

INNOVATIVE DEVELOPMENT OF LIVESTOCK ENTERPRISES AS A FACTOR IN THE SUSTAINABILITY OF RURAL AREAS

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Abstract: The study considers the innovative development of livestock enterprises as an important factor in the sustainability of rural areas. Technological modernization through energy-efficient and resource-saving solutions improves productivity and product quality. Special attention is given to upgrading water supply and pumping systems as key elements of engineering support. The implementation of innovative strategies reduces operating costs and strengthens competitiveness. These measures are especially important for the post-war recovery of Ukraine and national food security.

Keywords: innovative development, livestock enterprises, rural sustainability, technological modernization, energy efficiency.

Innovative development of livestock enterprises as a factor of sustainability of rural areas is characterized by a high level of instability caused by global economic imbalances, increased competition, changing trade priorities and the influence of geopolitical factors. In these conditions, livestock enterprises of Ukraine are faced with the need to ensure the sustainability of production, increase productivity and product quality to strengthen their positions in both domestic and foreign markets. One of the key tools for adapting enterprises in the industry to modern challenges is technological modernization, which involves the introduction of energy-efficient, resource-saving and environmentally friendly technologies [4]. It ensures the optimization of production processes, improvement of animal housing conditions, reduction of manual labor costs and increased biosafety of production [1].

The study outlines the possibilities of reducing the energy consumption of the pumping system through intelligent design, modernization and operation [2], [3]. Figure 1 presents the main strategies for technological modernization of livestock enterprises.

The application of the outlined strategies will positively affect the growth of enterprise productivity and the reduction of operating costs, strengthening the export potential of livestock products, increasing the food security of the state in the face of global challenges, and the formation of a competitive agricultural sector on an innovative basis.

Innovative development of livestock enterprises as a factor of sustainability of rural areas is also important to improve the engineering support of production processes, in particular water supply systems (Fig. 2).

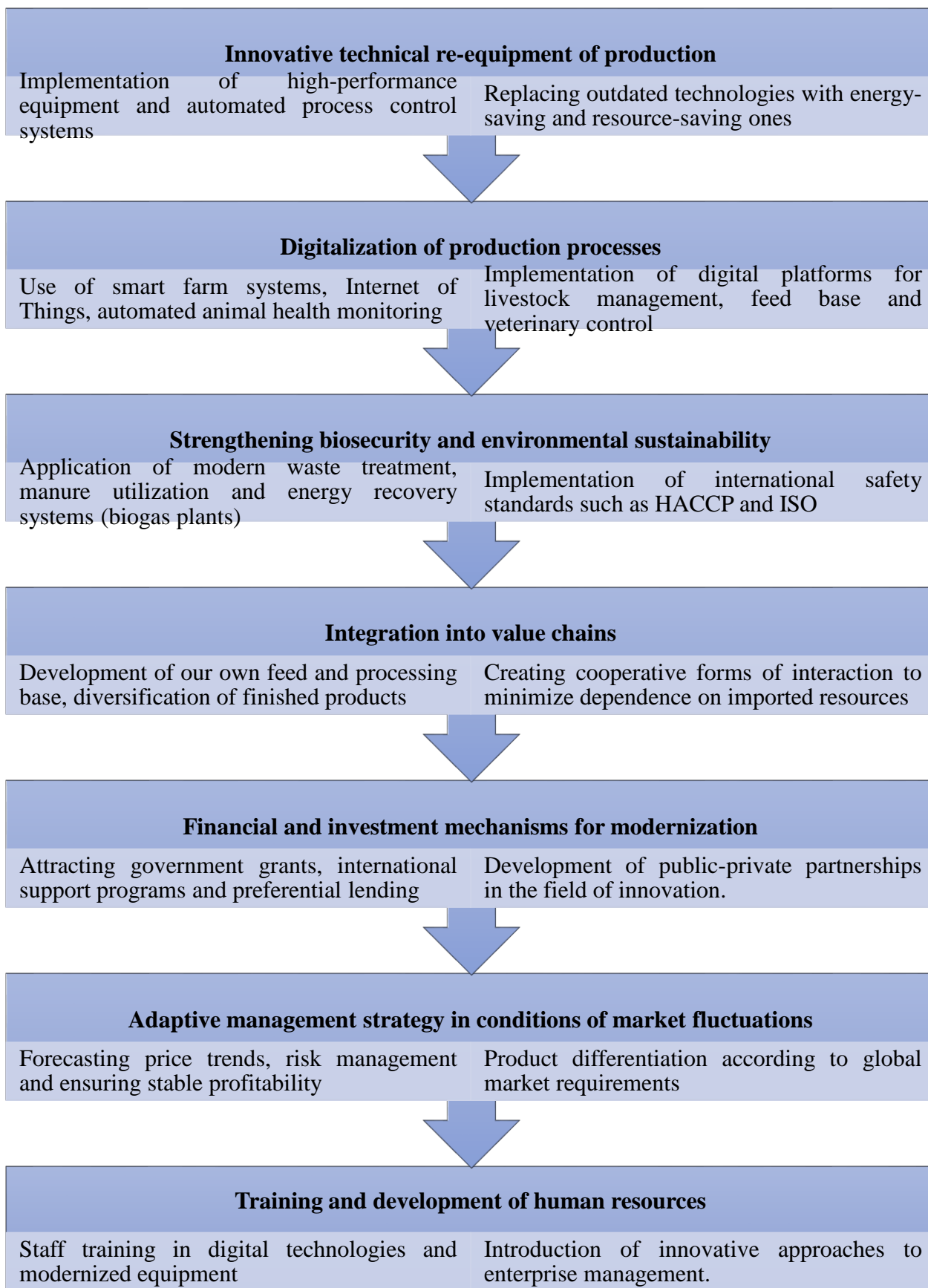


Figure 1 – Strategies for innovative development of livestock enterprises as a factor in the sustainability of rural areas

