peculiarities and possibilities of domestic agricultural production and the need to implement technological safety, check existing and implemented technologies.

The effectiveness of agrotechnical measures and cultivation technologies is determined by increasing the yield of agricultural crops. High yields of corn per silage were obtained on all fertilization options, except for the control. They were the largest with minimal tillage.

The highest productivity was noted for the combined application of mineral fertilizers, manure and straw, which is 3.3–3.9 t/ha higher than for ploughing. The introduction of mineral fertilizers ensured a yield increase of 3.1-7.8 t/ha under traditional technology and 4.3-9.4 t/ha against the background of soil protection. The yield increase from minimal tillage in this variant was within the limits of permissible deviations.

A higher yield was obtained in the variant where straw was used than when manure was used, which is explained by the introduction of nitrogen fertilizers.

With minimal processing, the level of profitability increased by 15.5 - 26.8%. The highest level of profitability was obtained on the option without fertilizers. The introduction of mineral fertilizers led to a sharp decrease in the level of profitability, due to their high cost. Of the fertilizer options, the organic-mineral fertilizer with the use of manure and straw turned out to be the most profitable (166% profitability level). The coefficient of energy efficiency - with minimal processing was also higher.

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CHARACTERISTICS OF THE UPPER, MIDDLE AND LOWER CARBONIFEROUS ROCKS OF THE SOUTH-EAST OF UKRAINE

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A large number of territories are man-made landscapes, the area of which is growing. In the Donetsk and Luhansk regions, as a result of human industrial activity, about 40% of lands with a large technogenic influence are located. Among man-made landscapes, the so-called "industrial dumps" occupy a special place in terms of prevalence and negative impact on the environment. These are dumps of overburden, waste from the extraction of building materials, dumps formed during the mining of coal and other minerals.

Man-made ecotopes are characterized by the extreme degree of violation of the interrelationships of these properties and refer to specific objects on which the settlement and growth of plants depends on many factors, one of which is the state of the edaphotope. The rate of overgrowth and soil formation on rocks depends on climatic factors, on the properties of the rocks, and on the nature of the vegetation.

One of the main functions of soils that determine soil fertility is the function of a source of nutrients and compounds. Mountain rocks have a large supply of elements of mineral nutrition of plants. This is evidenced by the overall chemical composition of coal mine waste rock: potassium 1.0 - 5.5%, phosphorus -0.1 - 0.5%, nitrogen - 0.3 - 0.6%. Not all of these elements are available to plants. Available forms are formed in the process of weathering of rocks.

The soils of the adjacent territories are ordinary chernozems with medium humus on loess-like loam. The amount of absorbed bases in the rock of coal mine dumps varies within the range of 2.75-13.8 mg-eq/100 g, of open pit dumps – 4.3 – 18.0 mg-eq/100 g. In all rocks, the absorbing complex is dominated by Ca^{2+} cation, less Mg^{2+} and a very small amount of monovalent cations (Na^{+}, K^{+}, H^{+}).

The absorption capacity in the soil is almost twice as high as in the rock of coal mines. The ratio of absorbed bases in the soil also differs from their ratio in the man-made substrates studied. Calcium cations in the soil are 7 times higher than magnesium cations and 34 times higher than monovalent cations. In coal mine dumps, this ratio varies widely. In the substrate of all studied industrial dumps, Ca2+ cations (53-86%) predominate in the absorbing complex. Nutrient content:

NO_3 – 0.2-1.1 mg/100 g of rock; P_2O_5 – 1.3-32.8 mg/100 g of rock; K_2O – 8.1-22.7 mg/100 g of rock, which indicates the passage of weathering processes.

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SOIL DEGRADATION PROCESSES OF THE CHERNIGOV REGION

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Land degradation is the deterioration of their condition, composition, functions and useful properties. Land degradation also includes the concept of soil degradation - the deterioration of useful properties and soil fertility due to the influence of natural or anthropogenic factors. Land degradation is characterized by a gradual increase in rates simultaneously with the agricultural development of the region and the state.

Among the degradation processes in recent years, erosion dominates the lands of Ukraine, which has covered 14.9 million hectares of land (32% of the total area of agricultural land), of which 10.6 million hectares are suitable for agricultural production. The main factors causing erosion processes include mechanical (agrotechnical), wind, water and chemical erosion.

Due to the lack of state funding for radical land improvement in the region, the area of acidic soils has increased by 8% in 5 years and constitutes 59% of arable land. Compared to the previous round, the soils in the Kulykivskyi district became acidified by 10%, in Prylutskyi by 3%.

As a result of the conducted research, a number of priority processes of arable land degradation were established, among which the most common are dehumification and depletion of soils to biogenic elements (>75% of the arable land area), acidification (>39%), waterlogging and waterlogging (>16%),