Effects of Genetically Engineered Maize and Glyphosate on Eisenia fetida Growth and Reproduction

Winters, Brett

Biotechnology has provided approximately 144 genetically engineered (GE) crops. Because GE foods have only been consumed since 1994, the long-term effects are virtually unknown. Additionally, the increased use of glyphosate herbicide, applied to Roundup Ready® GE crops, may pose health risks upon ingestion. This project tested the growth and reproduction effects of GE maize and glyphosate on Eisenia fetida. GE and non-GE maize were grown. Glyphosate was sprayed on half the Roundup Ready® and Bt/Roundup Ready® plants. On days 50 and 183, there was an increased weight in those fed Roundup Ready®, Bt/Roundup Ready®, and glyphosate-sprayed variables and a decreased weight in those fed the Bt modification. On day 183, there was a greater weight increase in populations fed GE maize with glyphosate sprayed compared to those fed non-sprayed GE maize. No differences were noted in mortality or in the number of juveniles hatching from cocoons. A soil analysis on day 106 revealed that all samples contained 38-80% decreased bacterial count compared to the control. This experiment reveals that some varieties of GE maize vegetation and glyphosate may result in weight gain upon ingestion. Results suggest the potential for GE products and glyphosate to contribute to obesity by possibly altering gut flora.

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