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ASSESSMENT OF AGROCENOSIS STATE BASED ON LANDOLT'S ECOCOENOTIC SCALES

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Purpose. Agriculture is faced with the task of obtaining the maximum amount of produce with the lowest possible labor and production costs. Successful implementation of this task is only possible with proper and comprehensive assessment of natural resources.

The state of the *Zea mays* L. agrocoenosis was assessed using ecological analysis based on Landolt's ecocoenotic scales. Weed and natural herbage stands from sample plots within the agrocoenosis were used as the study objects. Each species served as an indicator of environmental conditions, and the indicators averaged across the ecocoenotic scales reflected the state of the agrocoenosis in terms of moisture, soil fertility, light intensity, and other factors, determining the degree of anthropogenic transformation of the agrosystem. Corresponding indicators from retrospective natural phytocoenoses previously located in the study area, sessile oak forests (*Quercus petraea* Liebl.), were used as reference indicators for assessing agrocoenosis state.

Materials and methods. The research has established that the floristic wealth of the *Zea mays* L. agrocoenosis is represented by 10 species: *Solanum nigrum* L., *Convolvulus arvensis* L., *Amaranthus retroflexus* L., *Cyclachaena xanthifolia* (Nutt.) Fresen, *Euforbia helioscopia* L., *Chenopodium album* L., *Datura stramonium* L., *Portulaca oleracea* L., *Echinochloa crus-galli* (L.) P.Beauv.

Results. A comparative analysis of the agrocoenosis with the retrospective reference zone has revealed the following features.

1. The replacement of oak groves with agricultural lands leads to a fundamental change in the ecotope along three key axes: illumination ($\Delta L = +1.5$), eutrophication ($\Delta N = +1.1$) and microclimate warming ($\Delta T = +0.6$).

2. Nitrogen oversaturation from 3.1 to 4.2 points triggers the widespread development of weed species.

3. A drop in the humification index H (from 3.4 to 3.0) reflects humus mineralization and a decrease in natural fertility during plowing.

4. The conversion of forested areas to cropland leads to a shift in phytocoenosis strategy. The K-strategy, which emphasizes increased lifespan and a small number of offspring, is replaced by the R-strategy, which emphasizes rapid reproduction and numerous offspring. This creates ideal conditions for invasive species (such as Cyclachaena xanthiifolia, Portulaca oleracea, etc.).

Conclusion. To prevent further soil degradation, measures are required to introduce green manuring (to offset humus loss), optimize nitrogen fertilizer application, and establish shelterbelts to mitigate microclimatic conditions (Δ L = +1.5 and Δ T = +0.6).

Keywords: agrocoenosis, ecocoenotic scales, retrospective reference phytocoenosis.

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