 2010; Demchuk, 2010). That is why, in order to ensure environmentally-oriented development of pig production in Ukraine, taking into account all the risks that cause the negative impact of the industry on the environment, it is necessary to develop an effective system of state environmental regulation, in particular, the introduction of levers for the environmental taxation of farms in the corporate sector - producers of pig products.

Analysis of the Latest Research and Publications

Many theoretical, methodological and applied aspects of environmental taxation have paid much attention to scientific works of Ukrainian scientists and practitioners, in particular: Veklych, Galushkina, Sinyakevich, as well as foreign ones: Stephen Mackenzie, Susanne Stern, Ulf Sonesson, Barbara J. Dilly, etc.

These studies summarize the main trends in the development of pig production and determine the direction of the industry's influence on the environment. At the same time, environmental risks are determined in foreign publications and scenarios for their neutralization and minimization are developed. However, in the studies of Ukrainian scientists there is no development of an integrated system of levers of ecological taxation, which should have been motivationally stimulating for the ecologization of the production of pig production in Ukraine.

The Purpose

The purpose of the study is to summarize the Ukrainian practice and foreign experience of collecting environmental tax by agricultural producers of pig products and substantiating the directions of its improvement based on the density of pigs.

The main objectives of the study are:

1. Assessment of the legislative base of the leading countries in the regulation of the activities of producers of pig products from the position of minimizing the impact on the environment and their adaptation to domestic realities.
2. Analysis of the negative impact of the activity of agricultural enterprises-producers of pig production on the environment and the effectiveness of their environmental activities.
3. Consider the existing system of environmental taxation in relation to the enterprises of the corporate sector of the agrarian economy - producers of pig products and suggest ways to improve them.

MATERIALS AND METHODS

When conducting a survey of agricultural enterprises producing pork products, a methodology was used to minimize the statistical error. For the study, 93 medium and large business entities were selected-producers of pig products, accounting for about 6% of the total number of objects of statistical observation (medium and large enterprises of the corporate sector). This statistical sample is within limits, ensures the reliability of the statistical sample and reflects the general trends of their development. The survey tool was a questionnaire that was developed by Bila Tserkva National agrarian university scientists and was filled with specialists selected for the survey of agricultural enterprises. In order to verify the reliability of the data that were presented in the questionnaire, researchers conducted a selective survey of business entities.

With the aim of leveling the influence of seasonality, 3-4 agricultural enterprises engaged in the production of pig production during the last 5 years and having a head count of at least 400 animals were selected in each oblast.

RESULTS AND DISCUSSION

The main characteristics of an industrial-type agricultural enterprise for growing and fattening pigs are a narrow specialization and the use of innovative resource-saving technologies. Characteristic features for them are high density of livestock, the use of a balanced mono-diet, orientation to achieve the highest productivity, intensification and high level of specialization of production, the latest means of mechanization and automation of production processes, the tendency to reduce the production cycle, maintain a constant level of production and continuous production rhythm, cyclical and modular production, high standards of animal health, as well as increased energy consumption.

At the same time, the approach to the definition of large-scale livestock production, taking into account the environmental aspects of the development of intensive livestock industry adopted in the European Union. Thus, Directive 2010/75/EU of the European Parliament and of the Council of 24 September 1996 on industrial emissions-IED (The Industrial Emissions Directive), provides that large livestock farms (farms according to the IED/IPPC-Directive) are defined as enterprises, in particular for the production of pig products that have production capacity to hold more than 2000 pigs on growing and fattening, or more than 750 sows Directive (2010).

We believe that modern realities require the orientation of the levers of economic regulation of the development of the pig industry to implement the principles of sustainable development. One of the general indicators of sustainable development of agriculture, in particular

pig farming, is the density of farm animals, characterizing the ecological and economic relations between crop and livestock production, the possibilities of forming their own food base and providing organic fertilizers in accordance with scientifically sound standards, as well as environmental requirements-compliance standards for the emission of harmful substances and disposal of manure. This indicator can be both in natural values, and in terms of the conventional smalls. It is characterized by a clear zonation, reflects the peculiarity of the production of crop and livestock production, depending on the natural and climatic zones. In accordance with the value of this indicator, scientifically based crop rotations and the level of concentration of farm animals are formed, provides an economic and ecological balance of the functioning of agriculture (Birtha, 2008). In industrially developed countries of the world, this indicator is used in terms of the number of conventional heads per 100 hectares of agricultural land. So, in 2014 in Denmark it was 1.72, Norway-1.22, Germany-1.06 and Poland -0.72 (Yakub Skorupsky, 2015).

