Conclusions. Taking into account the conducted research, it can be noted that corn stalks are widely used in fodder production. They can be used both in a mixture with other components of corn (grain, stalks and leaves), and as an independent component, for the production of combined feed for cattle, pigs and in sheep breeding. Using corn cobs, 350-380 feed units can be obtained from one hectare of corn, which significantly increases the share of roughage in the total feed balance.

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MODELING OF THE AGRICULTURAL CROPS DEVELOPMENT USING SATELLITE IMAGERY

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Introduction. Land use monitoring is an important task in modern agriculture. Monitoring results are not limited to crop surveillance: they have a wide range of applications from monitoring the condition of agricultural resources, forecasting area and yield, crop assessment to planning harvesting activities and crop preservation [1, 2]. At the same time, the problem of identification of vegetative processes on large agricultural areas during growing cycles is one of the main ones [3].

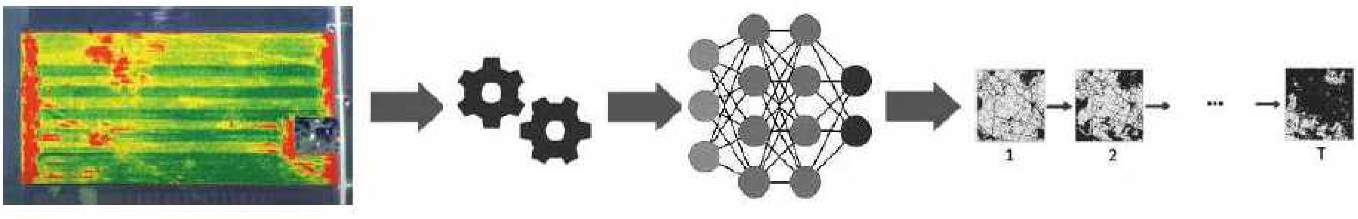
Classification of the state of agricultural territories is one of the most important agricultural tasks in the world [4]. Due to the increase in food needs (for example, population growth) and the reduction of cultivated areas (for example, the expansion of cities) in countries importing agricultural products, growing plants requires more and more intensive methods, including triple sowing, the use of modern varieties of seeds, pesticides and fertilizers [5]. However, such intensive cultivation can lead to environmental problems such as water pollution, soil degradation, and microbial damage [3], threatening global food security and national economies.

Under such conditions, the implementation of a software-hardware information system for evaluating and modeling the development of agricultural crops using streaming data from satellite imagery makes it possible to increase the efficiency and reliability of decision-making processes, diagnose the state of agronomic crops in large areas, and optimize the management of agricultural resources, which at the same time increases the quality products, provides significant economic benefits and savings of agricultural resources.

The research aim is to increase the efficiency and reliability of decision-making processes, diagnose the state of agronomic crops in large areas, optimize the management of agricultural resources, while increasing product quality, bringing significant economic benefits and saving agricultural resources.

Methods of research. Convolutional neural networks, which implement the popular idea of "deep learning" when building intelligent data processing systems, were chosen as a machine learning method to increase the efficiency and reliability of the processes of diagnosing the state of agronomic crops based on the streaming data processing of satellite surveys of large areas.

The intelligent data processing system itself is a streaming data processing pipeline using a neural network (Fig. 1).



I II III IV

Fig. 1. The structure of the intelligent data processing system in the form of a streaming pipeline of data processing using a neural network.

The multi-level nature of the deep learning neural network architecture will enable the collection of multi-spectral information from satellite imagery in both spatial and temporal dimensions (I). The input data goes to the data processing pipeline (II). The proposed deep neural network (III) is trained on the basis of input data in the form of satellite images in several spectral ranges. At the output of the system, classification of plant conditions on each fragment of the land plot (IV) is performed according to the existing patterns (training sample).

The paper proposes the use of a spatio-temporal-spectral deep neural network, which captures time dependencies at several time steps in the past and future directions using hidden layers, captures spatial patterns using convolutional layers, and captures spectral patterns to determine the location of abnormal areas at the pixel level using upsampled layers.

The given structure successfully performs the tasks of collecting data streams from satellite image sources and cleaning from obstacles such as cloud shadows, different angles of the sun's zenith position, and spatial discrepancies and does not require data preprocessing. Such a network is able to generalize spectral, spatial and temporal dependencies without relying on any predefined indices.

Results. To create a powerful classifier with a relatively short training time, the convolutional neural network architecture was chosen and GoogLeNet was adopted. This architecture was proposed by Google specialists in 2014 in a research paper.

GoogleNet is trained using distributed machine learning systems with little parallelism of models and data. Asynchronous stochastic gradient descent with a momentum of 0.9 and a fixed learning rate schedule was used during training.

The results of the work of the proposed neural network are given in section III when solving the problem of classifying the condition of plants according to vegetation indices, which are determined using satellite images in several spectral ranges. In this work, the Sentinel platform was chosen as the base due to its high spatial resolution. In addition, its database contains archival data since 1999. Another advantage of this platform is its low time resolution (16 days), which is much smaller compared to reclamation cycles [3].

Access to the data received by the Sentinel satellite platform for research is provided by the Center for Satellite Land Monitoring of the Odesa State Agrarian Academy.

In fig. 2. shows the appearance of satellite images in two spectra: visible and infrared radiation.

