DEVELOPMENT OF THEORETICAL AND METHODOLOGICAL FUNDAMENTALS OF ENVIRONMENTAL CONTROLLING FOR PRODUCTION AND SUPPLY OF ORGANIC LIVESTOCK PRODUCTS

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Abstract: The necessity of improving the management of agricultural enterprises on the basis of technological and environmental characteristics of livestock organic production is considered. The theoretical grounds of environmental controlling over the livestock organic production in terms of defining its objectives, functions and objects are covered. Methodical principles of the economic bloc of environmental controlling over the organic production of livestock products have been studied.

Keywords: organic products, livestock, organic production, environmental management system, environmental management, environmental audit, budget, operational costs, organic production standards, internal control system.

Introduction

The organic production of livestock products is technologically and organizationally more complex than applying traditional methods of management. According to international standards of the organic production it is prohibited to treat animals and animal products with preservatives, antibiotics, genetically modified organisms, hormones and growth stimulants, etc. The necessary condition for obtaining the sign "organic" is not stressful stockkeeping and transport of animal nutrition organization, "organic" fodder of plant origin etc. Specific requirements to the production process and certification of finished products cause additional economic costs. In particular, scientists determine such economic barriers for the development of organic agriculture as "extension of the process of production; additional costs for the automation of production processes, the expansion of existing areas and forms of internal structure; increase of animals sickness rates due to inability to prevent the spread of diseases through the renunciation of drugs and antibiotics usage; certification process that generates corruption, etc." (Nitsenko, 2013).

An important prerequisite for ensuring the economic efficiency of livestock organic production under low solvency of customers and competition from cheaper conventional products is comprehensive modernization of administration in general and business process management in particular. The heads of agricultural enterprises engaged in the production of organic products in Ukraine, noted that the complexity of the implementation of projects of organic production is largely conditioned by imperfect information and methodological basis of the current management in the transition from traditional forms of farming to organic farming.

One of the innovative tools for agricultural enterprises, to ensure efficient information-analytical environment, which is the basis for maximizing economic efficiency by optimizing environmental and technological parameters of the production process, is eco-controlling.

The theoretical basis of environmental controlling have been studied by leading scientists, economists, namely Bashkatov Y., Gierek R., Dayle A., Meyer E., Mann R., Storm A., Kirsanov L., Miller L., Dombrowski T., Kozhukhova O. and others.

Despite the previously conducted research environmental controlling is poorly developed in modern management practices of agricultural enterprises. On the one hand, there is an urgent need for improving the organizational grounds of cost management and environmental aspects of the company, on the other hand the imperfections of theoretical and methodological framework lead to inhibition of controlling over the implementation of environmental management. Given the above, the
The purpose of the study is to develop theoretical and methodological principles of environmental controlling for production and supply of organic livestock products.

To achieve this goal the following tasks were formulated:
- to investigate the relevance of the development and implementation of environmental controlling for the production of organic livestock products;
- to identify goals, objectives and object of environmental controlling over the production of organic livestock products;
- to improve the methodological principles of environmental controlling over the production of organic livestock products.

**Results and discussions.** Environmental controlling is a new tool for environmental management systems of agricultural enterprises. As this tool is currently under development, theoretical principles and in particular the nature of environmental controlling are actively studied and refined by scientists and practitioners. In the context of the studying theoretical and methodological principles of production management for organic livestock production environmental controlling should be considered as a management tool, combining information and organizational system functions such as auditing, accounting, analysis and control in order to develop the efficient information and analytical base for making balanced and timely management decisions.

The urgency of developing and implementing environmental controlling in organic farming is conditioned by the following needs:

1. Organization of the efficient management of costs and investments, which are much higher in the production of organic products than in traditional agriculture. During the period of transition to organic methods of management significant investments must be made in upgrading machine-tractor fleet, construction of animal enclosures, soil quality restoration and maintenance etc. Additionally, the cost of organic products is growing due to lower animal productivity and soil fertility (low quality) during the conversion, the use of significant amounts of manual labor, the use of organic products in the feeding of animals (watering of milk calves, the use of organic fodder and so on.).

2. Strict demand to meet the requirements and conditions of regulations for organic production. Products are entitled and positioned on the market under the label "organic" only if the relevant certification of production processes by accredited certification bodies has been conducted.

3. Conduction of internal audit to control compliance with the standards of the production process parameters (origin and movement of animals, content of genetically modified organisms, monitoring over treatment and prevention of animal diseases etc.). Organizational and methodological principles of the internal control are checked by certification body during annual external inspections.

Considering the above mentioned, the purpose of environmental controlling over production of organic livestock products is to develop an efficient information and analytical framework for technological, economic and environmental parameters of organic production (Figure 1).

Fig. 1. Objects of the environmental controlling system for the production of organic livestock products

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Based on the defined objects we offer double system of environmental controlling for the production of organic livestock products (Figure 2).

The environmental controlling system is grounded on the strategic goal of organic production implementation divided into operational objectives and targets. Depending on the period of project implementation there could be strategic and operational controlling. Operational controlling is aimed at solving short-term problems that achieve overall strategic goal of organic livestock production.
Each of the tasks described aggregate technical, environmental and economic bloc. Examples of strategic goals and objectives of organic livestock products are listed in Table.