The problem of ecological safety of introduction and utilization of organic waste is one of the most urgent in the world's agriculture, as well as in Ukraine. In many countries of the world large livestock complexes are recognized as point sources of pollution. Their activities require the issuance of special licenses for emissions of livestock waste every 5 years. In general, the requirements of the European Union in the field of animal husbandry and the sphere of storage and use of manure are more stringent in comparison with the requirements in Ukraine. This can be explained by the fact that the water bodies of the EU countries are under more pressure.

It should be noted that the Law of Ukraine "On Environmental Impact Assessment", which was vetoed by the President, stipulates that a closed-type pig complex with more than 900 sows has a negative impact on the environment, like nuclear power plants, oil refineries, ferrous and non-ferrous metallurgy. Residents of villages, in which even small industrial pig farms are located, in recent years suffer from the terrible smells that these objects produce (Law of Ukraine on Environmental Impact Assessment, 2017). Due to the peculiarities of technology of industrial fattening of pigs, the smell spreads within a radius of several kilometers. The technology is as follows: pigs are not prepared with natural foods, but with special additives, then manure is accumulated in concrete tanks directly under the floor of the pig farm, then it is transferred to the reception pit with the help of a hydrospray and then pumped into large lagoons next to the pig. In these lagoons, manure is kept for 5-6 months, and then introduced into the fields. The smell from pig farms not only harms the environment, but also negatively affects the health of people who are forced to breathe polluted air.

According to the research of scientists, in 2012 the field of livestock sector in the structure of gas emissions contributing to the greenhouse effect is about 18%, one sow produces respectively 0.089 kg CO₂ and 0.238 kg NH₃per h (Domashenko, 2009).

During the period under study, there is an increase in the volumes of enteral (intestinal) fermentation emissions (Table 1).

Year	Feeding pigs			Sows		
	Number of enterprises, units	Volumes of emissions, ton	Thrown on average by one enterprise, ton	Number of enterprises, units	Volumes of emissions, ton	Thrown on average by one enterprise, ton
2011	279	1873.9	6.7	156	69.3	0
2012	279	2640.3	9.5	136	155.1	1.1
2013	284	3593.5	12.7	133	222.2	1.7

Year	Enterprises	CO ₂ (t)	CH ₄ (t)	N ₂ O (t)	CO ₂ e (t)	Enterprises
2014	279	4526.5	16.2	122	247.6	2
2015	260	3635.8	14	102	595.7	5.8
2016	244	4525.2	18.5	87	1122.6	12.9
2017	259	4425.8	17.1	75	1164.2	15.5

Source: compiled according to the State Statistics Service of Ukraine.

The data in Table 1 indicate that during 2011-2017 years the volume of emissions into the environment of enteric (intestinal) fermentation by agricultural enterprises engaged in the cultivation and fattening of pigs per 1 farm has grown almost 2.6, and in the content of sows-15.5 times.

It should be noted that livestock account for 15% of carbon dioxide emissions on the planet, roughly equal to the emissions of all cars, trains, ships and aircraft on Earth (Barannikov, 2014).

Considering this, agricultural enterprises, along with other polluters of the environment, should be environmental tax payers, whose funds should be directed to environmental protection measures.

In our opinion, the introduction of the norms of the aforementioned normative legal act would provide an imperative rule according to which the conduct of Environmental Impact Assessment (EIA) when making a decision on the implementation of production and economic activities is mandatory and a list of objects in respect of which the EIA procedure is applied. In addition, it provides for the authorized body to provide a reasoned decision on environmental impact assessment based on the results of such analysis, as well as taking this decision into an authorization document.

A transparent procedure for public participation in the process of environmental impact assessment is provided by the law-making act at all stages, ensuring that the negative impact on the environment and human health will be analyzed in depth and in detail before commencing large-scale work and taken into account in making the final decision.