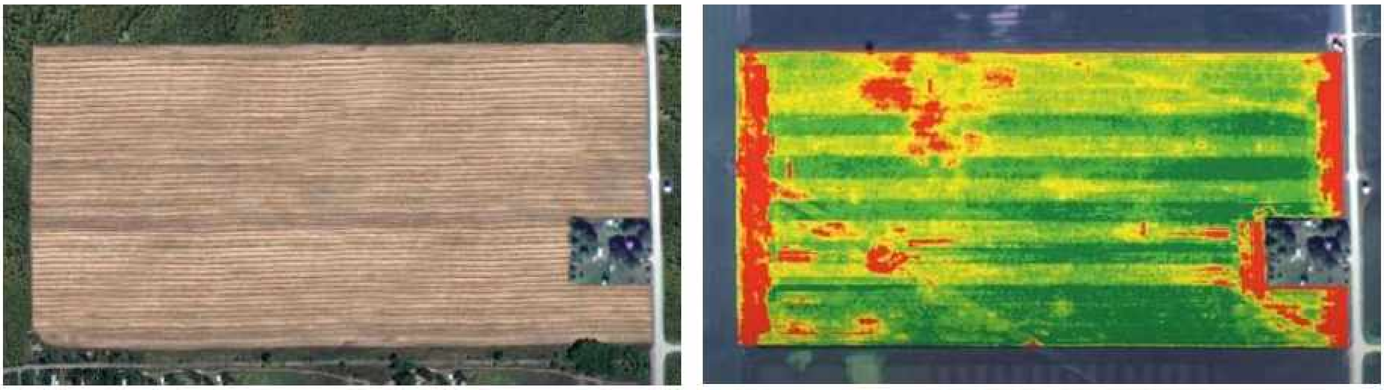


Fig. 2. View of satellite images in two spectra: visible and infrared radiation.

As vegetation indices (artificially created informative spectral characteristics) are included in the training sample, 5 known values are used in the work [5, 6].

1. Normalized Vegetation Diversity Index (NDVI) (calculated from near-infrared light reflected by vegetation and visible light; intended only to detect living vegetation, as healthier and stronger plants absorb more visible light and reflect more

near-infrared light).

2. Land Surface Water Index (LSWI).

3. Soil-adjusted vegetation index (SAVI).

4. Enhanced Vegetation Index (EVI) (uses additional wavelengths of light to reduce NDVI inaccuracies, including solar incidence angle, light distortion and refraction, and noisy ground signals).

5. Plant vegetation index (RGVI).

Another such index is the EVI, which. EVI also allows you to track changes over time.

Conclusions. The work proposes the creation of a software information system for evaluating and modeling the development of agricultural crops using streaming data from satellite surveys.

The conducted simulation of the development of agricultural crops using the streaming processing of satellite survey data demonstrates a significant increase in the efficiency and reliability of the process of diagnosing the condition of agronomic crops on the test plot in comparison with the method of field observations. The implemented approach to determining the state of plant vegetation using satellite imagery has the advantages of 16% accuracy and 5-10 times faster (according to expert estimates) compared to traditional field observations.

Although this work is focused on increasing the efficiency and reliability of the processes of diagnosing the state of agronomic crops in Ukraine, the implemented approach is sufficiently general for other regions for full national planning.

The developed system has profound implications for government officials and agricultural managers and other decision-makers who strive for sustainable agricultural production.

The work can be continued in several directions. First, the diagnostic process can be improved by using additional vegetation indices to increase the level of reliability of mapping. Secondly, the proposed assessment of the condition of plants in large areas can be applied to other, non-food crops (for example, forest fire monitoring, water resources dynamics, etc.) for sectoral and national planning.

The author's contribution can be summarized as follows. The author implemented the software part of the information system for evaluating and modeling the development of agricultural crops using streaming data from satellite imagery. As a classifier of vegetation states of agricultural plants, the use of a deep learning neural network is proposed. A training sample of satellite multispectral images was formed for the test agricultural area (Odesa region, Ovidiopol district, geocoordinates of the area: 46.287396, 30.439197) and simulation of the development of agricultural crops in this area was carried out using streaming data processing of satellite images.

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BIOCHEMICAL INDICATORS OF BLOOD SERUM AND THEIR RELATIONSHIP WITH FEEDING AND MEAT QUALITIES OF YOUNG PIGS OF DIFFERENT INTENSITY OF FORMATION IN EARLY ONTOGENESIS

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The theoretical basis for conducting research is the scientific works of domestic and foreign scientists (Susol R. L., 2018; Voloshchuk O. V., Gryshina L. P., 2017; Tsereniuk O. M., 2020; Khalak, V., Gutyj, B., Voloshchuk V. et al., 2023; Gryshina L. P., Fesenko O. G.; Berezovsky M. D., Onishchenko A. O., Vashchenko P. A., 2016; Haigh A. et. al., 2019; Lykhach V., Lykhach A., Duczmal M. et al., 2020; Lykhach V. Ya., Lugovoi S. I., Faustov R. V. et al., 2021; Siratsky Y. Z., Fedorovych, E. I., Hopka B. P. et al., 2009).

The purpose of the work is to investigate the biochemical indicators of blood serum, fattening and meat qualities of young pigs of different intensity of formation in early ontogenesis, as well as to find out the strength and direction of correlations between the specified groups of traits.

Research material and methods. The research was conducted in the conditions of the industrial complex of the "Druzhba-Kaznacheivka" of the Dnipropetrovsk region, the Scientific Research Center for Biosafety and Environmental Control of Agricultural Resources of the Dnipro State Agrarian and Economic University, as well as the husbandry laboratory of the State Institution "Institute of Grain Crops of the National Academy of Agrarian Sciences of Ukraine". The work was carried out in accordance with the program of scientific research of the National Academy of