![System of environmental controlling for production and supply of organic livestock products](image)

**Fig. 2. Structure of environmental controlling for the production of organic livestock products**  
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<table>
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<tr>
<th>Strategic goal</th>
<th>Current events</th>
<th>Block</th>
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<tr>
<td>Transition to production of organic livestock products</td>
<td>Determination of external organic fodder suppliers (formation of suppliers list)</td>
<td>Technical and Environmental</td>
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<td>Preparation of land for growing own organic fodder</td>
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<td>Certification of land</td>
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<td>Formation organic cattle herd</td>
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<td></td>
<td>Age of cattle</td>
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<td>Preparation of stockkeeping places</td>
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<td></td>
<td>Provision of natural ventilation</td>
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<td></td>
<td>Floor quality etc.</td>
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<tr>
<td>Increase of production capacity of organic livestock products by 15% over 5 years</td>
<td>Increase of herd heads</td>
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<tr>
<td></td>
<td>Strains of cattle</td>
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<td></td>
<td>Age of cattle</td>
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<td>Increase of cattle productivity</td>
<td>Productivity per 1 head</td>
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<tr>
<td>Increase of stockkeeping area</td>
<td>Area of stockkeeping per 1 head</td>
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Organizational environmental controlling combines methodology and information for audit, planning, accounting, analysis and control. The next is consideration of organizational and methodological framework for designing economic bloc of environmental controlling over the production of organic livestock products. The first step of environmental controlling is internal audit of the actual state of natural, technical and economic resources of the company engaged in manufacturing organic products. Based on the data and plan of strategic development of this area production targets for the next fiscal year shall be determined.

Applying the method of regulation and planned production volumes, direct material costs, direct labor costs and other direct costs are defined. When planning the cost of maintenance such technological features of organic animals must be taken into account:

1. Mandatory at least 50% of organic fodder in the diet of animals. The land suitable for growing organic crops is considered the land with over 2 years of organic farming methods application. Thus, in accordance with the standards it is necessary to make capital investments in land remediation.

2. Young organic animals should be fed with breast milk for 3 months after birth.

3. Limit the surface area of the premises and outdoor areas of the animals. When growing organic dairy cows area for stock keeping of one cow must be at least 6 m². In traditional farming this area is 3.5 m². To implement these requirements there may be need for capital investments in the expansion of regulated places and the cost of their maintenance (wages, salaries, the cost of equipment for cleaning, repairmen etc.).
4. It is allowed to use only supplements of natural origin in feeding animals, which are much more expensive compared to synthetic.

Identified target indicators are issued in the form of budgets, which aggregate data for the whole company or individual business units depending on the hierarchical position. To ensure economic bloc of ecological controlling system for the production of organic livestock products the following budgets are offered for development:

1. Implementation budget – it is based on planned indices of organic production by types (milk, meat, wool, honey, etc.) accounting planned number and productivity of livestock, strategic targets of the company development in general and organic farming in particular.

2. Implementation budget. It is developed accounting the following conditions: - part of products are used for own production (for example, feeding of young mammals with breast milk for at least three months for cattle including buffalo, bison and horses, 45 days for sheep and goats and 40 days for pigs, at the end of production season hives are left with enough honey and pollen to survive the winter, etc.) - obligations to supply products in accordance with signed agreements.

3. Budget of direct costs of producing organic livestock products. It is composed on the basis of standardization of direct material costs, direct labor costs, other direct costs. When planning direct material costs it is advisable to pay special attention to the requirements of standards to animal diet. Thus, according to the Section 3 of Commission Regulation (EC) № 889/2008 from 05.09.2008, which defines the detailed rules on organic production and labeling of organic products, the diet of herbivores must include at least 50% fodder of own production or (if this is not possible) to be produced in cooperation with other organic farms. 60% dry food in the herbivores diet should consist of coarse fodder, fresh or dried forage or silage. The maximum share of non-organic fodder for animals (other than herbivores) in annual diet, calculated as a percentage of dry matter, is 5% (OrganicStandard.com.ua, n.a.).

5. Budget of overheads and investment allowance is calculated as the difference between revenue from sales and direct costs of production.

6. Budgets of individual departments are the centers of responsibility for compliance with the budget, accounting predetermined limits per year and broken down into quarters and three months ahead.

Thus, the differentiation of functions of economic and industrial division of agricultural enterprises within the environmental controlling system. Economic Service conducts structuring direct and overhead costs in budgets and their distribution by units. Then the heads of functional divisions (zooinengineering and veterinary departments, repair shop, etc.) plan their activities in the context of activities within fixed limits. Thus, economic departments analyze the plan for the costs performance in terms of articles and items and service managers and production units control spending within the planned measures and carry out ongoing monitoring of compliance with standards, creating the appropriate documents.

Conclusions

The introduction of environmental controlling for the production of organic livestock products will create conditions for making informed and effective management decisions aimed at prevention of negative economic factors, rather than on liquidation of their consequences, timely detection of market, technological and environmental factors that may affect the achievement of planned economic and environmental objectives of organic production, implementation of internal control system in accordance with the standards, reduction of economic costs of management functions performance in the company.

References
