

The summary of Tsipe Aavik's doctoral thesis "Plant species richness, composition and functional trait pattern in agricultural landscapes – the role of land use intensity and landscape structure"

The objective of the thesis was to analyse the relative impact of landscape structure and agricultural land use intensity on plants species richness, composition and functional trait pattern in the green veining elements of agricultural landscapes. In addition, we wanted to elucidate the role of field boundaries in maintaining the plant diversity in agricultural landscapes. We described the vegetation in agricultural landscapes with different land use intensity and landscape structure, the parameters of landscape structure and land use intensity.

We found that the availability of natural and semi-natural habitats in the landscape and agricultural land use intensity have an extensive impact on the diversity and distribution of plant functional trait composition. The loss of species in relation to habitat degradation concerns mostly those inhabiting undisturbed natural or semi-natural ecosystems, while disturbance-tolerant species predominate in highly fragmented agricultural landscapes. Increasing land use intensity and a decrease in the area of (semi-)natural habitats would likely benefit annuals, selfing species and species dispersing with seeds, while suppress perennial species and species with vegetative dispersal. Contrary to the expectations, field boundaries supported mainly disturbance-tolerant and generalist species, and less habitat specialist and rare species. However, we also found that organic farming and lower fertilizer inputs in general may significantly improve the habitat quality of field boundaries, particularly for high nature-value indicator species. In addition, we suggest that the broadening of field boundaries with permanent vegetation to at least three to four meters is obligatory for creating appropriate habitat conditions for species that are more sensitive to agricultural disturbance. We suggest that addressing the local classification of agrotolerant and high nature-value indicator species in the evaluation of biodiversity in agricultural landscapes instead of total species richness will reveal more qualitative correlations and trends between biodiversity and its drivers.