This legislation provided for the free access of the public to all information related to the planned activity and procedure for public discussion, as well as the maintenance of a publicly accessible Single Register for Environmental Impact Assessment of the Internet. Thus, the entire EIA process will be tracked on the site. The document also regulates the timing of filing applications for filing applications by the public, which, in turn, will reduce corruption risks.

It provides for the establishment of legal and organizational basis for environmental impact assessment, which is aimed at preventing and preventing environmental damage, ensuring environmental safety, protecting the environment, rational use and reproduction of natural resources, in the process of making decisions on the implementation of economic activities that can have significant influence on the environment, taking into account state, public and private interests.

The adoption of the Law on Environmental Impact Assessment is a prerequisite for the full implementation of the Aarhus Convention and Espoo Convention, as well as the implementation of the Association Agreement.

The objects of payment of an environmental tax for any business entities, including agricultural enterprises, are:

1. Volumes and types of pollutants emitted into the air by stationary sources.

2. Volumes and types of pollutants discharged directly into water bodies.
3. Volumes and types (classes) of wastes placed, except volumes and types (classes) of waste as secondary raw materials placed on own territories (objects) of economic entities.

At the same time, the Tax Code of Ukraine (NKU) under a stationary source of pollution is understood by an enterprise, plant, unit, installation or other fixed object that retains its spatial coordinates for a certain time and discharges pollutants into the atmosphere or discharges of pollutants into water objects.

Such sources of pollution of agricultural enterprises can be recognized as generators, boilers, mini-power stations, gas welding equipment that operate on fuel, during the combustion of which pollutants are formed and emitted into the atmosphere. In the rest of the production equipment, the enterprise must apply to the executive authorities on issues of state control in the sphere of environmental protection (that is, the relevant bodies of the Ministry of Natural Resources).

The same applies to discharges of pollutants into water bodies. If the enterprise has such capacities that discharge and discharge pollutants, it must obtain the appropriate permission to carry out such actions.

The permit is also needed for the permanent placement of waste in specially designated areas. However, according to the tax code of Ukraine (clause 1.4.1.223) waste disposal is considered permanent (final) stay or disposal of waste in specially designated places or objects (locations, storage facilities, landfills, subsoil areas, etc.), for use which obtained the permission of authorized bodies (The tax code of Ukraine, 2011).

Now agricultural enterprises environmental tax payers based on the provisions of the Tax Code of Ukraine are business entities that accumulate manure and other wastes. If an enterprise retains these wastes on its territory only temporarily, and then injects it into the soil as fertilizer or sells, then such actions are not qualified as permanent waste disposal Letter of the (Ministry of Ecology and Natural Resources of Ukraine, 2012).

A feature of the activities of agricultural enterprises is that they generate a large amount of organic waste, which is then used in the production process, for example manure, bird droppings, etc. According to the State Classification of Waste DK 005-96. approved by Order of the State Standard of 29.02.96 No. 89, manure and bird droppings are included in the waste group 01 classification group 012, codes 0121.2.6.03 "*Excrement, urea and manure (including decayed hay and straw) from livestock*" and 0124.2.6.03 "*Bird droppings* ."

Until January 1, 2013, agricultural enterprises, peasant and other farms, were engaged in the production (cultivation) of livestock and poultry products and at the same time posted waste (manure and poultry manure) during the reporting quarter and were taxpayers of the environmental tax.

Since January 1, 2013, the Code has changed the meaning of the concept of "*waste disposal*", and therefore double taxation is eliminated by the ecological taxation of accommodation by waste management entities in specially designated places or facilities located in their own territories, and accordingly, in temporary storage of waste, tax.

According to the results of the conducted studies, it was established that in most of the surveyed agricultural enterprises - producers of pig production (93 farms were surveyed) manure storage lagoons and open type are used to accumulate manure, and the process of emissions of toxic products of anaerobic fermentation into the environment is intensifying. At the same time, it should be noted that most often the mentioned type of manure storages use surveys of the corporate sector of the agrarian economy with a population of more than 15,000 pigs. As

evidenced by subjective results of surveys by scientists, the smell of manure is felt at a distance of 2-2.5 km from the location of the manure storage. This circumstance indicates that the management of the surveyed agricultural enterprises does not pay due attention to environmental protection. The evidence of this is 71.0% of surveyed agricultural enterprises that do not invest in environmental measures (Table 2).

