

SUMMARY

DIVERSITY OF ORTHOPTERAN INSECTS (ORTHOPTERA) IN THE WINTER CEREAL CROPS OF ORGANIC AND CONVENTIONAL FARMS IN LUBELSKIE VOIVODSHIP

Key words: Orthoptera insects, organic farming, biodiversity

Diversity of Orthopteran insects is a good indicator of both grassland and arable agroecosystem status. The number and diversity of these insects depend on habitat conditions, management type and landscape structure. The aim of the research was to evaluate the diversity of Orthopteran insects in 14 organic and 14 conventional winter cereals plots located in the eastern part of Lubelskie voivodeship. The research was conducted in 2012-2015 with use of sweep net and pitfall traps methods. Number of species and individuals, Simpson's domination index and Shannon-Weiner's diversity index were used in this evaluation. The details of crop management on all cereal fields were gathered on the basis of questionnaire interviews with farmers. There was also analyzed the structure of landscape within 500 m from the studied plots. Significantly more Orthopteran species and the number of individuals, as well as higher values of diversity index and significantly lower values of domination index were noted in organic cereals. Number of years under organic management, manure application, diverse crop rotation and wheat cultivation were the most important factors positively correlated with biodiversity in organic system. The most important factors negatively correlated with biodiversity in conventional fields were mineral fertilization [NPK], especially nitrogen, pesticide application and the plot size. Intensive variants of organic plots were characterized by higher values of diversity indexes of Orthopteran insects than extensive plots. In case of conventional fields, it was on the contrary, extensive management was characterized by higher values of biodiversity indexes. Landscape structure also influenced the diversity of Orthopteran insects. Landscape was more diverse within organic fields. A high share of meadows, forests and wetlands were revealed within organic plots. Landscape structure within conventional fields had higher share of arable lands. A positive correlation between landscape diversity and diversity of Orthopteran insects was found.