

NEMATODE COMMUNITY STRUCTURE OF NATURAL AND ALTERNATIVE MANAGEMENT SYSTEMS AT THE MSU KELLOGG BIOLOGICAL STATION LTER

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The effect of alternative agricultural and native systems on soil nematode community structure was evaluated at the Michigan State University, Kellogg Biological Station, Long Term Ecological Research site (KBS/LTER) at Hickory Corners, Michigan. Soil samples were collected from organic (no-input), no-till, conventional tillage, deciduous forest and succession ecosystems (grasses and forbs) in September 2007, December 2007 and September 2008. The agricultural ecosystem samples were replicated six times and the native ecosystems 15 times in 2007 and six in 2008. Nematodes recovered were identified to the lowest possible taxon. A canonical correspondence analysis revealed that multiple taxa were site specific the forest and succession were not closely associated with each other or with the agricultural ecosystems. Ecosystem biodiversity, evenness, maturity, and structure were calculated for each ecosystem studied. The succession and forest ecosystems had, in general, greater biodiversity, evenness, maturity and structure than the agricultural ecosystems. In the September 2007 sample, the forest and the succession ecosystem had consistently the highest values for biodiversity (Shannon-Weiner and Simpson), evenness, maturity, and structure. The organic (no-input) had generally greater values than the no-till, and the conventional till corn/soybean/wheat rotations.