According to the results of the surveys, the largest shares of farms that do not invest in environmental activities are farms of the 3rd and 4th groups.

In our opinion, such economic entities use technological equipment for the production of pig production, which they inherited from the former reformed collective agricultural enterprises.

No.	Farm groups according to the pig population, number of heads	Number of farms, units	Farms that do not invest in environmental activities	
			units	to total, %
1	1-500	9	5	55.6
2	501-1000	3	1	33.3
3	1001-5000	55	44	80
4	5001-10000	14	12	85.7
5	10001-15000	7	2	28.6
6	Over 15000	5	2	40.0
7	Altogether	93	66	71.0

Source: results of the author's survey

Highly concentrated farms of the corporate sector of the agrarian economy (agricultural enterprises of Groups 5-6) pay great attention to compliance with environmental legislation. This is reflected in the fact that the overwhelming majority of business entities of agribusiness of the 5th and 6th groups are investing in objects of environmental importance.

The letter of the Ministry of Natural Resources of 06.03.12 No. 4794/07/10-12 states that "*agricultural waste contains a significant proportion of organic substances (organic component) and is almost always completely disposed of in various directions*".

Thus, although chicken manure or manure is a waste, but after simple preparatory operations, they are finally disposed (Letter of the Ministry of Ecology and Natural Resources of Ukraine, 2012).

According to paragraph 240.5 of the Tax Code, they are not payers of the tax for the allocation of agricultural waste; they place only waste as secondary raw materials in their territories (facilities). Manure storages in which manure is stored is an integral structure of the cattle-breeding farm that is part of the complex for collecting, storing and processing manure and is used for its preparation and subsequent utilization as an organic fertilizer. (Veterinary and sanitary and hygienic requirements for the arrangement of processing lines for removal, processing, decontamination and utilization of manure obtained from livestock complexes and farms, approved by the Chief Veterinary Department of the Ministry of Agriculture of the USSR from 15.02.79 No. 115-6a). The storage of manure is part of the technological process for the production of livestock products.

Based on this, it was concluded that only in the event of the final placement of manure in specially designated places or at facilities, the enterprise is obliged to pay an economic tax for its volumes.

According to the results of surveys of agricultural enterprises - producers of pig products, only 54 business entities out of 93 surveyed are environmental tax payers. Its volumes are much lower than the losses caused by the surveyed farms of the corporate sector to the environment, which is expressed in the amount of emissions (Table 3).

The largest number of payers is in the third group of farms.

№	Farm groups according to the pig population, number of heads	Total number, units	Farms that invest in environmental activities	
			units	to total, %
1	1- 500	9	2	22,2
2	501-1000	3	2	66,7
3	1001-5000	55	39	70,9
4	5001-10000	14	6	42,9
5	10001-15000	7	3	42,9
6	Over 15000	5	2	40,0
7	Altogether	93	54	58,1

* Source: results of the author's survey

Ecological taxes are paid in different forms in all economically developed countries. For the first time, the need for their application at the official level was confirmed in the 1st EU Action Program for Environmental Protection (1973), related to the implementation of the “*polluter pays*” principle.

Attention to environmental taxes and payments in EU countries has intensified since the second half of the 1980s. In connection with the widespread transition in the sphere of environmental protection from command-administrative to economic management methods.

The European Union is one of the world leaders in the field of international environmental cooperation. According to Eurostat, in 2010, 27 EU countries received about 292 billion euros from environmental taxes, compared with 2.4% of gross domestic product (GDP) and 6.2% of taxes and social contributions.

Member States with the largest share of environmental taxes in GDP Denmark (5.7%), the Netherlands (3.9%), Bulgaria and Malta (3.5%), low-Spain (1.6%), Lithuania (1.7%), Romania (1.8%) and Latvia (1.9%).

The existing ecological tax system of Ukraine no longer satisfies the realities of today. The environmental tax in Ukraine is significantly lower than in other countries and is 37 kopecks per ton of CO₂, in Sweden - € 118 per ton, in Finland - € 54-58, in Norway - from € 3 to € 47, in Denmark - € 23, in the UK - € 22, in Ireland - € 20. The lowest low rates in Mexico and Poland - at a level of € 1 per ton, which is almost 100 times higher than domestic rates for environmental tax.

