A Continuing Analysis of Nematode Viability: Mitigation of Agrochemical Impacts Across Different Soil Profiles Utilizing Organic Carbon and Nitrate

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Nematodes are non-segmented worms that live throughout the soil. While some nematodes can be harmful and lead to plant disease, many can be extremely beneficial. Nematodes are vital to the microfauna food web. Research near Liaohe, China (Shenyang Experimentation Station Ecology, 2003) found herbicide levels impacting nematode communities. Scientists from the Senckenberg Museum of Natural History determined impacts of soil nitrogen on mesofauna, including nematodes. Nematodes can be negatively or positively impacted by agricultural chemicals applied by farmers. Nematodes were collected using 10-15 gram samples of collected soil. Standard protocols were used for collection. These collected samples were used to determine nematode numbers. Once base levels of nematodes are established for each plot, agrochemicals were sprayed using manufacturer's instructions. Chemicals remained on the samples for 24 hours and then nematodes were recollected. Chemicals used included a fertilizer, an herbicide and a pesticide. Nematodes were collected after exposure and counted. To evaluate mitigation effectiveness, coffee grounds were added to soil samples to provide natural organic nitrogen. Charcoal was added to soil samples to incorporate organic carbon. Both elements were added after soil samples were dampened with distilled water. After 24 hours, nematodes were again collected and counted for comparison. Initial results of the mitigation tests show promise. Carbon decreased nematode loss from insecticide applications. However, carbon had no mitigation impact on herbicide treatment. Testing with nitrate applications is on-going. Initial chemical tests showed no significant variation in nitrates or phosphates between soil samples.

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