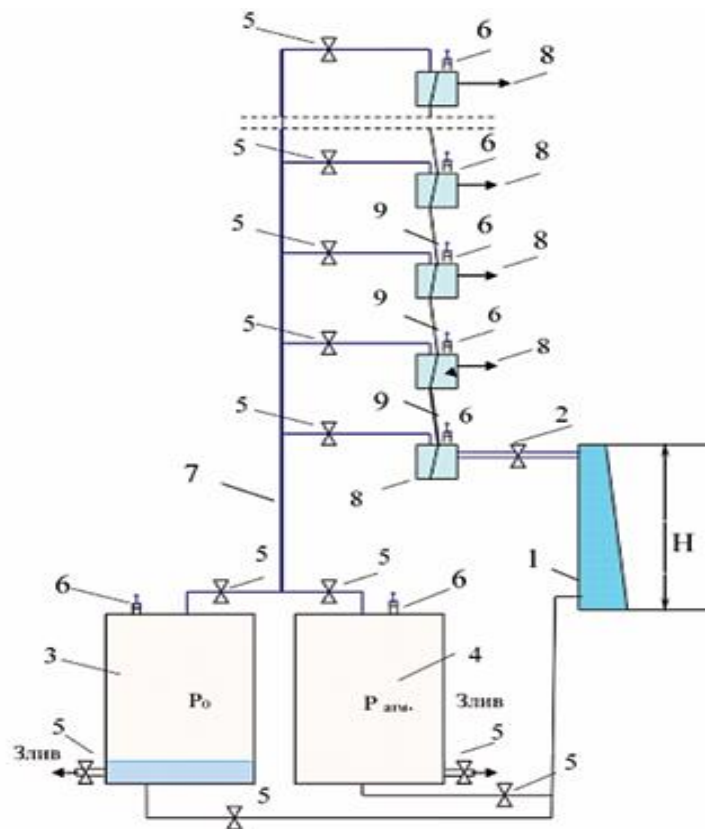


Figure 2 – **Scheme of resource-saving water-lifting equipment in livestock farms**

- 1 – pressure tank, 2 – crane for filling a shipping container with water,
 3 – container base right, 4 – container base left, 5 – ball or screw valve,
 6 – valve for creating or releasing pressure, 7 – compressed air pipeline,
 8 – transport tanks, 9 – pressure lines

Innovative development of livestock enterprises as a factor of sustainability of rural areas acquires importance in the conditions of post-war reconstruction of Ukraine, when the reconstruction of the agricultural sector should be based on innovative approaches and take into account trends in sustainable development and international standards of quality and safety of food products.

Thus, research into the innovative development of livestock enterprises as a factor in the sustainability of rural areas is an important prerequisite for increasing the economic security of the state and strengthening its competitive positions in the global market in the face of increasing market imbalances and transformation processes.

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Анотація: У дослідженні розглядається інноваційний розвиток тваринницьких підприємств як важливий фактор сталого розвитку сільських територій. Технологічна модернізація за рахунок енергоефективних та ресурсозберігаючих рішень підвищує продуктивність та якість продукції. Особлива увага приділяється модернізації систем водопостачання та насосного господарства як ключових елементів інженерного забезпечення. Впровадження інноваційних стратегій знижує експлуатаційні витрати та зміцнює конкурентоспроможність. Ці заходи особливо важливі для післявоєнного відновлення України та національної продовольчої безпеки.

Ключові слова: інноваційний розвиток, тваринницькі підприємства, стійкість сільських територій, технологічна модернізація, енергоефективність.

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PARTNERSHIP BETWEEN EDUCATIONAL INSTITUTIONS AND EMPLOYERS IN TRAINING SPECIALISTS: STATE, CHALLENGES AND PROSPECTS

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Abstract: The theses investigate the current state of interaction between educational institutions and employer enterprises in the training of specialists in Ukraine. The regulatory framework for education-industry partnership is analysed with reference to the provisions of the Law of Ukraine "On Vocational Education" (2025). The forms of public-private partnership defined by the Ministry of Education and Science of Ukraine and the role of social partnership in modernising the content of vocational training are examined. Practical forms of partnership implementation – vocational training centres and employers' councils – are characterised. The following systemic obstacles are identified: the absence of economic incentives for employers, uneven coverage, insufficient flexibility of educational programmes, and damage to the material and technical base as a result of armed aggression. Promising directions for strengthening partnership in the context of the country's post-war recovery are determined.

Keywords: education-industry partnership, social partnership, public-private partnership, vocational education institutions, employers, employers' council, vocational training centre, training of specialists, post-war recovery.

Partnership between educational institutions and employer enterprises is one of the key mechanisms for ensuring the quality of specialist training. It bridges the gap between the content of educational programmes and the real demands of the labour