According to the Chamber of Accounts during 2016-2017, environmental tax rates for emissions to air and discharges into water bodies increased (by 26.7% and 12%). However, it was not positively reflected in the budget revenues. With an annual increase in emissions, tax revenues in 2017 decreased by 17.3%.

The system of collection of environmental tax operating in Ukraine does not stimulate the enterprise to install additional equipment and reduce emissions into the atmosphere and water, through a minimum level of the tax rate.

About 90% of the entities that carry out emissions remain outside the accounting records in the State Fiscal Service of Ukraine (SFS) as environmental tax payers.

The state audit found that the SFS is not ensured proper organization and control over the submission by taxpayers of the environmental tax of tax reporting and compliance with the standards of completeness and timeliness of its payment.

The shortfall in 2016 amounted to 1300000 UAH of the total amount of claims and claims for damage caused to the atmosphere and water resources, only 18% (7,500,000 UAH) in the sphere of atmospheric protection and 11% (UAH 83 million) in the field of water protection, rational use and reproduction of water resources. The effectiveness of the inspections of environmental legislation by the territorial bodies of the State Environmental Inspection in 2017 decreased 16 times compared to 2015.

The share of environmental taxes in the revenue side of the budget, as well as its expenditure part, on environmental measures should significantly increase. It is possible that the structure of the country's environmental tax legislation should change. This will fundamentally change the situation of the negative impact of the national economic complex on the environment and create an incentive for the reduction of natural capacity both at the state level and at the level of regional management systems, as well as to increase the proportion of environmentally oriented investments in the overall system of funds that are mobilized through the financial system.

The experience of European countries shows that the active use of environmental taxes contributes to reducing the overall level of environmental pollution, increasing the production of new, environmentally friendly products, thus strengthening the competitiveness and economic position of producers. The development of environmental taxation in Ukraine at this stage is characterized by certain problems, consequences, which in the future are planned to be eliminated. Therefore, it is proposed to use the European experience of environmental taxation: introduce additional types of environmental taxes borrowed abroad, introduce a product tax and taxation of packaging containing environmentally hazardous substances, and develop a system of tax incentives for enterprises using energy-saving technologies.

Taking into account the negative impact of the production activities of economic entities in the pig breeding sector, especially highly concentrated, on their environmental impact, it is advisable to provide for all agricultural enterprises compensation for losses incurred in the form of paying an environmental tax.

We believe that the calculation of the environmental tax should be based on the number of conventional head of livestock contained in the farm, which will ensure a fair approach to the formation of this type of tax. The most objective indicator for calculating the environmental tax is the norm of the density of pigs per 100 hectares of agricultural land, depending on natural and climatic zones.

The cost component should be 4 hryvnias for pigs for fattening, and A sow - 4.5 UAH / goal. That is due to the peculiarities of the definition of standards. The approach to the payment of such a tax must be differentiated and depend on the change in the density index. If the level of density decreases, the agricultural commodity producer must pay a lower tariff rate for 1 pig fattening or sow. It is obvious that with this approach to paying the environmental tax, fair compensation for the damage to the environment will be ensured.

CONCLUSION

Summarizing domestic practice and foreign experience, we can state that current realities require the orientation of the economic regulation of the functioning of the pig industry to

implement the principles of sustainable development, in particular to minimize the environmental impact, using administrative (permit system, the introduction of the Technical Regulation on meat production, etc) and tax levers (environmental taxation).

At present, the inefficiently functioning system of environmental taxation in relation to enterprises of the corporate sector of the agrarian economy - pig producers and insufficient level of financial support does not stimulate them to carry out environmental activities.

Assessing the level of losses that affect the environmental economy of the corporate sector of the agrarian economy - pig producers, we consider it expedient to introduce a system of environmental taxation in relation to them.

We believe that the basis for calculating the environmental tax is to put an indicator of the density of farm animals, which characterizes the ecological and economic relationship between the business entity, the state and the united territorial community in the territory where the production capacity of the agricultural producer is located. In our opinion, this will ensure a fair approach to the formation of this type of tax.

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