

## Epigeic predator communities' response to contrasting agricultural management systems

Intensive agriculture and expansion have led to a rapid biodiversity loss worldwide due to increasing homogenous landscapes and the utilization of agrochemicals. A significant concern is that the management associated with this change may impact species diversity, eroding their ability to provide ecosystem services. Epigeic predators are an important component of agricultural production, providing ecosystem functions such as pests and weeds control, but little is known about agricultural management's effect on the diversity of these assemblages. To address this knowledge, we examined the responses of epigeic predators to various agroecosystems to comprehend how agricultural management of grain crops influences the composition and diversity of these assemblages. Using pitfall traps and active search methods, we investigated how epigeic predator communities respond to conventional tillage (CT), integrated farming (INT), and Semi-conservation agriculture (SCA). Species diversity was analyzed using data from differently managed cultivated lands consisting of wheat, oats, maize, soybean, sunflower, and ryegrass. The diversity of epigeic predator species were found to be influenced by farming management systems and crop heterogeneity. The epigeic predatory assemblages sampled consisted of spiders, ants, and ground beetles. The total number of individuals of epigeic predators from the four agricultural management systems was 4253, of which 689 species were recorded. We collected 1689 ground beetles, 963 spiders, and 880 ants from each of the four agricultural systems. The overall predatory abundance was significantly affected by agricultural management, according to ANOVA and the Mann-Whitney test. The community composition of epigeic predatory arthropods differed significantly between agricultural management systems according to (PERMANOVA) also NMDS revealed a strong and consistent separation of the epigeic predators in either between agricultural managements SNA, CT, and INT. The beneficial effects of farming management on epigeic predator communities support the notion that promoting sustainable agricultural practices is required to improve the efficacy of agricultural pests and weeds control. This could aid in replacing anthropogenic inputs in modern agriculture while also ensuring adequate economic and food security.